Officer South DSS - Contaminated Land Factual Assessment

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Officer South DSS Functional Design
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Revision no:	1	**Prepared by:**	Ranuli Goonetillake
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Jacobs Group (Australia) Pty Limited

Floor 11, 452 Flinders Street
Melbourne, VIC 3000
PO Box 312, Flinders Lane
Melbourne, VIC 8009
Australia

T +61 3 8668 3000
F +61 3 8668 3001
www.jacobs.com

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Acronyms and abbreviations

ASS	Acid Sulfate Soils
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CoPCs	Contaminants of Potential Concern
CSM	Conceptual Site Model
ha	hectare
GW	Groundwater
Jacobs	Jacobs Group (Australia) Pty Ltd
km	kilometres
m	metres
mg/L	milligrams per litre
MW	Melbourne Water
PAHs	Polycyclic Aromatic Hydrocarbons
PASS	Potential Acid Sulfate Soils
PFAS	Per- and Polyfluoroalkyl Substances
SW	Surface water
TRH	Total Recoverable Hydrocarbons

1. Introduction

Jacobs Group (Australia) Pty Ltd (Jacobs) has been engaged by Melbourne Water (the "client") to conduct an Options Assessment and Functional Design of the Officer South Development Services Schemes (DSS) located within the Officer South Employment Precinct Structure Plan (PSP) (herein referred to as the "site"). The site is comprised of 10 separate lots across the Officer South PSP which have been combined into one large assessment area for the purpose of this DSS. Each lot has consists individual land owners, tenants and land uses which have all been taken into consideration during the completion this report. The location of the site is depicted in **Figure 1-A** below.

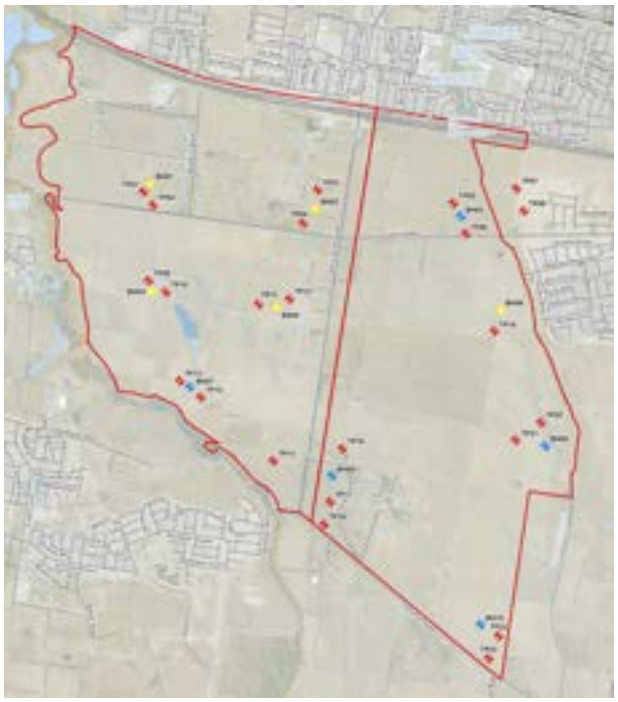


Figure 1-A Site Layout

The DSS will involve the construction of 10 retarding basins and associated waterways throughout the 10 lots that will be constructed by developers. To inform the functional design, Jacobs have been engaged by Melbourne Water to provide additional information on sodic soils, contaminated land, geotechnical and groundwater.

This report will cover the factual contaminated land assessment undertaken to assess the potential risks to human health and the environment from potential contamination of soils throughout the site. A desktop assessment (Jacobs, 2022) was previously completed as part of the contaminated land assessment and assisted with informing the design of this field assessment.

1.1 Objectives

The specific objective of the factual contaminated land assessment is to understand the potential land and groundwater contamination risks of harm associated at the site and help inform during the functional design, detailed design and construction of the waterway and drainage assets.

1.2 Scope of Works

The scope of works undertaken was informed by the outcomes of Jacobs desktop assessment (Jacobs, 2022). The scope of works comprised of the following:

- Planning for the fieldwork, including Health, Safety and Environmental (HSE) plans, fieldwork permits, review of service plans, engagement of subcontractors and internal kick off meeting;
- Site walkover and supervision of the buried services scanning at the proposed investigation locations;
- Contaminated land site investigation comprising:

- Advancement of 24 test pits and 10 boreholes at locations across Areas A-J (as shown on **Figure 1-A**).
- Installation and development of 5 groundwater bores at locations across Areas E-G, I-J (as shown on **Figure 1-A**). Further information provided in Groundwater Investigation Factual Report (Jacobs, 2023).
- Logged the observed soils samples in accordance with the Unified Soil Classification System, including observations of contamination e.g., discolouration, odour, staining etc.
- Recorded sample location data using GPS, which includes a 0.5 m accuracy.
- Analysed soil samples, including Quality Assurance / Quality Control (QA/QC) samples, for potential contaminants of concern at NATA accredited analytical laboratories (Australian Laboratory Services and Eurofins Scientific).
- Prepared this factual report to inform the environmental conditions at the site, advise the extent of soil contamination throughout site, compare results against human health and ecological risk criteria, advise the preliminary waste classification and recommend further assessment options for contaminated soils. *Noting that it was not intended that this assessment collect sufficient data to confirm waste categorisation of the soil ultimately excavated for disposal.*

1.3 Guideline Documents

The following guidance documents have been referred to as part of this assessment:

- National Environment Protection Council (1999) National Environment Protection (Assessment of Site Contamination) Amendment Measure, amended 2013 (No. 1) (NEPC 2013a);
- PFAS National Environmental Management Plan Version 2.0 (PFAS NEMP) (HEPA 2020);
- Australian Standard AS4482.1-2005, Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds (Standards Australia 2005:1)[1];
- Australian Standard AS4482.2-1999, Guide to the sampling and investigation of potentially contaminated soil Part 2: Volatile substances (Standards Australia 1999:2);
- Australian Standard AS2159 – 2009, Piling - Design and Installation (Standards Australia 2009);
- Guidelines published by EPA Victoria, including:
  - Industrial Waste Resource Guidelines (IWRG) Publication 611.2 - Asbestos Transport and Disposal, 2017 (EPA Victoria 2017:2);
  - IWRG Publication 1828.2 - Soil Hazard Categorisation and Management (2020);
  - IWRG Publication 701 - Sampling and Analysis of Waters, Wastewaters, Soils and Wastes (2009c);
  - IWRG Publication 702 - Soil Sampling (2009b);
  - Publication 655.1 - Acid Sulfate Soil and Rock (2009a);
  - Publication 1669.4 – Interim Position Statement on PFAS
  - Publication 1741.1, Industry guidance: supporting you to comply with the general environmental duty, (EPA Victoria, 2020a);
  - Publication 2008.1: Notifiable contamination guideline – Duty to notify of contaminated land, (EPA Victoria, 2020b);

[1] It is noted that this standard has been withdrawn yet is still used by industry as part of the 'state of knowledge' of contaminated land investigation.

  - Publication 1977: Assessing and controlling contaminated land risks: A guide to meeting the duty to manage for those in management or control of land, (EPA Victoria, 2021b);
  - Publication 2010: Potentially contaminated land – A guide for business, (EPA Victoria, 2021c);
  - Publication 1915: Contaminated land policy, (EPA Victoria, 2020c);
- Relevant Jacobs standard operating procedures (SOPs).

1.4 Assessment Criteria

For assessing the potential risks of harm associated with onsite soils, the impact on human and ecological health were considered with reference to health investigation levels (HILs) and ecological investigation levels (EILs) criteria taken from the National Environment Protection (Assessment of Site Contamination) Measure 1999, revised 2013 (NEPC, 2013). Jacobs considers NEPM investigation criteria related to urban residential / open space land use (i.e. HIL C) as suitable for assessing potential risks of harm associated with soils situated onsite, due to the high accessibility of land to residents and public. Similarly, adopting urban residential criteria was considered suitable for the assessment of risks to ecological health.

The potential presence of acid sulfate soils (ASS) was assessed with reference to net acidity criteria listed under Appendix 3, Table 3 of EPA Publication 655.1 (2009), *Acid Sulfate Soil and Rock*.

2. Site Background

A desktop assessment (Jacobs, 2022) was previously undertaken of the project site for the preliminary assessment of the potential contamination risks of harm to human and the environment. General site information covering the assessment of all 10 lots as part of the site has is presented in the table below.

Table 2-1: General Site Information

Feature	Details
Site Address	Officer South Employment Precinct
Land Use Zoning	The site is currently zoned as Urban Growth Zone and Public Conservation and Resource Zone
Local Government Area	Shire of Cardinia
Site Layout	All ten lots across the site largely consists of agricultural land with some private residential properties. The site is bound by Princes Freeway to the north, Lower Gum Scrub Creek to the east, Patterson Road to the south, and Cardinia Road to the west. The site includes two Biodiversity Conservation Strategy Conservation Areas along Cardinia Creek and Gum Scrub Creek (Aurecon, 2022). A BP service station is located in the north-west corner of the site.
Surface Condition	The site surface is generally flat grass land with vegetation including large trees and shrubs. Site surface is visibly used for cattle grazing by residents.
Topography	The site is generally flat between 12 – 40 metres Australian Height Datum (m AHD) sloping in a downward gradient from the northwest to the south-east of site.

A summary of the key features of the site is provide in **Table 2-2** below. Full details of the site features are presented in the desktop assessment (Jacobs, 2022).

Table 2-2: Desktop Assessment Summary

Feature	Details
Geology	The Cranbourne Geology Map (Geological Survey of Victoria,1967) indicates the shallow geology underlying the region comprises Quaternary aged silts, sand, clay and some gravel. Swamp deposits consisting of peat and clay may also be found close to waterways including Cardinia Creek and Gum Scrub Creek in the southern margins of the area. The Quaternary sediments are underlain by the Tertiary aged Western Port Group which includes the Baxter, Sherwood and Yallock Formations; the Older Volcanics; and the Childers Formation.
Acid sulfate soils	The Australian Atlas for Acid Sulfate Soils indicates the probability for encountering ASS within the study area ranges from low probability (very low confidence) to extremely low probability (very low confidence) with the exception of two localised areas in the north-west of the precinct (waterbodies along Cardinia Creek) where conditions along waterways align with a higher probability of acid sulfate soils occurrence
Hydrogeology	The Quaternary sediments form the shallow watertable aquifer, and the Tertiary formations form the regional aquifer, which is considered to be confined to semi-confined. The regional aquifer is recharged by rainfall infiltration through the overlying Quaternary sediments and flows in a southerly direction towards Western Port Bay. Southern Rural Water (2010) notes that there is little evidence of interaction between surface water and groundwater, as a result of the area being progressively drained over the last 120 years. However, it could be possible that there is some localised interaction between the shallow aquifer and creeks in the lower part of the catchment. DELWP (2019) database identifies the water table across the site to be generally less than 5m bgl and identifies the following bores onsite and down gradient of the site: ▪ 44 groundwater bores have been identified on the site with construction dates from 1929 to 1988, the use and status of these bores is unknown with the exception of 5 bores registered for stock use, however based on the age of the bores, it is likely a number of these bores have been decommissioned or are no longer in use. ▪ 8 groundwater bores have been identified down gradient to the south/ south-east (inferred groundwater flow direction) of the site. These bores were constructed between 1975 and 2018 and include the following uses; 2 stock use, 1 groundwater investigation, 1 domestic and stock and 6 unknown use.

Feature	Details		
	The bore details are provided in **Appendix B**.		
Site History	The site has not undergone significant land use changes. The site has consistently comprised of agricultural lands, farmhouses and residential homes. Surrounding land uses have changed from clear agricultural land to residential and commercial due to the development of the suburbs Officer and Officer South.		
Previous Investigations	Jacobs was not provided with any previous contaminated land investigations that have been conducted within the project area. Jacobs understands that no such investigations have been undertaken by MWC within proximity to the study area. Jacobs was provided with a previous sodic/dispersive soil and acid sulfate soil investigation by WSP (2021). The study identified the likelihood of sodic/dispersive soils and acid sulfate soils throughout the study area, their severity, and the associated implications for planned future development, in order to assist and inform the precinct structure planning for Officer South Employment Precinct. WSP (2021) concluded that: ▪ Soils are potentially dispersive and strongly sodic due to the erosion, pitting water pooling and cloudy water in some dams across the study area. ▪ There is naturally occurring acid sulfate soil (ASS) throughout the site, however the soils have limited acid generating potential.		
EPA Database Summary	The Desktop Assessment identified four EPA environmental audit sites, two sites with an EPA licence within Cardinia Shire Council municipality and one pollution abatement notice all within a 5km radius of the site.		
Contaminants of Potential Concern	Heavy metals	Organochlorine pesticides (OCP), organophosphorus pesticides (OPP),	Nutrients
	Pesticides / herbicides / fertilisers	Monocyclic aromatic hydrocarbons (MAH)	Polyaromatic hydrocarbons (PAHs)
	Benzene/toluene/ethylbenzene/xylene (BTEX)	Per- and poly-fluoroalkyl substances (PFAS)	Asbestos

3. Methodology

3.1 Preliminary Program

3.1.1 Underground Service Clearance

Underground utility detection and clearance was undertaken at all intrusive test locations prior to intrusive works on 20 January (Area A, B, F) and 24 March 2023 (Area C, D, E, I, J) under the fulltime supervision of a Jacobs personnel.

Douglas Partners engaged Underground Locating Services (ULS) to perform the scanning for the buried services using the Electromagnetic Frequency (EMF) technique. Site plans were also reviewed for all locations.

Final test locations were selected at suitable offsets from existing services.

3.2 Field Program

3.2.1 Soil Investigation Locations

The intrusive contaminated land site investigation program was undertaken by Jacobs the 23 to 30 January 2023 and 27 March to 4 April 2023 in general accordance with Jacobs fieldwork procedures.

Eight targeted sampling areas were set-out across the site. Each area has a set of test pits and one borehole.

Table 3-1 below summarises the sample location IDs, sample method and the targeted areas across site. The locations of these are presented in **Appendix A**.

Table 3-1 Sample location IDs

Area	Location ID[1]	Investigation Date	Total Depth	Remark
A	BH01	27/01/2023	8.0m	Water strike at 7.4m
	TP01	23/01/2023	3.0m	-
	TP02			--
B	BH02	27/01/2023	8.0m	Water strike at 5.7m
	TP03	24/01/2023	3.0m	-
	TP04			-
C	BH04	28/03/2023	8.0m	Monitoring well installed. Water strike at 5.6m
	TP09	30/03/2023	3.0m	-
	TP10			-
D	BH05	29/03/2023	8.0m	Water strike at 5.1m
	TP11	30/03/2023	3.0m	-
	TP12			-
E	BH07	28/03/2023	8.0m	Monitoring well installed. Water strike at 3.1m
	TP13	30/03/2023	3.0m	-
	TP14			-
F	BH09	27/01/2023	8.0m	Monitoring well installed. Dry.
	TP15	23/01/2023	3.0m	-
	TP16	24/01/2023		-
	TP17	23/01/2023		-

Area	Location ID[1]	Investigation Date	Total Depth	Remark
	TP18			-
I	BH08	27/03/2023	8.0m	Failed monitoring well installation. Water strike at 8.3m
	TP20	04/04/2023	3.0m	-
	TP21			-
J	BH10	27/03/2023	8.0m	Monitoring well installed. Water strike at 5.5m
	TP22	04/04/2023	3.0m	-
	TP23			-

[1]TP denotes test pit and BH denotes borehole

3.3 Sampling Methodology

The sampling methodology employed for these investigations are summarised in **Table 3-2** below.

Table 3-2 Summary of sampling methodology

Task	Description
General sampling activities	Soils were inspected during excavation/drilling and a soil log was prepared detailing the observed lithologies, including soil type (i.e., primary, and secondary constituents) and qualities (e.g., colour, consistency, plasticity etc). Any visual and / or olfactory signs of contamination were also noted. Fresh nitrile gloves were utilised between the collection of each sample. Samples were placed directly into appropriately preserved laboratory supplied containers, sample containers for PFAS were collected first for each sample. Containers were then stored in an insulated, ice-cooled container until delivered to the NATA-accredited laboratories under Jacobs chain-of-custody protocols within appropriate holding times.
Test pits	Test pits were advanced using an 8 tonne excavator driven by a suitably qualified operator and under the supervision of a field scientist. Test pits were advanced in 0.5 metre intervals to 1.0 metre below ground level (m bgl) and then every 1m interval to a maximum depth of 3 mbgl. Soil samples were collected directly from the excavator bucket and were collected from the middle of the bucket to avoid cross contamination from the bucket and ensure soils were from the target depth.
Boreholes	Boreholes were advanced using a drill rig operated by a suitably qualified driller and under the supervision of a field scientist. Boreholes were advanced in 0.5 metre intervals to a depth of 1 mbgl and then every 1m interval to a maximum depth of 8 mbgl. Soil samples were taken directly of the auger to avoid cross contamination. All augers were cleaned between each borehole locations and rinsates were taken at the end of each day from the auger to validate the decontamination process.

3.4 Variations to Scope

Variations to the agreed scope of work, as outlined in the proposal, are summarised in **Table 3-3** below.

Table 3-3 Variations to scope of work

Task	Variation	Rationale
Area G & H	The proposed scope of work outlined Area G & H as part of the Officer South site. These sites were to assess an additional five test pits and two boreholes. Area G & H were ultimately removed from the scope of works.	Land owners would not provide Melbourne Water access to their land.

Task	Variation	Rationale
Sample numbers	The proposed scope of works outlined a total of 68 primary samples to be assessed for either EPA 1828.2 Full Solid Suite (excl anions) and 15 Metals (NEPM 2013 Suite - incl. Digestion) and Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser. Only 59 primary samples were analysed for the above analytical program.	The number of primary samples was reduced due to the removal of locations (as above). The target analysis rates provided an estimation of the number of samples to be scheduled to enable a robust assessment of the site conditions. Due to locations reducing, the sample analysis conducted was still appropriate for the sample size.
Monitoring well BH08	The original scope of works outlined that a monitoring well was to be installed at location BH08 as per the groundwater sampling scope. BH04 was alternatively installed as a groundwater monitoring well.	During the installation process, the monitoring well was incorrectly installed resulting in the bottom sump falling off the end of the well. After consultation with the Jacobs Groundwater Team, a monitoring well was installed at BH04 in replacement BH08 to ensure accurate representation of the on-site groundwater conditions.

4. Laboratory Analytical Program

4.1 Soil Analytical Program

The analytical program implemented for this soil investigation is presented in **Table 4-1**Table 4-1 below.

Table 4-1 Soil Analytical program

Analysis	% of Samples Analysed	No. Samples analysed
EPA 1828.2 Table 2 Full Solid Suite - excl. Anions [1]	5	10
15 Metals (NEPM 2013 Suite - incl. Digestion) and Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser	29	49
PFAS - Short Suite (12 analytes)	7	12
OC/OP Pesticides	5	10
TRH/BTEXN/PAH	2	3
SPOCAS	5	10
Asbestos Identification in Soils	5	10

[1] Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium (VI), Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Tributyltin oxide, Zinc, C6-C9 petroleum hydrocarbons, C10-C36 petroleum hydrocarbons, Di (2 ethylhexyl) phthalate, 2,4-Dinitrotoluene, Ethylene diamine tetra acetic acid (EDTA), Formaldehyde, Methyl ethyl ketone, Benzene, Toluene, Ethylbenzene, Xylenes (total), Styrene, Nitrobenzene, Polycyclic aromatic hydrocarbons (PAH total), Benzo(a)pyrene, 2 Chlorophenol, 2,4-Dichlorophenol, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, Phenols (total, non-halogenated), Cresol (total), Polychlorinated biphenyls, Hexachlorobutadiene, Vinyl Chloride, Carbon tetrachloride, Chlorobenzene, Chloroform, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethene, 1-2-Dichloroethene, Dichloromethane (methylene chloride), 1,1,1,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethane, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethene, Tetrachloroethene, Trichlorobenzene (total), Aldrin + dieldrin, DDT + DDD + DDE, 2,4 -D, Chlordane, Heptachlor and Other organochlorine pesticides

4.2 Groundwater Analytical Program

The analytical program implemented for the groundwater investigation is presented in **Table 4-2** below. Further details are provided in **Section 1.6** the Groundwater Investigation Factual Report (Jacobs, 2023).

Table 4-2: Groundwater Analytical Program

Analysis	% of Samples Analysed	No. Samples analysed
Total Recoverable Hydrocarbons, BTEXN, PAH, 8 metals	100	3
TDS, cations, inions, nutrients	100	3
PFAS - Short Suite (12 analytes)	100	3

5. Adopted Assessment Criteria

A summary of the assessment criteria adopted for this investigation are summarised in **Table 5-1** below.

Table 5-1 Adopted assessment criteria

Type	Assessment criteria	Source	Relevant CoPCs
Human health	Health investigation level (HIL) for soil contaminants – Urban Residential/Public Open Space (C)	NEPM 2013 Table 1A (1)	Metals, PAHs, Phenols, OCPs, OPPs, PCBs, Herbicides
	PFAS NEMP Health Investigation Levels (Public open space) (HIL C)	NEMP 2020, Table 2	PFAS
	Interim position statement on PFAS	EPA Vic 1669.4	PFAS
Ecological	Ecological Investigation Levels (EILs) – Urban Residential (C), aged	NEPM 2013 Table 1B (1-4)	Metals and naphthalene
	Ecological screening levels (ESLs) – Urban Residential/Public Open Space, Coarse Soil	NEPM 2013 Table 1B (5)	TRH and BTEX
	PFAS NEMP ecological guidelines – direct exposure	NEMP 2020, Table 3	PFAS
	PFAS NEMP ecological guidelines – indirect exposure	NEMP 2020, Table 3	PFAS
Aesthetics, Buildings and Structures	Management Limits (MLs) – Residential/parkland/public open space, coarse soil	NEPM 2013 Table 1B (7)	TRH
	Maintenance of buildings and structures	AS2159-2009	Sulphate and pH
Offsite Disposal Options for Excavated Spoil	IWRG 1828.2 Fill material upper limit	IWRG1828.2 Table 3	Heavy metals, inorganics, TPHs, PAHs, PCBs
Acid Sulfate Soils	Texture based action criteria for classification of acid sulfate soil: sands to loamy sands	EPA 655.1 Acid sulfate soil and rock	Acid sulfate

6. Results of Investigation

6.1 Field Observations

Jacobs personnel completed the field sampling program between the 23 to 30 January 2023 and 27 March to 4 April 2023. A total of 170 primary samples were collected across 18 test pits and 8 borehole locations throughout the site in accordance with targeted sampling methodology outlined in **Section 3.3**.

Detailed bore logs for all test pit and borehole locations can be found in **Appendix C.**

6.1.1 Soils

The geological unit identified following top soil to 0.5 bgl was alluvial silts. Between 0.5 – 8.0 m bgl the geological unit identified was alluvial sands and found to consist of a multitude of soil horizons. The surface soils to 0.5m bgl across site comprised of predominantly pale brown silts with low plasticity, trace clays, trace roots and organics present. Soils were dry and soft and often had organic odours. Between 0.5 – 2.0 m bgl, the clay and sand content increased across site. Soils were often classified as silty clays or clayey silts with sands, ranging from pale grey to dark browns, firm to very stiff, and medium to high plasticity. At all locations, the sand content in the soil increased after 2.0 m bgl, with soils being classified as sandy clays, clayey sands or clays/silts with sand present. Soils were often pale grey/brown with orange or orange red mottling. No signs of fill were noted throughout soil sampling.

Between 2.0 – 5.0 m bgl there was an increase in sand content across the site. Soils were found to be pale grey or brown with orange mottling. Sands were medium to coarse and medium dense to firm. After 5.0m bgl soils were often classified as sandy clays or clayey sands, pale to dark grey with orange or orange mottling, medium to coarse, poorly graded, medium dense to firm. Most locations were also moist or wet between 5.0 – 8.0 m bgl with the exception of BH09. Between 5.0 – 8.0m bgl soils across the site predominantly consisted of very light grey with orange mottling sandy clays, clayey sands or silty clays. No visual or olfactory signs of contamination were prevalent at the drilled locations across the site. All boreholes reached the target depth of 8.0m bgl.

6.1.2 Groundwater

Free groundwater was encountered between 3.0 – 8.0 m bgl at all locations with the exception of BH09 when drilling. Groundwater levels after installing the monitoring wells were at approximately 2.5 – 5.4 m bgl across the site. Groundwater levels between 26 – 28 April during the groundwater sampling event were between 1.8 – 2.5 m bgl across site. No groundwater or free groundwater was encountered at BH09. Further information regarding groundwater and well installation details are provided in the Groundwater Investigation Factual Report (Jacobs, 2023).

6.2 Soil Analytical Results

A total of 59 primary soil samples were selected for analysis. Results were compared to adopted assessment criteria with respect to risk of harm to human health and ecological risk, aesthetic buildings and structures and waste soil classification.

Soil sample results are presented with adopted assessment criteria in **Appendix D.** Corresponding soil laboratory analysis reports are provided in **Appendix E.**

6.2.1 On-site

6.2.1.1 Human Health and Ecological Assessment Criteria

To assess the potential for the impact to human health and the environment the results were compared to the human health and ecological guidelines as described in **Section 5.**

The results are summarised below:

- All soil results reported below the adopted human health (HILs, MLs) and ecological (EILs, ESLs) guideline values.
- No exceedances of the EPA 1669.4 interim position criteria on PFAS were reported.
- A number of detectable concentrations were observed including metals, inorganics, TRH/ TPH, SVOCs and PFOS. All detectable concentrations were below the NEPM (2013), NEMP (2020) and EPA VIC 1669.4 adopted screening criteria.

6.2.1.2 Asbestos

Ten samples were collected from 7 borehole and 3 test pit locations (BH01, BH02, BH04, BH05, BH07, BH08, BH10, TP01, TP17 and TP22) and underwent screening for asbestos as outlined by Table 7 Asbestos HSLs NEPM (2013). The results are summarised below:

- No asbestos containing material was identified in any of the soil samples screened across the site.

6.2.1.3 Aesthetics, Buildings and Structures Assessment Criteria

To assess the potential for the impact on aesthetics and building and structures, the results were compared to the guidelines described in **Section 5.**

The results are summarised below:

- Exceedances of AS 2159-2009 Buildings & Structures for pH (CaCl2) at BH02_0.1 (4.6), BH04_0.1 (4.6), BH05_0.1 (4.9), BH07_0.1 (5.4), BH10_0.1 (5.2), TP01_0.1 (5.2), TP17_0.1 (4.5) and TP22_0.1 (5.4).

6.2.2 Offsite Disposal Options for Excavated Spoil

To evaluate offsite disposal options, the results of the soil samples were compared to the EPA Publication 1828.2.

The results are summarised below:

- All soil results were below the Fill Material upper limit.

6.2.3 Laboratory Analytical Results for Acid Sulfate Soils

Eleven samples were collected from 7 borehole and 4 test pit locations (BH01, BH02, BH04, BH05, BH07, BH08, BH10, TP01, TP16, TP17 and TP22) and underwent initial screening for likely presence of ASS or PASS as outlined in EPA Publication 655.1 (EPA, 2009) outlined in **Section 5.**

To adopt the most conservative approach as the actual distribution of clays in the soils across site in unknown the soil texture classification used to assess analytical results was sands to loamy sands from Table 3 EPA Publication 655.1 (EPA, 2009).

The results are summarised below:

- Exceedances of texture-based action criteria for classification of acid sulfate soil at BH01_1.0 (30 mole H+/t, 0.05 %S), BH02_1.0 (33 mole H+/t, 0.05 %S), BH07_1.0 (23 mole H+/t, 0.04 %S), BH08_1.0 (40 mole H+/t, 0.06 %S), BH10_1.0 (36 mole H+/t, 0.06 %S), TP01_0.5 (24 mole H+/t, 0.04 %S), TP17_1.0 (25 mole H+/t, 0.04 %S),

7. Quality Assurance and Quality Control

7.1 Decontamination procedure

Sufficient measures were undertaken to avoid usage of reusable equipment during sampling in this assessment. During the drilling process all augers were cleaned between each borehole location and rinsates were taken at the end of each day from the auger to validate the decontamination process.

7.2 Per- and Poly-Fluoroalkyl Substances (PFAS) Specific Protocols

PFAS sampling was conducted in accordance with Jacobs Per- and Poly-Fluoroalkyl Substances (PFAS) Sampling Guidance.

For the collection of PFAS samples, it was ensured that all field clothing was washed a minimum of six times after purchase before use for sampling. Where practical; polyethylene, vinyl, or PVC wet weather clothing was worn when sampling during wet weather. HDPE, silicone or polypropylene based field equipment was used where practical. Laboratory prepared sample jars were made of PFAS free materials and fitted with HDPE lined lids. It was further ensured laboratory prepared deionised water was also PFAS free and provided in containers that are PFAS free.

Use of aluminium foil, tyvex, self-sticking notes, waterproof paper, notebooks, labels, detergents, decontamination solutions, reusable chemical or gel ice packs, marker pens or other products which are not known to be PFAS free were avoided during sampling.

7.3 Data Quality Analysis

For the purpose of assessing the quality of data presented in this report, QA/QC procedures were maintained both in-field (i.e. the collection of blind duplicates and split duplicates) and within the laboratory. It is considered that the QA/QC program was in general accordance with recommended good practice (e.g. Australian Standard AS4482.1-2005). The data is considered sufficiently reliable for the purpose for which it has been obtained and used.

All reasonable effort was made to limit potential smearing, cross contamination, or loss of volatile contaminants during this sampling. The selective and targeted nature of this (or any other assessment program) where limited sampling is conducted, means that there is a degree of uncertainty in the conclusions drawn from the data obtained.

An assessment of the data quality is summarised in **Table 7-1 b**elow:

Table 7-1: Data quality analysis

Requirement	Samples
Quality Assurance/Quality Control (QA/QC) field samples	Four duplicate and triplicate sample sets were collected as part of the sampling program. All RPD values reported below the acceptable criteria, with the exceptions of manganese for triplicate sample OS_QC11_230123 and vanadium for triplicate sample OS_QC12_230124. These values were in the same order of magnitude, below all adopted assessment criteria guidelines and not considered to impact the results.
Sample Preservation	The selection of appropriate sample containers, preservation procedures, storage requirements and holding times were in accordance with those recommended within Australian Standards (AS/NZS 5667.1:1998; AS 4482.1 and AS 4482.2). During sampling, soil jars were filled to minimise headspace.
Samples delivered to laboratories within holding times	All samples were extracted and analysed within recommended holding times.
Rinsates	Eight rinsates were collected and analysed to assess the adequacy of decontamination procedures, with a three-stage wash undertaken on borehole auger equipment between all locations and prior to collection of rinsates. All rinsate analytical results were below laboratory limits of reporting (LOR)

8. Conclusions

Based on the findings the following conclusions are provided in related to the contaminated land factual assessment for Officer South DSS:

- All soil results reported below the adopted human health (HILs, MLs) and ecological (EILs, ESLs) guideline values.
- No asbestos containing material was identified in any of the soil samples screened across the site.
- Exceedances of AS2159-2009 Buildings & Structures for pH (CaCl2) was reported at the following 8 locations BH020.1 (4.6), BH04_0.1 (4.6), BH05_0.1 (4.9), BH07_0.1 (5.4), BH10_0.1 (5.2), TP01_0.1 (5.2), TP17_0.1 (4.5) and TP22_0.1 (5.4) across site.
- All soil results were below the adopted off site disposal options for excavated spoil.
- The results indicated that soils across the site with the exception of Area C and D are likely to contain ASS, as indicated by SPOCAS suite analysis and the EPA soil texture classification guidelines which may pose a risk to on-site workers.
- All detected analyte concentrations were reported as below the EPA1828.2 upper limits for Fill Material. These results indicate that in situ soils onsite can be preliminarily classified as Fill Material for the purposes of assessing potential future offsite disposal options of excavated soils. It is noted that this assessment was preliminary to inform the construction design and further in situ assessment of onsite soils is required prior to offsite disposal in accordance with EPA 1828.2 sample density requirements. *The off-site disposal assessment was preliminary only to inform the construction design and may differ upon the actual material* removed.

8.1 Recommendations

Based on the findings the following management options are recommended:

- Onsite soils are considered suitable for the proposed land use of the design project, and to pose a low risk of causing harm to human health or the environment due to contamination, based on the sampling conducted as part of this assessment. It is acknowledged that the potential remains for unexpected contamination to be encountered in areas is not directly covered by the assessment locations.
- A standalone Construction Environmental Management Plan (CEMP) is recommended for documenting and implementing the recommended management and mitigation measures in this report. The potential for undiscovered soil contamination to be present within the excavation zone should be noted within the CEMP and include an appropriate unexpected finds procedure. The CEMP should include, as a prudent measure, provision for management and disposal of ASS if required, including management measure during construction as required to avoid adverse environmental impacts.
- The likely presence of ASS within soil at sites may result in the oxidation of sulfides at the time of excavation and result in the production of hazardous sulfuric acid. Therefore, excavated soils are to be stockpiled away from sensitive environmental receptors and on a resistant surface and covered with HDPE prior to classification and disposal.
- Excavated materials requiring off-site disposal during construction should be subject to further classification in accordance with EPA Publication 1828.2 sampling density requirements.
- The CEMP will further specify the requirements for appropriate stockpiling of any waste materials generated, or encountered during further works, and any classified waste will be disposed off-site to a licenced waste facility. No waste material will be stored on site permanently unless it is categorised as “Fill Material” per EPA Publication 1828.2.

9. References

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Appendix A. Site Layout and Sample IDs

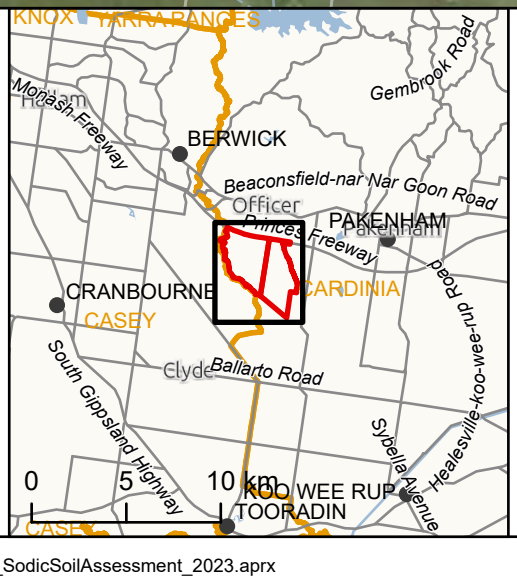
Ground Investigation Locations

Officer South Contaminated Land Soils Assessment



Legend

- Borehole locations with groundwater well
- Test pit locations
- Borehole locations
- Precinct Boundary
- Railway
- Major Road
- Minor Road
- Channel / Drains
- River / Streams
- Watercourse Area
- Lake
- Wetland / Swamp
- Cadastre
- LGA Boundary



N

IA5000EI

GDA 1994 MGA Zone 55

0 200 400 600 800

Metres

DATA SOURCES
© Commonwealth of Australia (Geoscience Australia) 2006 Geodata Topo 250k Series 3; Vicmap Data © State of Victoria 2021; MetroMap 2020; Jacobs 2022.

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Path: \\ausyd0vs01\GISWork\VIC_IA500000_MW\IA5000EI\Geospatial\Apps\ArcPro\Figures\IA5000EI_SodicSoilAssessment\IA5000EI_SodicSoilAssessment_2023.aprx

Appendix B. Bore Use

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On-Site

Bore ID	Parish	Parish No	Easting (MGA)	Northing (MGA)	Elevation (digitised)	Constructed date	Constructed depth	Bore type	Use 1	Monitoring Status	Driller	Drilling Method
325893	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1929	106.68	Groundwater		N	NOT KNOWN	
325894	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	15.24	Groundwater		N	NOT KNOWN	
325895	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	12.49	Groundwater		N	NOT KNOWN	
325896	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	10.05	Groundwater		N	NOT KNOWN	
325897	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	16.15	Groundwater		N	NOT KNOWN	
325898	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	10.6	Groundwater		N	NOT KNOWN	
325899	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	15.24	Groundwater		N	NOT KNOWN	
325900	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	15.24	Groundwater		N	NOT KNOWN	
325901	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	10.66	Groundwater		N	NOT KNOWN	
325902	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	15.24	Groundwater		N	NOT KNOWN	
325903	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	15.24	Groundwater		N	NOT KNOWN	
325904	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	6.09	Groundwater		N	NOT KNOWN	
325905	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	6.4	Groundwater		N	NOT KNOWN	
325906	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1952	8.38	Groundwater		N	NOT KNOWN	
325907	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	12.8	Groundwater		N	NOT KNOWN	
325908	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	9.75	Groundwater		N	NOT KNOWN	
325909	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	11.27	Groundwater		N	NOT KNOWN	
325910	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	11.27	Groundwater		N	NOT KNOWN	
325911	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	8.22	Groundwater		N	NOT KNOWN	
325912	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	12.8	Groundwater		N	NOT KNOWN	
325913	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	11.27	Groundwater		N	NOT KNOWN	
325914	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	11.27	Groundwater		N	NOT KNOWN	
325915	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	14.32	Groundwater		N	NOT KNOWN	
325916	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	12.8	Groundwater		N	NOT KNOWN	
325917	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	9.75	Groundwater		N	NOT KNOWN	
325918	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	12.8	Groundwater		N	NOT KNOWN	
325919	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	11.27	Groundwater		N	NOT KNOWN	
325920	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	9.75	Groundwater		N	NOT KNOWN	
325921	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	9.75	Groundwater		N	NOT KNOWN	
325922	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	11.27	Groundwater		N	NOT KNOWN	
325923	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	11.27	Groundwater		N	NOT KNOWN	
325924	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1964	11.27	Groundwater		N	NOT KNOWN	
325929	PAKENHAM	3363	359268.2	5784318.1	32.09	31/12/1970	11.89	Groundwater		N	C R B	
87412	PAKENHAM	3363	360142.2	5783307.1	25.18	14/11/1970	31.39	Groundwater		P	JOHNSON F	NOT KNOWN
87414	PAKENHAM	3363	361684.2	5782283.1	17.46	31/03/1971	13.1	Groundwater		P	JOHNSON F	CABLE TOOL
87432	PAKENHAM	3363	361033.2	5781179.1	14.83	28/12/1978	18.89	Groundwater		P	JOHNSON F	CABLE TOOL
87435	PAKENHAM	3363	359813.2	5783944.1	28.54	25/05/1979	61	Groundwater		P	GRANDE A	ROTARY
87462	PAKENHAM	3363	360683.2	5781704.1	17.56	18/10/1988	24.35	Groundwater		P	GRAY R G	CABLE TOOL
87487	PAKENHAM	3363	360627.2	5781176.1	16.7	1/01/1988	41	Groundwater	Stock	N	NOT KNOWN	NOT KNOWN
87488	PAKENHAM	3363	359865.2	5784422.1	30.55	1/01/1988	18	Groundwater	Stock	N	NOT KNOWN	NOT KNOWN
87493	PAKENHAM	3363	360466.2	5783544.1	25.08	1/01/1988	6	Groundwater	Stock	N	NOT KNOWN	NOT KNOWN
87494	PAKENHAM	3363	360864.2	5782571.1	20.41	1/01/1988	10	Groundwater	Stock	N	NOT KNOWN	NOT KNOWN
87495	PAKENHAM	3363	358915.2	5783568.1	30.91	1/01/1988	12	Groundwater	Stock	N	NOT KNOWN	NOT KNOWN
WRK983582	PAKENHAM	3363	359940	5784388	30.01	0000-00-00 00:00:00	25	Groundwater		N		

Off-site (Inferred down-gradient)

133089	PAKENHAM	3363	361033.2	5780564.1	13.28	3/02/1998	43	Groundwater		N	GRAY M J	CABLE TOOL
57356	CRANBOURNE	2462	358653.2	5782194.1	25.71	1/09/1975	63.75	Groundwater		P	DOHERTY K R	CABLE TOOL
87443	PAKENHAM	3363	361726.2	5780619.1	11.26	12/01/1981	17	Groundwater		P	GRAY R G	CABLE TOOL
87444	PAKENHAM	3363	360053.2	5781384.1	18.54	20/08/1980	38.9	Groundwater		N	GLEESON M J	CABLE TOOL
87499	PAKENHAM	3363	359717.2	5781546.1	20.11	1/01/1988	0	Groundwater	Stock	N	NOT KNOWN	NOT KNOWN
87503	PAKENHAM	3363	361413.2	5780496.1	11.98	1/01/1988	0	Groundwater	Stock	N	NOT KNOWN	NOT KNOWN
WRK106356			359417	5781572		23/05/2018	8.5	Groundwater	Groundwater Investigation	N	JEREMY NG	HAND AUGER
WRK960659	PAKENHAM	3363	361514.2	5780578.1	11.96	10/01/2003	30.5	Groundwater	Domestic and Stock	N	GRAY	CABLE TOOL
WRK990111	PAKENHAM	3363	359890	5781320	18.81	0000-00-00 00:00:00	150	Groundwater		N		

Appendix C. Bore Logs

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ENVIRONMENTAL WELL BH01

PROJECT NUMBER IA5000EI	**DRILLING COMPANY** Supreme Drilling	**COORDINATES** 358688.537, 5784136.845
PROJECT NAME Officer South DSS Functional D	**DRILLER**	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Geoprobe 7822DT	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Solid flight auger	**WELL TOC**
DRILLING DATE 27 Jan 2023 08:35AM	**TOTAL DEPTH** 8.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER** 50mm	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING** -	**SCREEN** -

COMMENTS

Depth (m)	Samples	Water	Well Installation Details	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_BH01_0.1_20230127				SILT , no plasticity, pale grey, with sand, trace roots, dry, very soft	D	VS	No staining, No odour, very fine	
0.5					SILTY CLAY , medium plasticity, pale brown with brown mottling, trace rootlets, slightly moist, stiff	SM	St		-0.5
1	OS_BH01_1.0_20230127				at 1.5m pale grey brown, trace sand. At 2.0m occasional bands of sandy CLAY				-1
1.5									-1.5
2									-2
2.5									-2.5
3									-3
3.5									-3.5
4									-4
4.5									-4.5
5									-5
5.5					CLAYEY SAND , (SP), medium to coarse grained, poorly graded, subangular, pale grey with orange and grey mottling, slightly moist, medium dense	SM	MD	bands of very fine pale grey sands between 6.13 - 6.55m	-5.5
6									-6
6.5					SANDY CLAY , low plasticity, pale grey with pale brown, trace gravel, moist, firm	M	F		-6.5
7									-7
7.5		▽			SILTY CLAY, pale grey with orange mottling, high plasticity, wet, firm	W	L	water strike	-7.5
8					Termination Depth at: 8.00m. Target depth				-8
8.5									-8.5

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ENVIRONMENTAL WELL BH02

PROJECT NUMBER IA5000EI	**DRILLING COMPANY** Supreme Drilling	**COORDINATES** 359897.875, 5783964.954
PROJECT NAME Officer South DSS Functional D	**DRILLER** -	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Geoprobe 7822DT	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Solid flight auger	**WELL TOC**
DRILLING DATE 30 Jan 2023 08:00AM	**TOTAL DEPTH** 8.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER** 50mm	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING** -	**SCREEN** -

COMMENTS

Depth (m)	Samples	Water	Well Installation Details	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_BH02_0.1_20230127				SILT , low plasticity, pale brown grey, trace clay, trace roots, dry, soft	D	S		0
						D	S	No staining, No odour	
0.5					SILT , low plasticity, pale brown grey, some clay, trace sand, dry, soft	SM	St	No staining, No odour	-0.5
1	OS_BH02_1.0_20230127				SILTY CLAY , medium plasticity, brown with, trace sand, slightly moist, stiff				-1
1.5									-1.5
2					colour change to orange brown				-2
2.5									-2.5
3									-3
3.5					CLAY , medium plasticity, orange with pale grey brown, trace sand, slightly moist, stiff	SM	St		-3.5
4					colour change to pale grey				-4
					colour change to dark orange brown				
4.5					CLAY , medium plasticity, brown with pale grey brown, trace sand, slightly moist, stiff	SM	St		-4.5
5									-5
5.5		▽			CLAYEY SAND , (SP), medium grained, poorly graded, subangular, pale grey with orange mottling, moist, dense	M	D		-5.5
6					CLAYEY SAND , (SP), medium grained, poorly graded, subangular, pale grey with orange brown, moist, dense	M	D		-6
						W	D		
6.5					CLAYEY SAND ,(SP), no plasticity, medium grained, poorly graded, subangular, very light grey with very light yellow brown, wet, dense				-6.5
7					SAND , (SP), fine and coarse grained, poorly graded, subrounded, grey with white mottling, wet, medium dense	W	MD	No staining, No odour	-7
7.5									-7.5
8					Termination Depth at: 8.00m. Target depth				-8
8.5									-8.5

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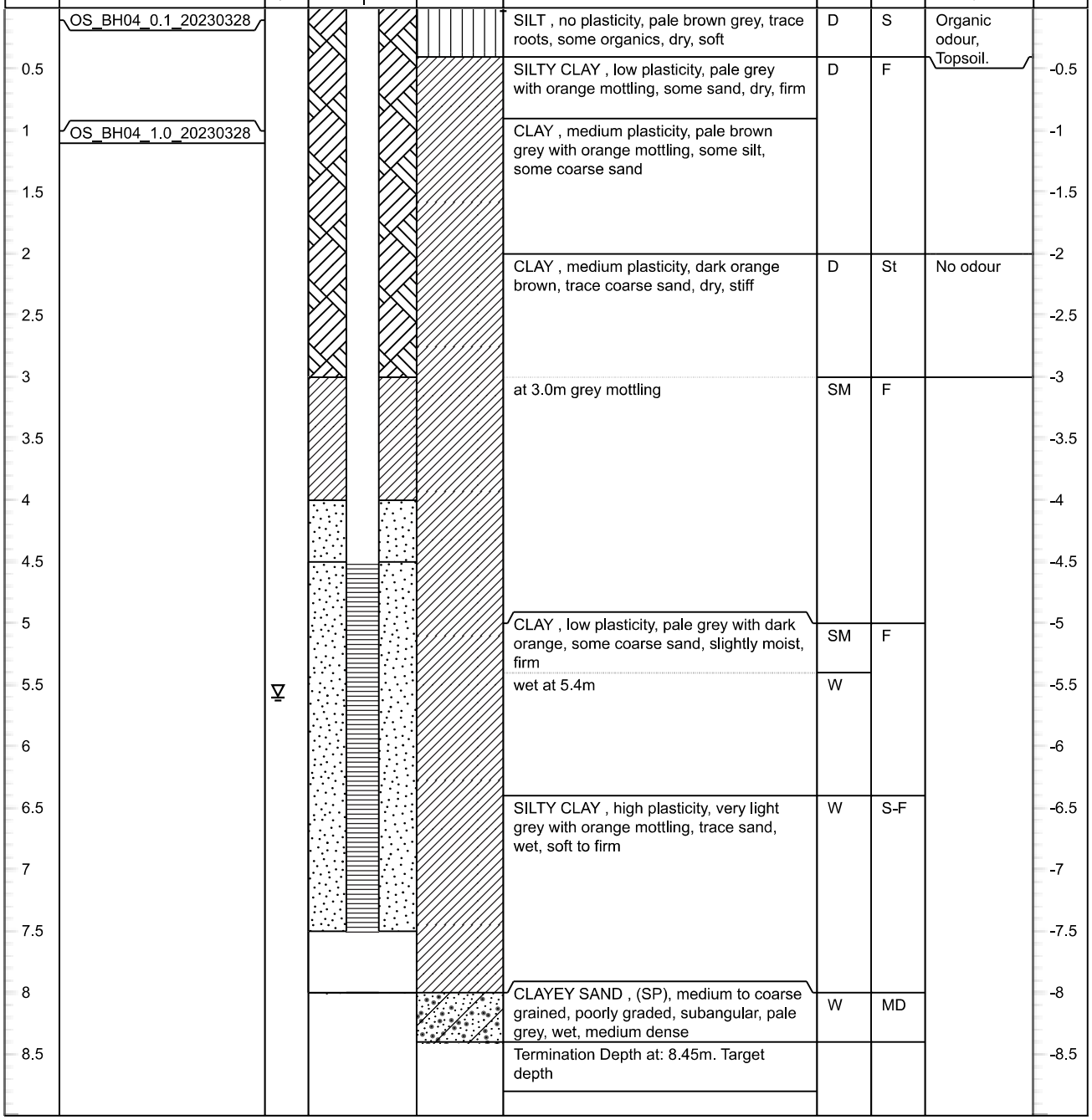
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ENVIRONMENTAL WELL BH04

PROJECT NUMBER IA5000EI	**DRILLING COMPANY** Supreme Drilling	**COORDINATES** 360061.247, 5783694.063
PROJECT NAME Officer South DSS Functional D	**DRILLER**	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Geoprobe 7822DT	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Solid flight auger	**WELL TOC**
DRILLING DATE 28 Mar 2023 01:30PM	**TOTAL DEPTH** 8.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER** 50mm	**CHECKED BY** RG

COMPLETION cement bentonite grout	**CASING**	**SCREEN**

COMMENTS



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ENVIRONMENTAL WELL BH05

PROJECT NUMBER IA5000EI	**DRILLING COMPANY** Supreme Drilling	**COORDINATES** 359596.356, 5783244.817
PROJECT NAME Officer South DSS Functional D	**DRILLER**	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Geoprobe 7822DT	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Solid flight auger	**WELL TOC**
DRILLING DATE 29 Mar 2023 08:00AM	**TOTAL DEPTH** 8.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER** 50mm	**CHECKED BY** RG

COMPLETION cement bentonite grout	**CASING**	**SCREEN**

COMMENTS

Depth (m)	Samples	Water	Well Installation Details	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_BH05_0.1_20230329				SILT , no plasticity, pale brown grey, trace fine sand, some roots, trace organics, dry, soft	D	S	Organic odour	0
0.5					SILT , low plasticity, pale brown grey with orange mottling, some silty clay, dry, firm to soft	D	F-S	Dark brown mottling.	-0.5
1	OS_BH05_1.0_20230329				CLAY , low plasticity, pale brown grey with orange mottling, trace medium sand, dry, firm	D	F	White sandy pockets.	-1
1.5					at 1.0m consistency change to medium plasticity, slightly moist, soft to firm	SM	S-F	White sands.	-1.5
2									-2
2.5					SILTY CLAY , medium plasticity, pale orange brown, trace fine to medium gravel, slightly moist, firm	SM	F	black sands	-2.5
3									-3
3.5									-3.5
4									-4
4.5					at 4.5m consistency change to soft to firm		Soft		-4.5
5		▽			CLAY , medium plasticity, pale orange with grey mottling, moist to slightly moist, stiff to very stiff	M-SM	St-VS		-5
5.5					CLAYEY SAND , (SP), medium to coarse grained, poorly graded, subangular, pale grey, wet	W	F	No odour	-5.5
6					SANDY CLAY , medium plasticity, pale grey with dark orange mottling, wet, firm to stiff				-6
6.5									-6.5
7								Increasing sand content	-7
7.5					increase in silt and sand at 7.5m, very soft		Soft		-7.5
8					Termination Depth at: 8.00m. Target depth				-8
8.5									-8.5

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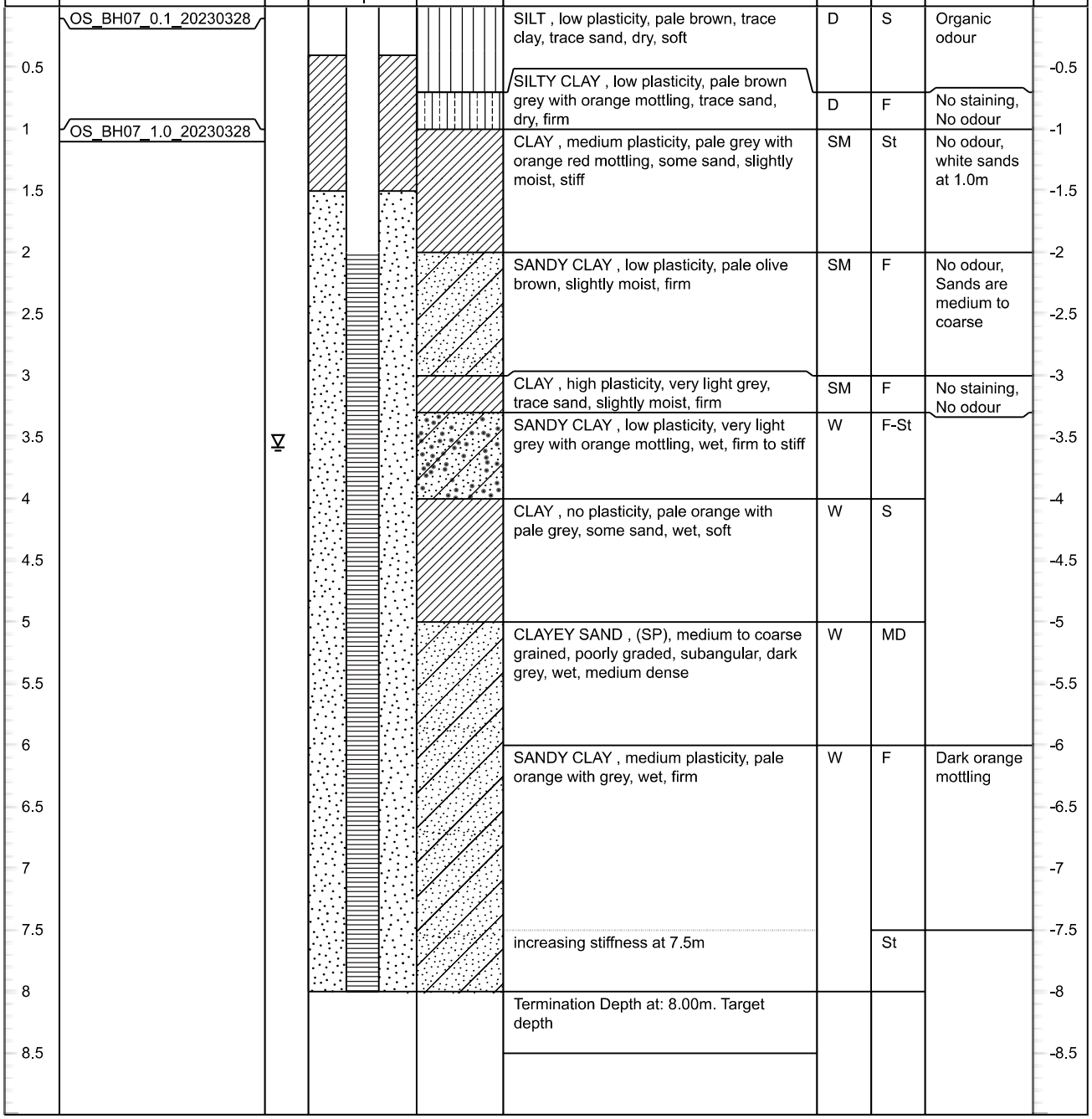
Jacobs

ENVIRONMENTAL WELL BH07

PROJECT NUMBER IA5000EI	**DRILLING COMPANY** Supreme Drilling	**COORDINATES** 358820.132, 5782664.631
PROJECT NAME Officer South DSS Functional D	**DRILLER**	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Geoprobe 7822DT	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Solid flight auger	**WELL TOC**
DRILLING DATE 28 Mar 2023 07:47AM	**TOTAL DEPTH** 8.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER** 50mm	**CHECKED BY** RG

COMPLETION cement bentonite grout	**CASING**	**SCREEN**

COMMENTS



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ENVIRONMENTAL WELL BH08

PROJECT NUMBER IA5000EI	**DRILLING COMPANY** Supreme Drilling	**COORDINATES** 361599.502, 5782234.102
PROJECT NAME Officer South DSS Functional D	**DRILLER**	**COORD SYS** GDA94_MGA_zone_55
CLIENT	**DRILL RIG** Geoprobe 7822DT	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Solid flight auger	**WELL TOC**
DRILLING DATE 27 Mar 2023 02:30PM - 27 Mar :	**TOTAL DEPTH** 8.0m	**LOGGED BY** Ranuli Goonetillake
LICENCE NO.	**DIAMETER** 50mm	**CHECKED BY**

COMPLETION cement bentonite grout | **CASING** | **SCREEN**

COMMENTS SPT from 8.0 - 8.3m was wet.

Depth (m)	Samples	Water	Well Installation Details	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_BH08_0.1_20230327				SILT , no plasticity, pale brown, trace clay, some organics, dry, soft	D	S	Organic odour, topsoil.	0
0.5					SILT , no plasticity, pale brown grey, trace gravel, some clay, some organics, dry, soft	D	S	Organic odour	-0.5
1	OS_BH08_1.0_20230327				CLAY , low plasticity, dark brown with orange mottling, some medium sand, slightly moist, firm	SM	F	No staining, No odour	-1
1.5					SANDY CLAY , medium plasticity, pale grey with orange, slightly moist, firm	SM	F	No staining, No odour, dark grey mottling	-1.5
2					colour change at 2.0m to pale grey				-2
2.5									-2.5
3					CLAY , low plasticity, orange brown with dark orange mottling, dry, stiff	D	St	No staining, No odour, Light grey sand pockets. Dark grey mottling present	-3
3.5									-3.5
4									-4
4.5									-4.5
5									-5
5.5									-5.5
6					CLAY , high plasticity, pale brown, trace fine sand, slightly moist, soft	SM	S	No staining, No odour	-6
6.5									-6.5
7					SILTY CLAY, high plasticity, very light grey, trace sand, firm		F	No staining, No odour, Grey mottling	-7
7.5									-7.5
8					Termination Depth at: 8.00m. Target depth				-8
8.5		▽							-8.5

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ENVIRONMENTAL WELL BH09

PROJECT NUMBER IA5000EI	**DRILLING COMPANY** Supreme Drilling	**COORDINATES** 359641.007, 5781879.48
PROJECT NAME Officer South DSS Functional D	**DRILLER**	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Geoprobe 7822DT	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Solid flight auger	**WELL TOC**
DRILLING DATE 27 Jan 2023 01:31PM	**TOTAL DEPTH** 8.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER** 50mm	**CHECKED BY** RG

COMPLETION spoil returned to hole	**CASING**	**SCREEN**

COMMENTS

Depth (m)	Samples	Water	Well Installation Details	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_BH09_0.1_20230127				SILT , no plasticity, dark brown, some roots, some rock fragments, dry, soft	D	S	No staining, No odour	0
0.5	OS_BH09_0.5_20230127				CLAYEY SILT , low plasticity, dark brown, trace roots, trace organics, trace sand, dry, soft	D	S		-0.5
1	OS_BH09_1.0_20230327				CLAYEY SILT , high plasticity, pale brown, dry, stiff	D	St	Grey and brown mottling	-1
2	OS_BH09_2.0_20230327								-2
3					colour change at 3.1m to grey orange mottling				-3
6					CLAYEY SAND , (SP), poorly graded, pale grey, moist, medium dense	M	MD		-6
7					SANDY CLAY (CH), high plasticity, pale brown with dark brown mottling, trace medium sands, stiff	M	St		-7
8.5					Termination Depth at: 8.45m. Target depth				-8.5

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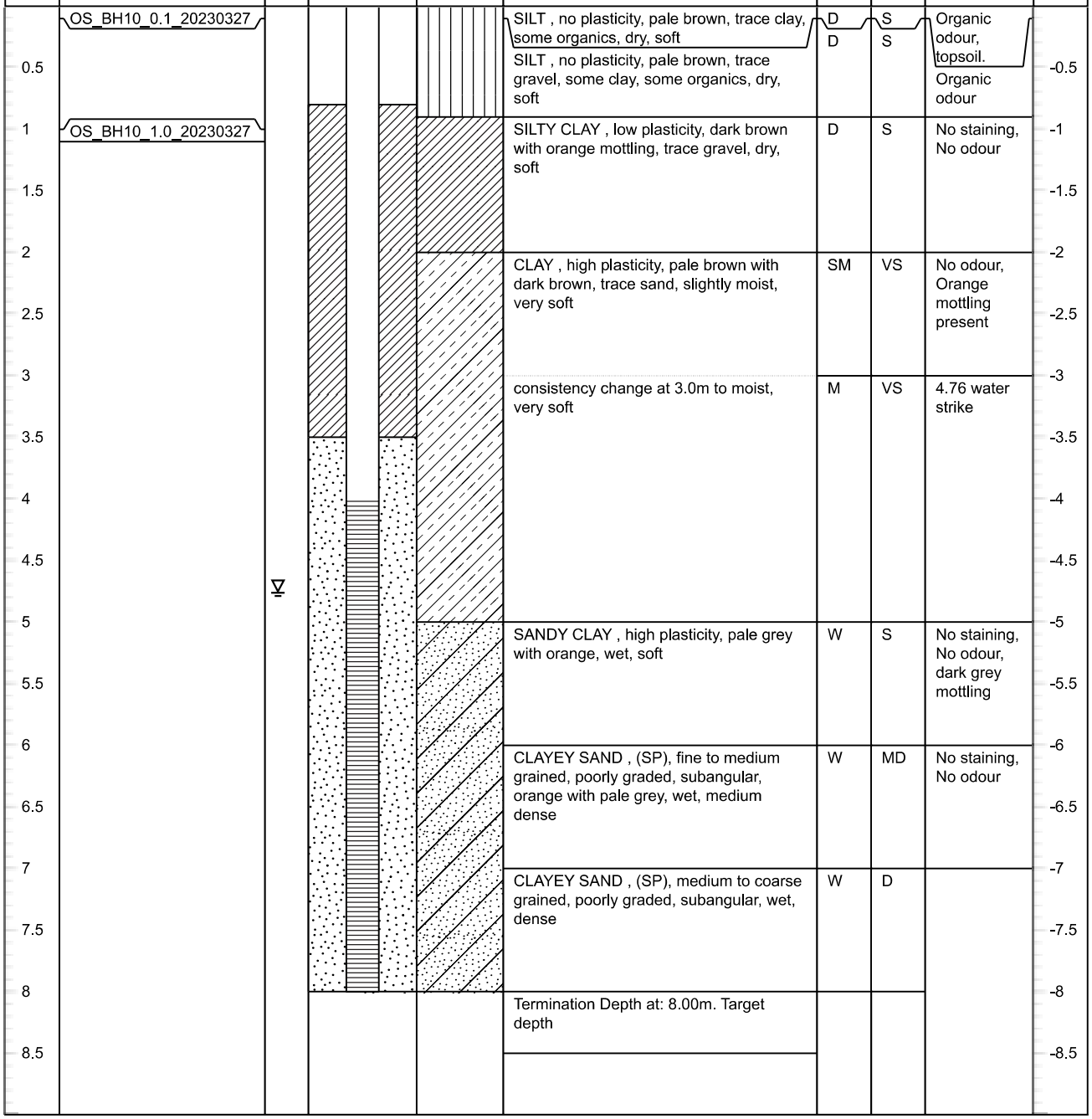
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ENVIRONMENTAL WELL BH10

PROJECT NUMBER IA5000EI	**DRILLING COMPANY** Supreme Drilling	**COORDINATES** 361134.657, 14219315.7
PROJECT NAME Officer South DSS Functional D	**DRILLER**	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Geoprobe 7822DT	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Solid flight auger	**WELL TOC**
DRILLING DATE 27 Mar 2023 08:30AM -	**TOTAL DEPTH** 8.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER** 50mm	**CHECKED BY** RG

COMPLETION spoil returned to hole	**CASING**	**SCREEN**

COMMENTS



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ENVIRONMENTAL WELL TP01

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 358664.199, 5784106.529
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 23 Jan 2023 07:36AM	**TOTAL DEPTH** 3.000	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING**	**SCREEN**

COMMENTS

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP01_0.1_20230123		SILT , no plasticity, very light grey, trace silty clay, trace roots, dry, firm	D	F	Organic odour	0
0.2			SILTY CLAY , medium plasticity, pale grey brown with dark brown mottling, trace organics, some sand, dry, firm			No staining, No odour, dark brown mottling	-0.2
0.4			slightly moist at 0.4m	SM		with red - orange and light grey soils. Getting stiffer	-0.4
0.6	OS_TP01_0.5_20230123						-0.6
0.8							-0.8
1							-1
1.2							-1.2
1.4							-1.4
1.6							-1.6
1.8							-1.8
2			consistency change at 1.9m to very stiff		VSt		-2
2.2			CLAY , medium plasticity, pale grey with dark orange, some silts, dry, very stiff	D		No staining, No odour, dark brown mottling	-2.2
2.4							-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at:3.000 m. Target depth				-3

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ENVIRONMENTAL WELL TP02

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 358715.835, 5784000.777
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 23 Jan 2023 09:34AM - 23 Jan 2	**TOTAL DEPTH** 3.000	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG

COMPLETION spoil returned to hole	**CASING**	**SCREEN**

COMMENTS

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP02_0.1_20230123		SILT , no plasticity, pale brown, trace clay, some roots, some organics, dry, very soft	D	VS	No staining, Organic odour	0
0.2			SAND , (SP), fine grained, poorly graded, very light grey, trace silt, trace , dry, loose	D	L	No staining, No odour	-0.2
0.4			SILTY CLAY , low plasticity, dark orange with pale grey, trace sand, slightly moist, stiff	SM	St	No staining, No odour, dark red mottling	-0.4
0.6	OS_TP02_0.5_20230123						-0.6
0.8							-0.8
1							-1
1.2							-1.2
1.4							-1.4
1.6			SILTY CLAY , pale grey with dark orange mottling, trace sand, trace roots, very stiff		VSt		-1.6
1.8							-1.8
2			some sands between 2 - 3.0m			dark brown to black mottling. Stiffness gradually increasing. Dryness increasing	-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3

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ENVIRONMENTAL WELL TP03

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 359932, 5784096
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 24 Jan 2023 10:49AM	**TOTAL DEPTH**	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG

COMPLETION spoil returned to hole | **CASING** | **SCREEN**

COMMENTS

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0.2	OS_TP03_0.1_20230124		SILT , no plasticity, pale grey brown, trace roots, dry, soft colour change to very light grey at 0.2m	D	S	Organic odour, grey with trace orange mottling clay pockets within silt.	-0.2
0.4							-0.4
0.6	OS_TP03_0.5_20230124		SILTY CLAY , medium plasticity, pale grey with orange mottling, trace sand, slightly moist, firm to stiff	SM	F-St	No staining, No odour, dark grey mottling. White sands	-0.6
0.8							-0.8
1	OS_TP03_1.0_20230124						-1
1.2							-1.2
1.4							-1.4
1.6			SANDY CLAY , low plasticity, fine to medium grained, subrounded, pale grey with dark orange, with silt, slightly moist, stiff to very stiff	SM	St-VSt	No staining, No odour, Becoming more weathered as depth increases. White sands increase at 1.0m	-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP04

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 359801.561, 5783851.36
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 24 Jan 2023 09:10AM	**TOTAL DEPTH** 3.000	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING**	**SCREEN**
COMMENTS		

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP04_0.1_20230124		SILT , no plasticity, pale grey brown, trace roots, dry, soft	D	S	Organic odour, Compressed silt pockets, stiff.	
0.2			SILT ,very light grey, trace roots, with clay, dry, soft	D	S	No staining, Organic odour, Compressed silt pockets, firm . Stiff clay pockets present. Dark grey with orange mottling.	-0.2
0.4							-0.4
0.6			SILTY CLAY , medium plasticity, pale grey with yellow and orange mottling, trace sand, slightly moist, firm to stiff	SM	F-St	No staining, No odour, dark grey mottling. White sands	-0.6
0.8							-0.8
1	OS_TP04_1.0_20230124						-1
1.2							-1.2
1.4							-1.4
1.6							-1.6
1.8			SILTY SAND , (SP), low plasticity, fine to medium grained, poorly graded, subrounded, pale grey with dark orange, with clay, slightly moist, dense to very dense	SM	D-VD	No staining, No odour, Grey clay pockets.	-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3

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ENVIRONMENTAL WELL TP09

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 358678.939 , 5783431.669
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 30 Mar 2023 01:12PM -	**TOTAL DEPTH** 3.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING**	**SCREEN**
COMMENTS		

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0.2	OS_TP09_0.1_20230330		SILT , no plasticity, pale grey brown, trace organics, with roots, with silty clay, dry, firm	D	F	Organic odour, Silty clay pockets throughout. Stiff, dark brown with orange mottling	-0.2
0.4							-0.4
0.6	OS_TP09_0.5_20230330		SILTY CLAY , low plasticity, pale grey brown with orange red mottling, with fine sand, some roots, moist, stiff	M	St		-0.6
0.8							-0.8
1	OS_TP09_1.0_20230330		dark brown mottling observed from 0.9m. Increasing sand content				-1
1.2							-1.2
1.4							-1.4
1.6							-1.6
1.8							-1.8
2			SANDY CLAY , medium plasticity, pale grey with orange brown, moist, very stiff	M	VSt	Grey sandy clays with orange brown clayey sands. Dark brown and red mottling.	-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP10

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 358794.896 , 5783350.989
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 30 Mar 2023 11:55AM -	**TOTAL DEPTH** 3.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG

COMPLETION spoil returned to hole | **CASING** | **SCREEN**

COMMENTS

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP10_0.1_20230330		SILT , no plasticity, brown grey with brown mottling, with organics, some roots, dry, firm	D	F		0
0.2			SILT , low plasticity, very light grey, with sand, dry, stiff	D	St	Fine light brown sands.	-0.2
0.4							-0.4
0.6			SILTY CLAY , low plasticity, pale grey brown with orange red mottling, some fine sand, some roots, dry, firm to stiff	D	F-St	No odour	-0.6
0.8							-0.8
1			SILTY CLAY ,medium plasticity, pale grey with orange, with fine to coarse sand, slightly moist, stiff to very stiff	SM	St-VSt	Red and black mottling. Sand pockets. Increasing sands at 3.0m	-1
1.2	OS_TP10_1.0_20230330						-1.2
1.4							-1.4
1.6							-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP11

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 359471.71, 5783271.40
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 30 Mar 2023 02:30PM -	**TOTAL DEPTH** 3.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG

COMPLETION spoil returned to hole	**CASING**	**SCREEN**

COMMENTS

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP11_0.1_20230330		SILT , no plasticity, pale grey brown, trace organics, with roots, with silty clay, dry, firm	D	F	Organic odour, Silty clay pockets throughout. Stiff, dark brown with orange mottling	0
0.2							-0.2
0.4			SILTY CLAY , low plasticity, pale grey brown with orange red mottling, with fine to medium sand, some roots, moist, stiff to very stiff	M	St-VSt		-0.4
0.6	OS_TP11_0.5_20230330						-0.6
0.8							-0.8
1	OS_TP11_1.0_20230330						-1
1.2							-1.2
1.4							-1.4
1.6							-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4			SANDY CLAY , medium plasticity, pale grey with orange brown, moist, very stiff	M	VSt	Grey sandy clays with orange brown clayey sands. Dark brown and red mottling.	-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP12

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 359708.557, 5783295.929
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 30 Mar 2023 04:00PM -	**TOTAL DEPTH** 3.0	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG

COMPLETION spoil returned to hole	**CASING**	**SCREEN**

COMMENTS

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP12_0.1_20230330		SILT , no plasticity, pale grey brown, trace organics, with roots, with sand and clay, dry, firm	D	F	Organic odour, Silty clay pockets throughout. Stiff, dark brown with orange mottling	0
0.2							-0.2
0.4			SILTY CLAY , low plasticity, pale grey brown with orange red mottling, with fine to medium sand, some roots, moist, stiff to very stiff	M	St-VSt	Pale yellow sands	-0.4
0.6							-0.6
0.8			SILTY CLAY, medium plasticity, pale grey with orange red mottling, with fine to coarse sand, slightly moist, stiff to very stiff	SM	St-VSt		-0.8
1	OS_TP12_1.0_20230330						-1
1.2							-1.2
1.4							-1.4
1.6			SANDY CLAY , medium plasticity, pale grey with orange brown, moist, very stiff	M	VSt	Grey sandy clays with orange brown clayey sands. Dark brown and red mottling.	-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP13

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 358893.386, 5782689.77
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 30 Mar 2023 09:51AM	**TOTAL DEPTH** 3.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING**	**SCREEN**
COMMENTS		

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP13_0.1_20230330		SILT , no plasticity, pale brown grey with orange red mottling, with organics, some roots, dry, very stiff to hard	D	VSt-H	Organic Odour	0
0.2							-0.2
0.4							-0.4
0.6	OS_TP13_0.5_20230330		SILTY CLAY , low plasticity, pale grey brown with orange red mottling, some fine sand, some roots, dry, very stiff to hard	D	VSt-H	No odour, very dark hard clay scattered between 0.4-0.8	-0.6
0.8							-0.8
1						White silty pockets	-1
1.2							-1.2
1.4			CLAY , low plasticity, pale grey with orange, trace silt, trace sand, slightly moist, very stiff	SM	VSt	Red mottling. Small black clay pockets	-1.4
1.6							-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8			SILTY CLAY , high plasticity, orange with very light grey, with sand, slightly moist, very stiff	SM	VSt	Reddish mottling.	-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP14

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 359045.491, 5782591.303
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS Melbourne Water	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 30 Mar 2023 08:14AM	**TOTAL DEPTH** 3.000	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING**	**SCREEN**
COMMENTS		

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP14_0.1_20230330		CLAYEY SILT , no plasticity, pale brown with orange mottling, some roots, dry, very stiff	D	VSt	Organic odour, Crumbly consistency	0
0.2							-0.2
0.4			SILTY CLAY , low plasticity, very dark brown with orange mottling, trace rock fragments, dry, very stiff	D	VSt		-0.4
0.6							-0.6
0.8			SILTY CLAY , medium plasticity, dark grey orange red mottling, hard		H		-0.8
1	OS_TP14_1.0_20230330						-1
1.2							-1.2
1.4			CLAY , medium plasticity, pale grey with orange, some silt, trace sand, slightly moist, stiff to very stiff	SM	St-VSt	Dark grey to black mottling	-1.4
1.6							-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6			colour change at 2.5m very light grey with dark orange red				-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3

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ENVIRONMENTAL WELL TP15

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 359588.722, 5782109.98
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 23 Jan 2023 11:21AM	**TOTAL DEPTH** 3.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG

COMPLETION spoil returned to hole	**CASING**	**SCREEN**

COMMENTS

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP15_0.1_20230123		SILT , no plasticity, pale grey brown, some organics, some roots, dry, stiff	D	St	No staining, Organic odour, Compressed silt pockets.	0
0.2			SAND , (SP), fine grained, poorly graded, very light grey, trace silt, trace , dry, loose	D	L	No staining, No odour	-0.2
0.4			SILTY CLAY , low plasticity, dark yellow with pale brown, trace sand, slightly moist, stiff	SM	St	No staining, No odour, Dark brown mottling. Trace red mottling. Gritty texture	-0.4
0.6							-0.6
0.8							-0.8
1	OS_TP15_1.0_20230123		some sand between 1 - 3.0 m, stiff to very stiff		St - VSt		-1
1.2							-1.2
1.4							-1.4
1.6							-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3

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ENVIRONMENTAL WELL TP16

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 359764.499, 5782075.311
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 24 Jan 2023 08:07AM	**TOTAL DEPTH** 3.000	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING**	**SCREEN**
COMMENTS		

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP16_0.1_20230124		SILT , no plasticity, pale grey brown, trace roots, dry, soft	D	S	Organic odour, Compressed silt pockets, stiff.	0
0.2							-0.2
0.4			colour change at 0.4m very light grey				-0.4
0.6			SILTY CLAY , medium plasticity, pale grey with orange mottling, trace sand, slightly moist, firm to stiff	SM	F-St	No staining, No odour, dark grey mottling. White sands	-0.6
0.8							-0.8
1	OS_TP16_1.0_20230124						-1
1.2							-1.2
1.4					VSt		-1.4
1.6							-1.6
1.8							-1.8
2			colour change at 1.9m to dark orange with pale grey, dry	D		becoming weathered	-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3

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ENVIRONMENTAL WELL TP17

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 359518.872, 5781989.659
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 23 Jan 2023 01:03PM	**TOTAL DEPTH**	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING**	**SCREEN**
COMMENTS		

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP17_0.1_20230123		SILT , no plasticity, dark brown with dark red mottling, trace sand, trace clay, some organics, dry, firm	D	F	Organic odour	0
0.2							-0.2
0.4			SANDY CLAY , low plasticity, dark grey with orange mottling, trace roots, some silt, slightly moist, firm	SM	F	Organic odour	-0.4
0.6							-0.6
0.8					F-St		-0.8
1	OS_TP17_1.0_20230123		SILTY CLAY , low plasticity, very light grey with dark orange mottling, trace sand, trace roots, slightly moist, firm	SM	F	Organic odour, Dark grey mottling pockets.	-1
1.2							-1.2
1.4							-1.4
1.6							-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP18

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 359733.642, 5781787.323
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 23 Jan 2023 02:27PM	**TOTAL DEPTH**	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG

COMPLETION spoil returned to hole	**CASING**	**SCREEN**

COMMENTS

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP18_0.1_20230123		SILT , no plasticity, pale grey brown, some organics, some roots, dry, stiff	D	St	No staining, Organic odour, Compressed silt pockets.	0
0.2			CLAYEY SILT , no plasticity, dark brown with dark red mottling, some roots, some organics, dry, stiff	D	St	Organic odour	-0.2
0.4							-0.4
0.6	OS_TP18_0.5_20230123		SILTY CLAY , low plasticity, dark brown with dark yellow and orange mottling, trace sand, slightly moist, stiff	SM	St	No staining, No odour, Dark brown mottling. Trace red mottling. Gritty texture	-0.6
0.8							-0.8
1							-1
1.2							-1.2
1.4							-1.4
1.6							-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4			CLAYEY SAND , pale yellow brown with brown mottling, fine to medium sand, moist, dense	M	D		-2.4
2.6							-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP20

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 361554.218, 5782394.328
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 04 Apr 2023 09:35AM	**TOTAL DEPTH** 3.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING**	**SCREEN**
COMMENTS		

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP20_0.1_20230404		SILT , low plasticity, dark brown, with roots, with organics, some sand, dry, firm	D	F	Organic odour	0
0.2							-0.2
0.4			SILTY CLAY , high plasticity, dark grey with orange mottling, with fine to coarse sand, dry, stiff		St	Pale grey silts	-0.4
0.6	OS_TP20_0.5_20230404						-0.6
0.8							-0.8
1	OS_TP20_1.0_20230404		SANDY CLAY , dark brown with dark orange mottling, high plasticity, medium sand, stiff to very stiff		St - VSt		-1
1.2							-1.2
1.4							-1.4
1.6							-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6			CLAYEY SAND, medium sand, brown with pale brown and orange mottling, moist, very dense		VD		-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP21

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 361375.487 , 5782264.942
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 04 Apr 2023 11:14AM	**TOTAL DEPTH**	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG

COMPLETION spoil returned to hole	**CASING**	**SCREEN**

COMMENTS

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
	OS_TP21_0.1_20230404		SILT , low plasticity, dark brown, with roots, with organics, some sand, dry, firm	D	F	Organic odour	
0.2			SILTY CLAY , low plasticity, pale grey with dark orange red mottling, with fine to medium gravel, dry, very stiff	D	VSt	No odour	-0.2
0.4							-0.4
0.6							-0.6
0.8							-0.8
1	OS_TP21_1.0_20230404						-1
1.2							-1.2
1.4							-1.4
1.6							-1.6
1.8							-1.8
2			SANDY CLAY , low plasticity, some silt, slightly moist, firm	SM	F	No odour	-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8			CLAYEY SAND , (SP), fine to coarse grained, poorly graded, subangular, dark orange with grey, with silt, slightly moist, medium dense to dense	SM	MD-D	Orange sands. Grey clays	-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP22

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 361245.822, 5780813.745
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 04 Apr 2023 07:30AM	**TOTAL DEPTH** 3.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG

COMPLETION spoil returned to hole	**CASING**	**SCREEN**

COMMENTS

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
0	OS_TP22_0.1_20230404		SILT , low plasticity, dark brown, with roots, with organics, some sand, dry, firm	D	F	Organic odour	
0.2							-0.2
0.4			SILT , pale grey with orange, some clay, some sand, dry, very stiff to hard	D	VSt-H	Red mottling	-0.4
0.6	OS_TP22_0.5_20230404		CLAY , medium plasticity, pale grey with orange, some silt, some sand, slightly moist, very stiff to hard	SM	VSt-H	Red mottling	-0.6
0.8							-0.8
1	OS_TP22_1.0_20230404						-1
1.2							-1.2
1.4							-1.4
1.6							-1.6
1.8			CLAYEY SAND , (SP), fine to coarse grained, poorly graded, subangular, dark orange with pale grey, slightly moist, medium dense	SM	MD	Clays are grey and high plasticity	-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6							-2.6
2.8			moist	M			-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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ENVIRONMENTAL WELL TP23

PROJECT NUMBER IA5000EI	**DRILLING COMPANY**	**COORDINATES** 361109.12, 5780912.296
PROJECT NAME Officer South DSS Functional D	**DRILLER** Brad Scott	**COORD SYS** GDA94_MGA_zone_55
CLIENT Melbourne Water	**DRILL RIG** Terex 860 Elite Backhoe 8T	**SURFACE ELEVATION**
ADDRESS	**DRILLING METHOD** Excavator	**WELL TOC**
DRILLING DATE 04 Apr 2023 08:27AM	**TOTAL DEPTH** 3.0m	**LOGGED BY** RG
LICENCE NO.	**DIAMETER**	**CHECKED BY** RG
COMPLETION spoil returned to hole	**CASING**	**SCREEN**
COMMENTS		

Depth (m)	Samples	Graphic Log	Material Description	Moisture	Consistency	Additional Observations	Elevation (m)
	OS_TP23_0.1_20230404		SILT , low plasticity, dark brown, with roots, with organics, some fine sand, dry, firm	D	F	Organic odour	
0.2			SILTY CLAY , low plasticity, pale grey with orange, with fine to medium sand, dry, very stiff to hard	D	VSt-H	No odour	-0.2
0.4							-0.4
	OS_TP23_0.5_20230404						
0.6							-0.6
0.8			SANDY CLAY , high plasticity, dark grey with orange mottling, some silt, slightly moist	SM		Fine to coarse sands	-0.8
1							-1
1.2			CLAY , high plasticity, dark brown with orange mottling, some fine sand, moist, soft to firm	M	S-F		-1.2
1.4							-1.4
1.6							-1.6
1.8							-1.8
2							-2
2.2							-2.2
2.4							-2.4
2.6			SANDY CLAY , high plasticity, very dark brown with dark orange, some silt, slightly moist, stiff	SM	St	Orange sands. Brown clays	-2.6
2.8							-2.8
3			Termination Depth at: 3.0 m. Target depth				-3
3.2							-3.2

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Appendix D. Laboratory Results

				Acid Sulphate Soils	Acid Sulphate Soils - Calcium Values	NA	Metals																																			
				Net Acidity without ANCE	Sulfidic - Acid Reacted Calcium_	Naphthalene (value used in F2 calc)	Antimony	Arsenic		Arsenic (filtered)	Barium		Barium (filtered)	Beryllium		Beryllium (filtered)	Boron		Boron (filtered)	Cadmium		Cadmium (filtered)	Chromium (hexavalent)	Chromium (III+VI)		Chromium (III+VI) (filtered)	Cobalt		Cobalt (filtered)	Copper		Copper (filtered)	Lead		Lead (filtered)	Manganese		Manganese (filtered)	Mercury		Mercury (filtered)	Molybdenum	Nickel	
				% S	% S	mg/kg	mg/kg	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L
EQL				0.02	0.02	1	5	2	1	1	10	1	1	1	1	1	10	50	50	0.4	0.1	0.1	0.5	2	1	1	2	1	1	5	1	1	5	1	1	5	1	1	0.1	0.1	0.1	2	2	1
EPA Vic 1669.4: Interim position statement on PFAS																																											
EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3																																											
PFAS NEMP 2020 Table 2 Public open space (HIL C)																																											
PFAS NEMP 2020 Table 3 Ecological direct exposure																																											
PFAS NEMP 2020 Table 3 Ecological indirect exposure																																											
NEPM 2013 Table 1A(1) HIL C Soil								300[#2]						90			20,000				90			300	300[#3]			300			17,000			600[#4]			19,000			80[#5]				1,200	
NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)								100[#3]																								190[#12]			1,100[#12]									270[#12]	
NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space																																											
NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space																																											
AS2159-2009 Piling – Design and Installation (Buildings & Structures)																																											
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																							
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**5**	-	-	<2	-	-	<5	-	-	**7**	-	-	**18**	-	-	<0.1	-	-	<2	-
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	**0.05**	<0.020	-	<5	-	-	**150**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**18**	-	-	**3**	-	-	**8**	-	-	**11**	-	-	**9**	-	-	<0.1	-	-	**4**	-
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	-	-	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	<5	-	-	**9**	-	-	-	-	-	<0.1	-	-	**2**	-
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	**0.05**	<0.020	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**16**	-	-	<2	-	-	**7**	-	-	**12**	-	-	**9**	-	-	<0.1	-	-	**3**	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	<5	-	-	**10**	-	-	-	-	-	<0.1	-	-	<2	-
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	**0.02**	<0.020	-	<5	<5	-	**10**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**17**	-	-	<2	-	-	**9**	-	-	**12**	-	-	**5**	-	-	<0.1	-	-	**4**	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	-	-	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**6**	-	-	**7**	-	-	-	-	-	<0.1	-	-	<2	-
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	<0.02	<0.020	-	<5	<5	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**15**	-	-	**3**	-	-	**7**	-	-	**11**	-	-	**8**	-	-	<0.1	-	-	**4**	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	-	-	-	<5	<5	-	**40**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	<5	-	-	**10**	-	-	-	-	-	<0.1	-	-	**2**	-
OS_BH07_1.0_20230328	28 Mar 2023	1	EM2305431	Normal	**0.04**	<0.020	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**15**	-	-	**3**	-	-	**7**	-	-	**11**	-	-	**10**	-	-	<0.1	-	-	**3**	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**6**	-	-	**5**	-	-	-	-	-	<0.1	-	-	<2	-
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	**0.06**	<0.020	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**25**	-	-	**2**	-	-	**12**	-	-	**14**	-	-	**5**	-	-	<0.1	-	-	**6**	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	-	-	<1	<5	<5	-	**100**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**10**	-	-	**11**	-	-	-	-	-	<0.1	-	-	**8**	-
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	<5	<5	-	**50**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**16**	-	-	**2**	-	-	**6**	-	-	**7**	-	-	**19**	-	-	<0.1	-	-	**4**	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**13**	-	-	**3**	-	-	**6**	-	-	**9**	-	-	**9**	-	-	<0.1	-	-	**4**	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**15**	-	-	**3**	-	-	**8**	-	-	**11**	-	-	**8**	-	-	<0.1	-	-	**4**	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	-	-	<5	<5	-	**50**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**11**	-	-	**14**	-	-	-	-	-	<0.1	-	-	**4**	-
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	**0.06**	<0.020	-	<5	<5	-	**50**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**22**	-	-	**3**	-	-	**6**	-	-	**13**	-	-	**5**	-	-	<0.1	-	-	**4**	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	<5	-	-	**9**	-	-	-	-	-	<0.1	-	-	<2	-
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	**0.04**	<0.020	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**29**	-	-	**3**	-	-	**15**	-	-	**14**	-	-	**18**	-	-	<0.1	-	-	**7**	-
OS_TP02_0.1_20230123	22 Jan 2023	0.1	EM2300936	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**5**	-	-	<2	-	-	<5	-	-	**15**	-	-	**16**	-	-	<0.1	-	-	<2	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	-	<5	<5	-	**50**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**35**	-	-	**4**	-	-	**10**	-	-	**17**	-	-	**24**	-	-	<0.1	-	-	**9**	-
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	<5	<5	-	**10**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**3**	-	-	<2	-	-	<5	-	-	**5**	-	-	**11**	-	-	<0.1	-	-	<2	-
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	<5	<5	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	<2	-	-	<2	-	-	<5	-	-	<5	-	-	<5	-	-	<0.1	-	-	<2	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	<5	<5	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**18**	-	-	**2**	-	-	**6**	-	-	**9**	-	-	**13**	-	-	<0.1	-	-	**4**	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	<5	<5	-	**10**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**4**	-	-	<2	-	-	<5	-	-	**6**	-	-	<5	-	-	<0.1	-	-	<2	-
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	<5	<5	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**17**	-	-	**2**	-	-	**14**	-	-	**12**	-	-	**16**	-	-	<0.1	-	-	**5**	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	<5	<5	-	**10**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**4**	-	-	<2	-	-	<5	-	-	**7**	-	-	**12**	-	-	<0.1	-	-	<2	-
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	<5	<5	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**9**	-	-	<2	-	-	<5	-	-	<5	-	-	<5	-	-	<0.1	-	-	**2**	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	<5	<5	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**16**	-	-	**2**	-	-	**7**	-	-	**11**	-	-	**7**	-	-	<0.1	-	-	**4**	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**4**	-	-	<2	-	-	<5	-	-	**8**	-	-	**12**	-	-	<0.1	-	-	<2	-
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	<5	<5	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**18**	-	-	**2**	-	-	**7**	-	-	**11**	-	-	**6**	-	-	<0.1	-	-	**4**	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**4**	-	-	<2	-	-	<5	-	-	**5**	-	-	**34**	-	-	<0.1	-	-	<2	-
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	<5	<5	-	**10**	-	-	**1**	-	-	<50	-	-	<1	-	-	<0.5	**27**	-	-	**5**	-	-	**15**	-	-	**18**	-	-	**15**	-	-	<0.1	-	-	**10**	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	<5	<5	-	**60**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**13**	-	-	**8**	-	-	**8**	-	-	**8**	-	-	**29**	-	-	<0.1	-	-	**4**	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**5**	-	-	<2	-	-	**5**	-	-	**9**	-	-	**36**	-	-	<0.1	-	-	**2**	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	<5	<5	-	**10**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**20**	-	-	**2**	-	-	**13**	-	-	**14**	-	-	**5**	-	-	<0.1	-	-	**4**	-
OS_TP13_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**5**	-	-	<2	-	-	<5	-	-	**6**	-	-	**30**	-	-	<0.1	-	-	<2	-
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**22**	-	-	**4**	-	-	**13**	-	-	**14**	-	-	**9**	-	-	<0.1	-	-	**7**	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	<5	<5	-	**60**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**9**	-	-	<2	-	-	**5**	-	-	**12**	-	-	**190**	-	-	<0.1	-	-	**3**	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	<5	<5	-	**40**	-	-	**1**	-	-	<50	-	-	<1	-	-	<0.5	**39**	-	-	**4**	-	-	**9**	-	-	**15**	-	-	<5	-	-	<0.1	-	-	**9**	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	<5	<5	-	**40**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**8**	-	-	<2	-	-	<5	-	-	**7**	-	-	**17**	-	-	<0.1	-	-	**3**	-
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	<5	<5	-	**50**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**24**	-	-	**3**	-	-	**9**	-	-	**12**	-	-	**18**	-	-	<0.1	-	-	**6**	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**25**	-	-	**4**	-	-	**10**	-	-	**13**	-	-	**41**	-	-	<0.1	-	-	**8**	-
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	<0.02	<0.020	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**6**	-	-	<2	-	-	<5	-	-	**9**	-	-	**44**	-	-	<0.1	-	-	**2**	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal			-	<5	<5	-	**90**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**11**	-	-	**10**	-	-	-	-	-	<0.1	-	-	**9**	-
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	**0.04**	<0.020	-	<5	<5	-	**40**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**17**	-	-	**2**	-	-	**6**	-	-	**11**	-	-	**13**	-	-	<0.1	-	-	**4**	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	<5	<5	-	**70**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**12**	-	-	<2	-	-	**7**	-	-	**9**	-	-	**24**	-	-	<0.1	-	-	**5**	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**10**	-	-	<2	-	-	<5	-	-	**7**	-	-	**8**	-	-	<0.1	-	-	**3**	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**6**	-	-	<2	-	-	<5	-	-	**8**	-	-	**86**	-	-	<0.1	-	-	<2	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	<5	<5	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**8**	-	-	<2	-	-	<5	-	-	**8**	-	-	**5**	-	-	<0.1	-	-	<2	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	<5	<5	-	**110**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**10**	-	-	<2	-	-	<5	-	-	**10**	-	-	**6**	-	-	<0.1	-	-	**2**	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**6**	-	-	<2	-	-	**10**	-	-	**10**	-	-	**66**	-	-	<0.1	-	-	**2**	-
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	<5	<5	-	**40**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**21**	-	-	**2**	-	-	**13**	-	-	**16**	-	-	<5	-	-	<0.1	-	-	**4**	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**10**	-	-	**10**	-	-	-	-	-	<0.1	-	-	**2**	-
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	<5	<5	-	**250**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**20**	-	-	**3**	-	-	**10**	-	-	**11**	-	-	**7**	-	-	<0.1	-	-	**5**	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	**0.03**	<0.020	-	<5	<5	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**20**	-	-	**3**	-	-	**8**	-	-	**12**	-	-	**10**	-	-	<0.1	-	-	**5**	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	<5	<5	-	**40**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**10**	-	-	**2**	-	-	**12**	-	-	**14**	-	-	**102**	-	-	<0.1	-	-	**3**	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	<5	<5	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**14**	-	-	<2	-	-	**7**	-	-	**10**	-	-	<5	-	-	<0.1	-	-	**2**	-

Comments

#1 Sands to loamy sands, sandy loams to light clays and medium to heavy clays and silty clays
#2 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (refer Shedule B7).
#3 In the absence of HILs for chromium (total), chromium VI HILs were adopted
#4 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bioavailability should be considered where appropriate.
#5 Elemental mercury: HIL does not address elemental mercury, a site specific assessment should be considered if elemental mercury is present, or suspected to be present.
#6 Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P))
#7 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should meet BaP TEQ HIL) & naphthalene (should meet relevant HSL)
#8 PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-specific assessment of exposure to all PCBs (inc dioxin like PCBs) should be undertaken
#9 Refer Table 1B(5)
#10 Assumed pH=6, refer Table 1B(2)
#11 Refer Table 1B(4)
#12 Assumed CEC=20cmol/kg, refer Table 1B(3)
#13 Assumed CEC=20cmol/kg and pH=6.5, refer Table 1B(1)
#14 Yes
#15 M_TRAN
#16 Brown soil with organic matter and synthetic mineral fibres.
#17 No
#18 -
#19 Brown soil with organic matter.
#20 Grey soil with organic matter and synthetic mineral fibres.
#21 Grey soil with organic matter.
#22 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, October 2020, EPA Vic 1669.4: Interim position statement on PFAS
EPA Victoria, July 2009, EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3
HEPA, January 2020, PFAS NEMP 2020 Table 2 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological indirect exposure
NEPM, April 2013, NEPM 2013 Table 1A(1) HIL C Soil
NEPM, April 2013, NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)
NEPM, April 2013, NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space
NEPM, April 2013, NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space
Aus Standards, April 2009, AS2159-2009 Piling – Design and Installation (Buildings & Structures)

												Inorganics				Physiochemical parameters			TRH - NEPM 2013 Fractions						TPH - NEPM 1999 Fractions					TRH - (Silica Gel Cleanup)						TPH - (Silica Gel Cleanup)			BTEXN		
	Nickel (filtered)	Selenium	Selenium (filtered)	Silver	Vanadium	Vanadium (filtered)	Zinc	Zinc (filtered)	Cyanide (amenable)	Cyanide Total	Ethylenediaminetetraacetic acid	Fluoride	% Moisture Content	Moisture Content (dried @ 103°C)	pH (CaCl2)	TRH >C6 - C10	TRH >C10 - C16	TRH >C16 - C34	TRH >C34 - C40	TRH >C10 - C40 (Sum of total)	TRH >C6 - C10 less BTEX (F1)	TRH >C10 - C16 less Naphthalene (F2)	TPH C6 - C9	TPH C10 - C14	TPH C15 - C28	TPH C29-C36	TPH C10 - C36 (Sum of total)	TRH >C10 - C16 SG Naphthalene less Naphthalene F2	TRH >C10 C16 (after silica gel clean-up)	TRH C10-C36 (Total) (after silica gel clean-up)	TRH >C10 - C40 fraction (sum) (silica gel clean-up)	TRH >C16 -C34 (after silica gel clean-up)	TRH >C34 -C40 (after silica gel clean-up)	TPH C10-C14 Fraction After Silica Cleanup	TPH C15-C28 Fraction After Silica Cleanup	TPH C29-C36 Fraction After Silica Cleanup	Benzene	Acenaphthene	Acenaphthylene
	ug/L	mg/kg	ug/L	ug/L	mg/kg	ug/L	mg/kg	ug/L	mg/kg	mg/kg	mg/kg	mg/kg	%	%	pH Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	2	10	10	2	5	10	10	5	5	5	1	1	10	40	0.1	1	0.1	10	50	100	100	50	10	50	10	50	100	100	50	50	50	50	50	100	100	50	100	100	0.2	0.5	0.5
EPA Vic 1669.4: Interim position statement on PFAS																																									
EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3																																									
PFAS NEMP 2020 Table 2 Public open space (HIL C)																																									
PFAS NEMP 2020 Table 3 Ecological direct exposure																																									
PFAS NEMP 2020 Table 3 Ecological indirect exposure																																									
NEPM 2013 Table 1A(1) HIL C Soil		**700**					**30,000**																																		
NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)							**590**[#13]																																		
NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space																		**1,300**	**5,600**		**180**	**120**																**65**		
NEPM 2013 Table 1B(7) MIL, Coarse Soil, Residential/parkland/public open space																		**2,500**	**10,000**		**700**	**1,000**																		
AS2159-2009 Piling – Design and Installation (Buildings & Structures)															**5.5-14**																									

Field ID	Date	Depth	Lab Report Number	Sample Type																																								
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	<5	-	-	-	**16**	-	-	<5	-	-	-	-	-	-	**8.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	-	<5	-	-	-	**33**	-	-	<5	-	-	-	-	-	-	**16.7**	-	-	<10	-	-	-	<10	-	<10	-	-	-	-	<50	<50	<50	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<0.5
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	-	<5	-	-	<2	-	-	-	<1	**1**	<10	**70**	**13.0**	-	**4.6**	<10	<50	<100	<100	<50	<10	<50	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	<5	-	-	-	**33**	-	-	<5	-	-	-	**20.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	-	<5	-	-	<2	-	-	-	<1	**1**	<10	**50**	**7.7**	-	**4.6**	<10	<50	**120**	<100	**120**	<10	<50	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	<5	-	-	-	**34**	-	-	-	-	-	-	**15.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	-	<5	-	-	<2	-	-	-	**10**	-	-	-	**8.4**	-	**4.9**	<10	<50	**100**	<100	**100**	<10	<50	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	<5	-	-	-	**27**	-	-	<5	-	-	-	**14.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	-	<5	-	-	<2	-	-	-	**1**	**1**	<10	<40	**8.5**	-	**5.4**	<10	<50	**120**	<100	**120**	<10	<50	<10	<50	<100	**110**	**110**	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5
OS_BH07_1.0_20230328	28 Mar 2023	1	EM2305431	Normal	-	<5	-	-	-	**26**	-	-	<5	-	-	-	**17.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	<5	-	-	<2	-	-	-	<1	<1	<10	<40	**10.9**	-	**5.6**	<10	<50	<100	<100	<50	<10	<50	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	<5	-	-	-	**52**	-	-	<5	-	-	-	**20.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	-	<5	-	-	<2	-	-	-	<1	<1	<10	**110**	**10.5**	-	**4.2**	<10	<50	<100	<100	<50	<10	<50	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	<5	-	-	-	**27**	-	-	<5	-	-	-	**5.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	<5	-	-	-	**19**	-	-	<5	-	-	-	**12.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	<5	-	-	-	**34**	-	-	<5	-	-	-	**14.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	<5	-	-	<2	-	-	-	**9**	-	-	<1	<1	<10	**130**	**11.6**	-	**5.2**	<10	<50	<100	<100	<50	<10	<50	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	<5	-	-	-	**39**	-	-	<5	-	-	-	**14.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	<5	-	-	<2	-	-	-	<5	-	-	<1	<1	<10	**100**	**5.2**	-	**5.2**	<10	<50	<100	<100	<50	<10	<50	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	-	<5	-	-	-	**61**	-	-	<5	-	-	-	-	-	-	**20.2**	-	-	<10	-	-	-	<10	-	<10	-	-	-	-	<50	<50	<50	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<0.5
OS_TP02_0.1_20230123	22 Jan 2023	0.1	EM2300936	Normal	-	<5	-	-	-	**15**	-	-	<5	-	-	-	-	-	-	**5.6**	-	-	<10	-	-	-	<10	-	<10	-	-	-	-	<50	<50	<50	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<0.5
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	<5	-	-	-	**49**	-	-	<5	-	-	-	-	-	-	**25.9**	-	-	<10	-	-	-	<10	-	<10	-	-	-	-	<50	<50	<50	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<0.5
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	<5	-	-	-	**9**	-	-	<5	-	-	-	-	-	-	**4.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	<5	-	-	-	**8**	-	-	<5	-	-	-	-	-	-	**3.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	<5	-	-	-	**17**	-	-	<5	-	-	-	-	-	-	**14.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	<5	-	-	-	**10**	-	-	<5	-	-	-	-	-	-	**4.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	<5	-	-	-	**38**	-	-	<5	-	-	-	-	-	-	**14.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	<5	-	-	-	**18**	-	-	<5	-	-	-	-	-	-	**5.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	<5	-	-	-	**27**	-	-	<5	-	-	-	-	-	-	**18.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	<5	-	-	-	**26**	-	-	<5	-	-	-	-	-	-	**15.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	<5	-	-	-	**12**	-	-	<5	-	-	-	-	-	-	**7.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	<5	-	-	-	**28**	-	-	<5	-	-	-	-	-	-	**15.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	<5	-	-	-	**7**	-	-	<5	-	-	-	-	-	-	**5.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	<5	-	-	-	**54**	-	-	<5	-	-	-	-	-	-	**16.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	<5	-	-	-	**26**	-	-	<5	-	-	-	-	-	-	**14.9**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	<5	-	-	-	**10**	-	-	<5	-	-	-	-	-	-	**6.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	<5	-	-	-	**43**	-	-	<5	-	-	-	-	-	-	**17.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	<5	-	-	-	**12**	-	-	<5	-	-	-	-	-	-	**7.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	<5	-	-	-	**55**	-	-	<5	-	-	-	-	-	-	**12.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	<5	-	-	-	**25**	-	-	**13**	-	-	-	-	-	-	**8.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	<5	-	-	-	**66**	-	-	**5**	-	-	-	-	-	-	**23.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	<5	-	-	-	**16**	-	-	<5	-	-	-	-	-	-	**6.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	<5	-	-	-	**33**	-	-	<5	-	-	-	-	-	-	**18.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	<5	-	-	-	**45**	-	-	<5	-	-	-	-	-	-	**5.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	<5	-	-	-	**20**	-	-	<5	-	-	-	-	-	-	**18.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	<5	-	-	<2	-	-	-	**6**	-	-	<1	<1	<10	**120**	**11.6**	-	**4.5**	<10	<50	<100	<100	<50	<10	<50	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	<5	-	-	-	**21**	-	-	<5	-	-	-	-	-	-	**14.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	<5	-	-	-	**22**	-	-	<5	-	-	-	-	-	-	**10.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	<5	-	-	-	**19**	-	-	<5	-	-	-	-	-	-	**7.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	<5	-	-	-	**15**	-	-	<5	-	-	-	-	-	-	**4.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	<5	-	-	-	**20**	-	-	<5	-	-	-	-	-	-	**9.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	<5	-	-	-	**27**	-	-	<5	-	-	-	-	-	-	**17.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	<5	-	-	-	**18**	-	-	**8**	-	-	-	-	-	-	**16.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	<5	-	-	-	**55**	-	-	<5	-	-	-	-	-	-	**15.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	<5	-	-	<2	-	-	-	**9**	-	-	<1	<1	<10	**110**	**8.3**	-	**5.4**	<10	<50	<100	<100	<50	<10	<50	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	<5	-	-	-	**35**	-	-	<5	-	-	-	-	-	-	**15.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	<5	-	-	-	**41**	-	-	<5	-	-	-	-	-	-	**16.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	<5	-	-	-	**22**	-	-	**12**	-	-	-	-	-	-	**12.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	<5	-	-	-	**37**	-	-	<5	-	-	-	-	-	-	**11.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Sands to loamy sands, sandy loams to light clays and medium to heavy clays and silty clays
#2 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (re
#3 In the absence of HILs for chromium (total), chromium VI HILs were adopted
#4 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bio
#5 Elemental mercury: HIL does not address elemental mercury, a site specific assessment should be considered if elemental mercury is preser
#6 Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P))
#7 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should
#8 PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-specific assessment of exposure to a
#9 Refer Table 1B(5)
#10 Assumed pH=6, refer Table 1B(2)
#11 Refer Table 1B(4)
#12 Assumed CEC=20cmol/kg, refer Table 1B(3)
#13 Assumed CEC=20cmol/kg and pH=6.5, refer Table 1B(1)
#14 Yes
#15 M. TRAN
#16 Brown soil with organic matter and synthetic mineral fibres.
#17 No
#18 -
#19 Brown soil with organic matter.
#20 Grey soil with organic matter and synthetic mineral fibres.
#21 Grey soil with organic matter.
#22 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, October 2020, EPA Vic 1669.4: Interim position statement on PFAS
EPA Victoria, July 2009, EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3
HEPA, January 2020, PFAS NEMP 2020 Table 2 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological indirect exposure
NEPM, April 2013, NEPM 2013 Table 1A(1) HIL C Soil
NEPM, April 2013, NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)
NEPM, April 2013, NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space
NEPM, April 2013, NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space
Aus Standards, April 2009, AS2159-2009 Piling – Design and Installation (Buildings & Structures)

	Polycyclic aromatic hydrocarbons (PAHs)																				Monocyclic Aromatic Hydrocarbons (MAHs)							Chlorinated Hydrocarbons																
	Anthracene	Benz(a)anthracene	Benzo(b+j+k)fluoranthene	Benzo(b)fluoranthene	Benzo(j+k)fluoranthene	Benzo(g,h,i)perylene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (half)	Benzo(a)pyrene TEQ calc (zero)	Benzo(a)pyrene TEQ calc (PQL)	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Naphthalene	Sum of PAHs (Sum of total)	Sum of monocyclic aromatic hydrocarbons	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Xylene Total	total BTEX	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene	1,2-dichloroethane	Carbon tetrachloride	Chloroform	cis-1,2-dichloroethene	trans-1,2-dichloroethene	Dichloromethane	Hexachlorobutadiene	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Vinyl chloride	1,2,3-trichlorobenzene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.5	0.5	0.5	0.5	0.5	0.2	0.01	0.01	0.02	0.04	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.4	0.02	0.02	0.02	0.02	0.01
EPA Vic 1669.4: Interim position statement on PFAS																																										
EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3																																										
PFAS NEMP 2020 Table 2 Public open space (HIL C)																																										
PFAS NEMP 2020 Table 3 Ecological direct exposure																																										
PFAS NEMP 2020 Table 3 Ecological indirect exposure																																										
NEPM 2013 Table 1A(1) HIL C Soil								**3**[#5]	**3**[#5]	**3**[#5]									**300**[#7]																							
NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)																			**170**[#9]																							
NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space							**0.7**														**105**	**125**			**45**																	
NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space																																										
AS2159-2009 Piling – Design and Installation (Buildings & Structures)																																										
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																							
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.01
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.01
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.01
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.01
OS_BH07_1.0_20230328	28 Mar 2023	1	EM2305431	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.01
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.01
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.01
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.01
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.01
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.01
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Sands to loamy sands, sandy loams to light clays and medium to heavy clays and silty clays
#2 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (re
#3 In the absence of HILs for chromium (total), chromium VI HILs were adopted
#4 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bio
#5 Elemental mercury: HIL does not address elemental mercury, a site specific assessment should be considered if elemental mercury is preser
#6 Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P))
#7 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should
#8 PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-specific assessment of exposure to a
#9 Refer Table 1B(5)
#10 Assumed pH=6, refer Table 1B(2)
#11 Refer Table 1B(4)
#12 Assumed CEC=20cmol/kg, refer Table 1B(3)
#13 Assumed CEC=20cmol/kg and pH=6.5, refer Table 1B(1)
#14 Yes
#15 M. TRAN
#16 Brown soil with organic matter and synthetic mineral fibres.
#17 No
#18 -
#19 Brown soil with organic matter.
#20 Grey soil with organic matter and synthetic mineral fibres.
#21 Grey soil with organic matter.
#22 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, October 2020, EPA Vic 1669.4: Interim position statement on PFAS
EPA Victoria, July 2009, EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3
HEPA, January 2020, PFAS NEMP 2020 Table 2 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological indirect exposure
NEPM, April 2013, NEPM 2013 Table 1A(1) HIL C Soil
NEPM, April 2013, NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)
NEPM, April 2013, NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space
NEPM, April 2013, NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space
Aus Standards, April 2009, AS2159-2009 Piling – Design and Installation (Buildings & Structures)

					Halogenated Benzenes							Solvents	Volatile Organic Compounds (VOCs)	Semi Volatile Organic Compounds (SVOCs)	Per- and Poly-fluoroalkyl Substances (PFAS)									(n:2) Fluorotelomer Sulfonic Acids				Phenols																Phthalates		
			1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3,5-Trichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	Hexachlorobenzene	Trichlorobenzene (total)	Methyl Ethyl Ketone	Styrene	Formaldehyde	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanoic acid (PFHpA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Sum (PFHxS + PFOS)	1,2 Fluorotelomer sulfonic acid (4:2 FTS)	1,2 Fluorotelomer sulfonic acid (6:2 FTS)	1,2 Fluorotelomer sulfonic acid (8:2 FTS)	1,2 Fluorotelomer sulfonic acid (10:2 FTS)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,4-dinitrophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-o cyclohexylphenol	4-nitrophenol	3&4-Methylphenol (m&p-cresol)	cresol Total	Dinoseb	Phenol	Bis(2-ethylhexyl) phthalate	Vic EPA IWRG 621 Other OCP (Total)	4,4-DDE
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.01	0.02	0.01	0.02	0.02	0.03	0.01	1	0.5	2	0.002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.001	0.0002	0.5	0.5	0.0005	0.0005	0.05	0.05	0.03	1	5	0.03	1	1	5	5	5	1	1	5	1	0.5	0.03	0.05
EPA Vic 1669.4: Interim position statement on PFAS													0.002	0.001																														
EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3																																												
PFAS NEMP 2020 Table 2 Public open space (HIL C)														10							1																								
PFAS NEMP 2020 Table 3 Ecological direct exposure													1	10																														
PFAS NEMP 2020 Table 3 Ecological indirect exposure													**0.01**																															
NEPM 2013 Table 1A(1) HIL C Soil								**10**																														**4,000**		**40,000**				
NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)																																												
NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space																																												
NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space																																												
AS2159-2009 Piling – Design and Installation (Buildings & Structures)																																												
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																									
OS_BH01_01_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	-	-	-	-	<0.05	-	-	-	-	**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0002**	<0.5	<0.5	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5	<2	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0003**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5	<2	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0003**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5	<2	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0003**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5	<2	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0003**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05
OS_BH07_1.0_20230328	22 Mar 2023	1	EM2305431	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5	<2	**0.0004**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0004**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5	<2	**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0002**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5	**3**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5	<2	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	<0.05	-	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.5	<0.5	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	<0.05	-	-	-	-	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0003**	<0.5	<0.5	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5	<2	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5	<2	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Sands to loamy sands, sandy loams to light clays and medium to heavy clays and silty clays
#2 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (re
#3 In the absence of HILs for chromium (total), chromium VI HILs were adopted
#4 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bio
#5 Elemental mercury: HIL does not address elemental mercury, a site specific assessment should be considered if elemental mercury is preser
#6 Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P))
#7 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should
#8 PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-specific assessment of exposure to a
#9 Refer Table 1B(5)
#10 Assumed pH=6, refer Table 1B(2)
#11 Refer Table 1B(4)
#12 Assumed CEC=20cmol/kg, refer Table 1B(3)
#13 Assumed CEC=20cmol/kg and pH=6.5, refer Table 1B(1)
#14 Yes
#15 M_TRAN
#16 Brown soil with organic matter and synthetic mineral fibres.
#17 No
#18 -
#19 Brown soil with organic matter.
#20 Grey soil with organic matter and synthetic mineral fibres.
#21 Grey soil with organic matter.
#22 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, October 2020, EPA Vic 1669.4: Interim position statement on PFAS
EPA Victoria, July 2009, EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3
HEPA, January 2020, PFAS NEMP 2020 Table 2 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological indirect exposure
NEPM, April 2013, NEPM 2013 Table 1A(1) HIL C Soil
NEPM, April 2013, NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)
NEPM, April 2013, NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space
NEPM, April 2013, NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space
Aus Standards, April 2009, AS2159-2009 Piling – Design and Installation (Buildings & Structures)

					Organochlorine Pesticides (OCPs)																				Organophosphorous Pesticides (OPPs)																			
					a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos-methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Pirimiphos-ethyl	Prothiofos
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.03	0.05	0.03	0.03	0.03	0.03	0.03	0.05	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.2	0.2	0.05	0.05
EPA Vic 1669.4: Interim position statement on PFAS																																											
EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3																																											
PFAS NEMP 2020 Table 2 Public open space (HIL C)																																											
PFAS NEMP 2020 Table 3 Ecological direct exposure																																											
PFAS NEMP 2020 Table 3 Ecological indirect exposure																																											
NEPM 2013 Table 1A(1) HIL C Soil							10		70						400		340				20				10	400						250													
NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)														180[#3]																															
NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space																																												
NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space																																												
AS2159-2009 Piling – Design and Installation (Buildings & Structures)																																											
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																								
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_1.0_20230328	22 Mar 2023	1	EM2305431	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Sands to loamy sands, sandy loams to light clays and medium to heavy clays and silty clays
#2 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (re
#3 In the absence of HILs for chromium (total), chromium VI HILs were adopted
#4 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bio
#5 Elemental mercury: HIL does not address elemental mercury, a site specific assessment should be considered if elemental mercury is preser
#6 Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P))
#7 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should
#8 PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-specific assessment of exposure to a
#9 Refer Table 1B(5)
#10 Assumed pH=6, refer Table 1B(2)
#11 Refer Table 1B(4)
#12 Assumed CEC=20cmol/kg, refer Table 1B(3)
#13 Assumed CEC=20cmol/kg and pH=6.5, refer Table 1B(1)
#14 Yes
#15 M. TRAN
#16 Brown soil with organic matter and synthetic mineral fibres.
#17 No
#18 -
#19 Brown soil with organic matter.
#20 Grey soil with organic matter and synthetic mineral fibres.
#21 Grey soil with organic matter.
#22 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, October 2020, EPA Vic 1669.4: Interim position statement on PFAS
EPA Victoria, July 2009, EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3
HEPA, January 2020, PFAS NEMP 2020 Table 2 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological indirect exposure
NEPM, April 2013, NEPM 2013 Table 1A(1) HIL C Soil
NEPM, April 2013, NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)
NEPM, April 2013, NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space
NEPM, April 2013, NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space
Aus Standards, April 2009, AS2159-2009 Piling – Design and Installation (Buildings & Structures)

	Polychlorinated Biphenyls (PCBs)	Herbicides	Organotins	Explosives		Acid Sulfate Soils - Acid Base Accounting		Acid Sulfate Soils - Acidity Trail						Acid Sulfate Soils - ANC	Acid Sulfate Soils - Calcium Values					Acid Sulfate Soils - CRS	Acid Sulfate Soils - Liming Rate		Acid Sulfate Soils - Magnesium Values					Acid Sulfate Soils - pH	Acid Sulfate Soils - Sulfur Trail					SPOCAS	Asbestos							
	PCBs (sum of total)	Hedonal	Tributyltin oxide (TBTO)	2,4-Dinitrotoluene	Nitrobenzene	Net Acidity (acidity units)	Net Acidity (sulfur units)	Titratable Peroxide Acidity (23G)	Titratable Sulfidic Acidity (sulfur units)	Titratable Actual Acidity (sulfur units)	Titratable Peroxide Acidity (sulfur units)	Titratable Actual Acidity	Titratable Sulfidic Acidity	ANC Fineness Factor	Acid Reacted Calcium	Acidity - Acid Reacted Calcium	% Calcium in Peroxide	KCl Extractable Calcium	pH (KCl)	Liming Rate	Liming Rate excluding ANC	Acid Reacted Magnesium	Acid Reacted Magnesium (acidity units)	KCl Extractable Magnesium	% Magnesium in Peroxide	Acid Reacted Magnesium (sulfur units)	pH-OX	Peroxide Oxidisable Sulfur (acidity units)	KCl Extractable Sulfur	Peroxide Oxidisable Sulfur	Peroxide Sulfur	Net Acidity excluding ANC (acidity units)	Organic Fibre	Synthetic Mineral Fibre	APPROVED IDENTIFIER:	Sample Weight	Description	Asbestos fibres	Asbestos (Trace)	Asbestos Type
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mole H+/t	%S	mole H+/t	%S	%S	%S	mole H+/t	moles H+/t	-	% Ca	mole H+/t	%	%	pH units	kg CaCO3/t	kg CaCO3/t	% Mg	mole H+/t	%	%	%	pH units	mole H+/t	%	%	%	mole H+/t	-	-	Comment	g	Comment	g/kg	Fibres	Comment
EQL	0.1	0.001	0.01	1	0.5	10	0.02	2	0.02	0.02	0.02	2	2	0.5	0.02	10	0.02	0.02	0.1	1	1	0.02	10	0.02	0.02	0.02	0.1	10	0.02	0.02	0.02	10	-	-	-	0.01	-	0.1	5	-
EPA Vic 1669.4: Interim position statement on PFAS																																								
EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3						18[#1]	0.03[#1]																																	
PFAS NEMP 2020 Table 2 Public open space (HIL C)																																								
PFAS NEMP 2020 Table 3 Ecological direct exposure																																								
PFAS NEMP 2020 Table 3 Ecological indirect exposure																																								
NEPM 2013 Table 1A(1) HIL C Soil	1[#8]	1,300																																						
NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)																																								
NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space																																								
NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space																																								
AS2159-2009 Piling – Design and Installation (Buildings & Structures)																																								
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																				
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	-	-	-	-	-	**30**	**0.05**	**22**	<0.020	**0.021**	**0.035**	**13**	**9**	**1.5**	<0.020	<10	**0.075**	**0.073**	**5.6**	**2**	**2**	<0.020	<10	**0.086**	**0.088**	<0.020	**5.4**	**17**	<0.020	**0.027**	**0.027**	**30**	-	-	-	-	-	-	-	-
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**[#14]	**1**[#14]	**1**[#15]	**43.0**	**1**[#16]	**0**[#17]	**0**[#17]	**1**[#18]
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	-	-	-	-	**33**	**0.05**	**72**	**0.063**	**0.053**	**0.116**	**33**	**39**	**1.5**	<0.020	<10	**0.022**	**0.022**	**4.8**	**2**	**2**	<0.020	<10	**0.084**	**0.084**	<0.020	**5.4**	<10	<0.020	<0.020	<0.020	**33**	-	-	-	-	-	-	-	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**[#14]	**0**[#17]	**1**[#15]	**65.5**	**1**[#19]	**0**[#17]	**0**[#17]	**1**[#18]
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	-	-	-	-	**13**	**0.02**	**20**	<0.020	**0.021**	**0.032**	**13**	**6**	**1.5**	<0.020	<10	**0.023**	**0.022**	**5.5**	**1**	**1**	<0.020	<10	**0.089**	**0.094**	<0.020	**5.4**	<10	<0.020	<0.020	<0.020	**13**	-	-	-	-	-	-	-	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**[#14]	**1**[#14]	**1**[#15]	**57.0**	**1**[#20]	**0**[#17]	**0**[#17]	**1**[#18]
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	-	-	-	-	<10	<0.02	**15**	<0.020	<0.020	**0.024**	**5**	**10**	**1.5**	<0.020	<10	**0.060**	**0.059**	**6.4**	<1	<1	<0.020	<10	**0.125**	**0.125**	<0.020	**5.9**	<10	<0.020	<0.020	<0.020	<10	-	-	-	-	-	-	-	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**[#14]	**0**[#17]	**1**[#15]	**45.4**	**1**[#19]	**0**[#17]	**0**[#17]	**1**[#18]
OS_BH07_1.0_20230328	28 Mar 2023	1	EM2305431	Normal	-	-	-	-	-	**23**	**0.04**	**41**	**0.029**	**0.037**	**0.066**	**23**	**18**	**1.5**	<0.020	<10	**0.044**	**0.044**	**4.9**	**2**	**2**	<0.020	<10	**0.101**	**0.102**	<0.020	**5.1**	<10	<0.020	<0.020	<0.020	**23**	-	-	-	-	-	-	-	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**[#14]	**0**[#17]	**1**[#15]	**36.8**	**1**[#21]	**0**[#17]	**0**[#17]	**1**[#18]
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	**40**	**0.06**	**56**	**0.025**	**0.064**	**0.089**	**40**	**16**	**1.5**	<0.020	<10	<0.020	<0.020	**4.6**	**3**	**3**	<0.020	<10	**0.125**	**0.125**	<0.020	**4.6**	<10	<0.020	<0.020	<0.020	**40**	-	-	-	-	-	-	-	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**[#14]	**0**[#17]	**1**[#15]	**39.5**	**1**[#19]	**0**[#17]	**0**[#17]	**1**[#18]
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**[#14]	**0**[#17]	**1**[#15]	**41.2**	**1**[#21]	**0**[#17]	**0**[#17]	**1**[#18]
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	**36**	**0.06**	**47**	**0.041**	**0.034**	**0.075**	**21**	**26**	**1.5**	<0.020	<10	**0.060**	**0.056**	**5.2**	**3**	**3**	<0.020	<10	**0.106**	**0.116**	<0.020	**4.4**	**16**	<0.020	**0.025**	**0.025**	**36**	-	-	-	-	-	-	-	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**[#14]	**0**[#17]	**1**[#15]	**43.9**	**1**[#22]	**0**[#17]	**0**[#17]	**1**[#18]
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	**24**	**0.04**	**52**	**0.048**	**0.036**	**0.084**	**22**	**30**	**1.5**	<0.020	<10	**0.104**	**0.102**	**5.0**	**2**	**2**	<0.020	<10	**0.122**	**0.127**	<0.020	**4.8**	<10	**0.025**	<0.020	**0.028**	**24**	-	-	-	-	-	-	-	-
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	<10	<0.02	**10**	<0.020	<0.020	<0.020	**4**	**6**	**1.5**	<0.020	<10	**0.048**	**0.045**	**5.9**	<1	<1	<0.020	<10	**0.113**	**0.115**	<0.020	**6.2**	<10	<0.020	<0.020	<0.020	<10	-	-	-	-	-	-	-	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**[#14]	**0**[#17]	**1**[#15]	**42.1**	**1**[#22]	**0**[#17]	**0**[#17]	**1**[#18]
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	**25**	**0.04**	**36**	<0.020	**0.041**	**0.058**	**25**	**11**	**1.5**	<0.020	<10	<0.020	<0.020	**4.8**	**2**	**2**	<0.020	<10	**0.086**	**0.086**	<0.020	**4.9**	<10	<0.020	<0.020	<0.020	**25**	-	-	-	-	-	-	-	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**[#14]	**0**[#17]	**1**[#15]	**53.8**	**1**[#21]	**0**[#17]	**0**[#17]	**1**[#18]
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	**17**	**0.03**	**20**	<0.020	**0.027**	**0.031**	**17**	**2**	**1.5**	<0.020	<10	**0.043**	**0.043**	**6.1**	**1**	**1**	<0.020	<10	**0.150**	**0.151**	<0.020	**5.7**	<10	<0.020	<0.020	<0.020	**17**	-	-	-	-	-	-	-	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Sands to loamy sands, sandy loams to light clays and medium to heavy clays and silty clays
#2 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (re
#3 In the absence of HILs for chromium (total), chromium VI HILs were adopted
#4 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bio
#5 Elemental mercury: HIL does not address elemental mercury, a site specific assessment should be considered if elemental mercury is preser
#6 Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P))
#7 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should
#8 PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-specific assessment of exposure to a
#9 Refer Table 1B(5)
#10 Assumed pH=6, refer Table 1B(2)
#11 Refer Table 1B(4)
#12 Assumed CEC=20cmol/kg, refer Table 1B(3)
#13 Assumed CEC=20cmol/kg and pH=6.5, refer Table 1B(1)
#14 Yes
#15 M_TRAN
#16 Brown soil with organic matter and synthetic mineral fibres.
#17 No
#18 -
#19 Brown soil with organic matter.
#20 Grey soil with organic matter and synthetic mineral fibres.
#21 Grey soil with organic matter.
#22 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, October 2020, EPA Vic 1669.4: Interim position statement on PFAS
EPA Victoria, July 2009, EPA Vic 655.1 (2009) Net Acidity Criteria (>1000 tonnes) Appendix 3, Table 3
HEPA, January 2020, PFAS NEMP 2020 Table 2 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Table 3 Ecological indirect exposure
NEPM, April 2013, NEPM 2013 Table 1A(1) HIL C Soil
NEPM, April 2013, NEPM 2013 Table 1B(1-5) EIL Urb Res Default (Aged)
NEPM, April 2013, NEPM 2013 Table 1B(6) ESL, Fine Soil, Urban Residential/Public Open Space
NEPM, April 2013, NEPM 2013 Table 1B(7) ML, Coarse Soil, Residential/parkland/public open space
Aus Standards, April 2009, AS2159-2009 Piling – Design and Installation (Buildings & Structures)

					Acid Sulphate Soils	Acid Sulphate Soils - Calcium Values	NA	Metals																															
					Net Acidity without ANCE	Sulfidic - Acid Reacted Calcium_	Naphthalene (value used in F2 calc)	Antimony	Arsenic		Arsenic (filtered)	Barium		Barium (filtered)	Beryllium		Beryllium (filtered)	Boron		Boron (filtered)	Cadmium		Cadmium (filtered)	Chromium (hexavalent)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Cobalt		Cobalt (filtered)	Copper		Copper (filtered)	Lead		Lead (filtered)	Manganese	
					% S	% S	mg/kg	mg/kg	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	
EQL					0.02	0.02	1	5	2	1	1	10	1	1	1	1	1	10	50	50	0.4	0.1	0.1	0.5	2	1	1	2	1	1	5	1	1	5	1	1	5	
EPA Vic IWRG1828.2 Category B upper limit								300	2,000	4,000	4,000	25,000	800,000	800,000	400			60,000	1,600,000	1,600,000	400	800	800	2,000							20,000	800,000	800,000	6,000	4,000	4,000		
EPA Vic IWRG1828.2 Category C upper limit								75	500	1,000	1,000	6,250	200,000	200,000	100			15,000	400,000	400,000	100	200	200	500							5,000	200,000	200,000	1,500	1,000	1,000		
EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit								75	500	500	500	6,250	100,000	100,000	100	3,000	3,000	15,000	200,000	200,000	100	100	100	500							5,000	100,000	100,000	1,500	500	500		
EPA Vic IWRG1828.2 Fill material upper limit									20												3			1							100			300				
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																		
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**5**	-	-	<2	-	-	<5	-	-	**7**	-	-	**18**	
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	**0.05**	<0.020	-	-	<5	-	-	**150**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**18**	-	-	**3**	-	-	**8**	-	-	**11**	-	-	**9**	
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	-	-	-	<5	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	<5	-	-	**9**	-	-	-	
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	**0.05**	<0.020	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**16**	-	-	<2	-	-	**7**	-	-	**12**	-	-	**9**	
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	-	-	-	<5	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	<5	-	-	**10**	-	-	-	
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	**0.02**	<0.020	-	-	<5	-	-	**10**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**17**	-	-	<2	-	-	**9**	-	-	**12**	-	-	**5**	
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	-	-	-	<5	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**6**	-	-	**7**	-	-	-	
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	<0.02	<0.020	-	-	<5	-	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**15**	-	-	**3**	-	-	**7**	-	-	**11**	-	-	**8**	
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	-	-	-	<5	<5	-	-	**40**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	<5	-	-	**10**	-	-	-	
OS_BH07_1.0_20230328	22 Mar 2023	1	EM2305431	Normal	**0.04**	<0.020	-	-	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**15**	-	-	**3**	-	-	**7**	-	-	**11**	-	-	**10**	
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	-	-	<5	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**6**	-	-	**5**	-	-	-	
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	**0.06**	<0.020	-	-	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**25**	-	-	**2**	-	-	**12**	-	-	**14**	-	-	**5**	
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	-	-	<1	<5	<5	-	-	**100**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**10**	-	-	**11**	-	-	-	
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	<5	-	-	**50**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**16**	-	-	**2**	-	-	**6**	-	-	**7**	-	-	**19**	
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**13**	-	-	**3**	-	-	**6**	-	-	**9**	-	-	**9**	
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**15**	-	-	**3**	-	-	**8**	-	-	**11**	-	-	**8**	
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	-	-	<5	<5	-	-	**50**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**11**	-	-	**14**	-	-	-	
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	**0.06**	<0.020	-	-	<5	-	-	**50**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**22**	-	-	**3**	-	-	**6**	-	-	**13**	-	-	**5**	
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	<5	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	<5	-	-	**9**	-	-	-	
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	**0.04**	<0.020	-	-	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**29**	-	-	**3**	-	-	**15**	-	-	**14**	-	-	**18**	
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**5**	-	-	<2	-	-	<5	-	-	**15**	-	-	**16**	
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	<5	-	-	**50**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**35**	-	-	**4**	-	-	**10**	-	-	**17**	-	-	**24**	
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	<5	-	-	**10**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**3**	-	-	<2	-	-	<5	-	-	**5**	-	-	**11**	
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	<5	-	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	<2	-	-	<2	-	-	<5	-	-	<5	-	-	<5	
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	<5	-	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**18**	-	-	**2**	-	-	**6**	-	-	**9**	-	-	**13**	
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	<5	-	-	**10**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**4**	-	-	<2	-	-	<5	-	-	**6**	-	-	<5	
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	<5	-	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**17**	-	-	**2**	-	-	**14**	-	-	**12**	-	-	**16**	
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	<5	-	-	**10**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**4**	-	-	<2	-	-	<5	-	-	**7**	-	-	**12**	
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	<5	-	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**9**	-	-	<2	-	-	<5	-	-	**7**	-	-	<5	
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	<5	-	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**16**	-	-	**2**	-	-	**7**	-	-	**11**	-	-	**7**	
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**4**	-	-	<2	-	-	<5	-	-	**8**	-	-	**12**	
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	<5	-	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**18**	-	-	**2**	-	-	**7**	-	-	**11**	-	-	**6**	
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**4**	-	-	<2	-	-	<5	-	-	**5**	-	-	**34**	
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	<5	-	-	**10**	-	-	**1**	-	-	<50	-	-	<1	-	-	<0.5	**27**	-	-	**5**	-	-	**15**	-	-	**18**	-	-	**15**	
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	<5	-	-	**60**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**13**	-	-	**8**	-	-	**8**	-	-	**8**	-	-	**29**	
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**5**	-	-	<2	-	-	**5**	-	-	**9**	-	-	**36**	
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	<5	-	-	**10**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**20**	-	-	**2**	-	-	**13**	-	-	**14**	-	-	**5**	
OS_TP13_0.1_202303030	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**5**	-	-	<2	-	-	<5	-	-	**6**	-	-	**30**	
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**22**	-	-	**4**	-	-	**13**	-	-	**14**	-	-	**9**	
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	<5	-	-	**60**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**9**	-	-	<2	-	-	**5**	-	-	**12**	-	-	**190**	
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	<5	-	-	**40**	-	-	**1**	-	-	<50	-	-	<1	-	-	<0.5	**39**	-	-	**4**	-	-	**9**	-	-	**15**	-	-	<5	
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	<5	-	-	**40**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**8**	-	-	<2	-	-	<5	-	-	**7**	-	-	**17**	
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	<5	-	-	**50**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**24**	-	-	**3**	-	-	**9**	-	-	**12**	-	-	**18**	
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**25**	-	-	**4**	-	-	**10**	-	-	**13**	-	-	**41**	
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	<0.02	<0.020	-	-	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**6**	-	-	<2	-	-	<5	-	-	**9**	-	-	**44**	
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	<5	<5	-	-	**90**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**11**	-	-	**10**	-	-	-	
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	**0.04**	<0.020	-	-	<5	-	-	**40**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**17**	-	-	**2**	-	-	**6**	-	-	**11**	-	-	**13**	
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	<5	-	-	**70**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**12**	-	-	<2	-	-	**7**	-	-	**9**	-	-	**24**	
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**10**	-	-	<2	-	-	<5	-	-	**7**	-	-	**8**	
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**6**	-	-	<2	-	-	<5	-	-	**8**	-	-	**86**	
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	<5	-	-	**20**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**8**	-	-	<2	-	-	<5	-	-	**8**	-	-	**5**	
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	<5	-	-	**110**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**10**	-	-	<2	-	-	<5	-	-	**10**	-	-	**6**	
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**6**	-	-	<2	-	-	**10**	-	-	**10**	-	-	**66**	
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	<5	-	-	**40**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**21**	-	-	**2**	-	-	**13**	-	-	**16**	-	-	<5	
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	<5	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	-	-	-	-	-	-	**10**	-	-	**10**	-	-	-	
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	<5	-	-	**250**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**20**	-	-	**3**	-	-	**10**	-	-	**11**	-	-	**7**	
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	**0.03**	<0.020	-	-	<5	-	-	<10	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**20**	-	-	**3**	-	-	**8**	-	-	**12**	-	-	**10**	
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	<5	-	-	**40**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**10**	-	-	**2**	-	-	**12**	-	-	**14**	-	-	**102**	
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	<5	-	-	**30**	-	-	<1	-	-	<50	-	-	<1	-	-	<0.5	**14**	-	-	<2	-	-	**7**	-	-	**10**	-	-	<5	

Comments

#1 Please refer to IWRG1828.2 Table 2 for a list of sum constituents.
#2 Leachable Concentration based on NSW - Waste Classification Guidelines Part 1: Classifying waste, 2014. Maximum values for leachable concentration when used together with specific contaminant concentration
#3 Yes
#4 M. TRAN
#5 Brown soil with organic matter and synthetic mineral fibres.
#6 No
#7 -
#8 Brown soil with organic matter.
#9 Grey soil with organic matter and synthetic mineral fibres.
#10 Grey soil with organic matter.
#11 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Fill material upper limit

																								Inorganics				Physiochemical parameters			TRH - NEPM 2013 Fractions									
			Manganese	Manganese (filtered)	Mercury	Mercury (filtered)	Molybdenum	Nickel	Nickel (filtered)	Selenium	Selenium (filtered)	Silver	Vanadium	Vanadium (filtered)	Zinc	Zinc (filtered)	Cyanide (amenable)	Cyanide Total	Ethylenediaminetetraacetic acid	Fluoride	Moisture Content	Moisture Content (dried @ 103°C)	pH (CaCl2)	TRH >C6 - C10	TRH >C10 - C16	TRH >C16 - C34	TRH >C34 - C40	TRH >C10 - C40 (Sum of total)	TRH >C6 - C10 less BTEX (F1)	TRH >C10 - C16 less Naphthalene (F2)	TPH C6 - C9
			µg/L	µg/L	mg/kg	µg/L	µg/L	mg/kg	mg/kg	µg/L	µg/L	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	mg/kg	mg/kg	mg/kg	%	%	pH Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	1	0.1	0.1	2	2	1	1	2	10	10	2	5	10	10	5	5	5	1	1	10	40	0.1	1	0.1	10	50	100	100	50	10	50	10
EPA Vic IWRG1828.2 Category B upper limit					300	400	4,000	12,000	8,000	8,000	40,000	4,000	4,000	720				140,000	1,200,000	1,200,000	1,200	10,000	4,000	40,000											2,600
EPA Vic IWRG1828.2 Category C upper limit					75	100	100	1,000	3,000	2,000	2,000	10,000	1,000	1,000	180			35,000	300,000	300,000	300	2,500	1,000	10,000											650
EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit					75	50	50	1,000	3,000	1,000	1,000	10,000	500	500	180			35,000	150,000	150,000	300	2,500	1,000	10,000											325
EPA Vic IWRG1828.2 Fill material upper limit					1			40	60			10			10			200				50		450											100
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																							
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	-	<0.1	-	-	-	<2	-	-	<5	-	-	-	**16**	-	-	<5	-	-	-	-	-	-	**8.5**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**33**	-	-	<5	-	-	-	-	-	-	**16.7**	-	-	<10	-	-	-	<10	-	<10	-	<10	-	<10
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	-	-	<0.1	-	-	<2	**2**	-	-	<5	-	-	<2	-	-	-	**6**	-	-	<1	**1**	<10	**70**	**13.0**	-	**4.6**	<10	<50	<100	<100	<50	<10	<50	<10
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	-	<0.1	-	-	-	**3**	-	-	<5	-	-	-	**33**	-	-	<5	-	-	-	-	-	-	**20.0**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	-	-	<0.1	-	-	<2	<2	-	-	<5	-	-	<2	-	-	-	<5	-	-	<1	**1**	<10	**50**	**7.7**	-	**4.6**	<10	<50	**120**	<100	**120**	<10	<50	<10
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**34**	-	-	**8**	-	-	-	-	-	-	**15.7**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	-	-	<0.1	-	-	<2	<2	-	-	<5	-	-	<2	-	-	-	**10**	-	-	**1**	**1**	<10	**40**	**8.4**	-	**4.9**	<10	<50	**100**	<100	**100**	<10	<50	<10
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**27**	-	-	<5	-	-	-	-	-	-	**14.4**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	-	-	<0.1	-	-	<2	**2**	-	-	<5	-	-	<2	-	-	-	**6**	-	-	**1**	**1**	<10	<40	**8.5**	-	**5.4**	<10	<50	**120**	<100	**120**	<10	<50	<10
OS_BH07_1.0_20230328	22 Mar 2023	1	EM2305431	Normal	-	-	<0.1	-	-	-	**3**	-	-	<5	-	-	-	**26**	-	-	<5	-	-	-	-	-	-	**17.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	-	<0.1	-	-	<2	<2	-	-	<5	-	-	<2	-	-	-	**8**	-	-	<1	<1	<10	<40	**10.9**	-	**5.6**	<10	<50	<100	<100	<50	<10	<50	<10
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	<0.1	-	-	-	**6**	-	-	<5	-	-	-	**52**	-	-	**5**	-	-	-	-	-	-	**20.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	-	-	<0.1	-	-	<2	**8**	-	-	<5	-	-	<2	-	-	-	**7**	-	-	<1	<1	<10	**110**	**10.5**	-	**4.2**	<10	<50	<100	<100	<50	<10	<50	<10
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**27**	-	-	<5	-	-	-	-	-	-	**5.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**19**	-	-	<5	-	-	-	-	-	-	**12.3**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**34**	-	-	<5	-	-	-	-	-	-	**14.1**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	-	<0.1	-	-	<2	**4**	-	-	<5	-	-	<2	-	-	-	**9**	-	-	<1	<1	<10	**130**	**11.6**	-	**5.2**	<10	<50	<100	<100	<50	<10	<50	<10
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**39**	-	-	<5	-	-	-	-	-	-	**14.0**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	<0.1	-	-	<2	<2	-	-	<5	-	-	<2	-	-	-	<5	-	-	<1	<1	<10	**100**	**5.2**	-	**5.2**	<10	<50	<100	<100	<50	<10	<50	<10
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	-	-	<0.1	-	-	-	**7**	-	-	<5	-	-	-	**61**	-	-	<5	-	-	-	-	-	-	**20.2**	-	-	<10	-	-	-	<10	-	<10	-	<10	-	<10
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	<0.1	-	-	<2	<2	-	-	<5	-	-	-	**15**	-	-	<5	-	-	-	-	-	-	**5.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	<0.1	-	-	-	**9**	-	-	<5	-	-	-	**49**	-	-	**6**	-	-	-	-	-	-	**25.9**	-	-	<10	-	-	-	<10	-	<10	-	<10	-	<10
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	<0.1	-	-	-	<2	-	-	<5	-	-	-	**9**	-	-	<5	-	-	-	-	-	-	**4.7**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	<0.1	-	-	-	<2	-	-	<5	-	-	-	**8**	-	-	<5	-	-	-	-	-	-	**3.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**17**	-	-	<5	-	-	-	-	-	-	**14.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	<0.1	-	-	-	<2	-	-	<5	-	-	-	**10**	-	-	<5	-	-	-	-	-	-	**4.5**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	<0.1	-	-	-	**5**	-	-	<5	-	-	-	**38**	-	-	<5	-	-	-	-	-	-	**14.3**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	<0.1	-	-	-	<2	-	-	<5	-	-	-	**18**	-	-	<5	-	-	-	-	-	-	**5.3**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	<0.1	-	-	-	**2**	-	-	<5	-	-	-	**27**	-	-	<5	-	-	-	-	-	-	**18.1**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**26**	-	-	<5	-	-	-	-	-	-	**15.2**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	<0.1	-	-	-	<2	-	-	<5	-	-	-	**12**	-	-	<5	-	-	-	-	-	-	**7.2**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**28**	-	-	<5	-	-	-	-	-	-	**15.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	<0.1	-	-	-	<2	-	-	<5	-	-	-	**7**	-	-	**9**	-	-	-	-	-	-	**5.7**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	<0.1	-	-	-	**10**	-	-	<5	-	-	-	**54**	-	-	**6**	-	-	-	-	-	-	**16.1**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**26**	-	-	<5	-	-	-	-	-	-	**14.9**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	<0.1	-	-	-	**2**	-	-	<5	-	-	-	**10**	-	-	**7**	-	-	-	-	-	-	**6.4**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**43**	-	-	<5	-	-	-	-	-	-	**17.2**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_202303030	30 Mar 2023	0.1	EM2305898	Normal	-	-	<0.1	-	-	-	<2	-	-	<5	-	-	-	**12**	-	-	<5	-	-	-	-	-	-	**7.3**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	<0.1	-	-	-	**7**	-	-	<5	-	-	-	**55**	-	-	<5	-	-	-	-	-	-	**12.4**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	<0.1	-	-	-	**3**	-	-	<5	-	-	-	**25**	-	-	**13**	-	-	-	-	-	-	**8.7**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	<0.1	-	-	-	**9**	-	-	<5	-	-	-	**66**	-	-	**5**	-	-	-	-	-	-	**23.2**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	<0.1	-	-	-	**3**	-	-	<5	-	-	-	**16**	-	-	<5	-	-	-	-	-	-	**6.2**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	<0.1	-	-	-	**6**	-	-	<5	-	-	-	**33**	-	-	<5	-	-	-	-	-	-	**18.5**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	<0.1	-	-	-	**8**	-	-	<5	-	-	-	**45**	-	-	<5	-	-	-	-	-	-	**5.3**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	<0.1	-	-	-	**2**	-	-	<5	-	-	-	**20**	-	-	<5	-	-	-	-	-	-	**18.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	<0.1	-	-	<2	**9**	-	-	<5	-	-	<2	-	-	-	**6**	-	-	<1	<1	<10	**120**	**11.6**	-	**4.5**	<10	<50	<100	<100	<50	<10	<50	<10
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**21**	-	-	<5	-	-	-	-	-	-	**14.3**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	<0.1	-	-	-	**5**	-	-	<5	-	-	-	**22**	-	-	<5	-	-	-	-	-	-	**10.8**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	<0.1	-	-	-	**3**	-	-	<5	-	-	-	**19**	-	-	<5	-	-	-	-	-	-	**7.7**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	<0.1	-	-	-	<2	-	-	<5	-	-	-	**15**	-	-	<5	-	-	-	-	-	-	**4.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	<0.1	-	-	-	<2	-	-	<5	-	-	-	**20**	-	-	<5	-	-	-	-	-	-	**9.0**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	<0.1	-	-	-	**2**	-	-	<5	-	-	-	**27**	-	-	<5	-	-	-	-	-	-	**17.7**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	<0.1	-	-	-	**2**	-	-	<5	-	-	-	**18**	-	-	**8**	-	-	-	-	-	-	**16.0**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	<0.1	-	-	-	**4**	-	-	<5	-	-	-	**55**	-	-	<5	-	-	-	-	-	-	**15.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	<0.1	-	-	<2	**2**	-	-	<5	-	-	<2	-	-	-	**9**	-	-	<1	<1	<10	**110**	**8.3**	-	**5.4**	<10	<50	<100	<100	<50	<10	<50	<10
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	<0.1	-	-	-	**5**	-	-	<5	-	-	-	**35**	-	-	<5	-	-	-	-	-	-	**15.3**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	<0.1	-	-	-	**5**	-	-	<5	-	-	-	**41**	-	-	<5	-	-	-	-	-	-	**16.7**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	<0.1	-	-	-	**3**	-	-	<5	-	-	-	**22**	-	-	**12**	-	-	-	-	-	-	**12.6**	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	<0.1	-	-	-	**2**	-	-	<5	-	-	-	**37**	-	-	<5	-	-	-	-	-	-	**11.5**	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Please refer to IWRG1828.2 Table 2 for a list of sum constituents.
#2 Leachable Concentration based on NSW - Waste Classification Guidelines Part 1: Classifying waste, 2014. Maximum values for leachable c
#3 Yes
#4 M. TRAN
#5 Brown soil with organic matter and synthetic mineral fibres.
#6 No
#7 -
#8 Brown soil with organic matter.
#9 Grey soil with organic matter and synthetic mineral fibres.
#10 Grey soil with organic matter.
#11 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Fill material upper limit

					TPH - NEPM 1999 Fractions				TRH - (Silica Gel Cleanup)						TPH - (Silica Gel Cleanup)			BTEXN	Polycyclic aromatic hydrocarbons (PAHs)																	
					TPH C10 - C14	TPH C15 - C28	TPH C29-C36	TPH C10 - C36 (Sum of total)	TRH >C10 - C16 SG Cleanup less Naphthalene F2	TRH >C10-C16 (after silica gel clean-up)	TRH C10-C36 (Total) (after silica gel clean-up)	TRH >C10 - C40 Fraction (sum) (silica gel clean-up)	TRH >C16-C34 (after silica gel clean-up)	TRH >C34-C40 (after silica gel clean-up)	TPH C10-C14 Fraction after Silica Cleanup	TPH C15-C28 Fraction after Silica Cleanup	TPH C29-C36 Fraction after Silica Cleanup	Benzene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(b+j+k)fluoranthene	Benzo(b)fluoranthene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ calc (zero)	Benzo(a)pyrene TEQ calc(PQL)	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Naphthalene
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					50	100	100	50	50	50	50	50	100	100	50	100	100	0.2	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
EPA Vic IWRG1828.2 Category B upper limit								40,000										16									160										
EPA Vic IWRG1828.2 Category C upper limit								10,000										4									40										
EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit								5,000										4									20										
EPA Vic IWRG1828.2 Fill material upper limit								1,000										1									1										
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																	
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	-	-	-	-	<50	<50	<50	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	<50	<100	**110**	**110**	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_BH07_1.0_20230328	22 Mar 2023	1	EM2305431	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	<50	<50	<50	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	<50	<50	<50	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_202303030	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<1.0	-	-	<0.5	<0.5	**0.6**	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Please refer to IWRG1828.2 Table 2 for a list of sum constituents.
#2 Leachable Concentration based on NSW - Waste Classification Guidelines Part 1: Classifying waste, 2014. Maximum values for leachable c
#3 Yes
#4 M. TRAN
#5 Brown soil with organic matter and synthetic mineral fibres.
#6 No
#7 -
#8 Brown soil with organic matter.
#9 Grey soil with organic matter and synthetic mineral fibres.
#10 Grey soil with organic matter.
#11 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Fill material upper limit

				Monocyclic Aromatic Hydrocarbons (MAHs)							Chlorinated Hydrocarbons														Halogenated Benzenes								Solvents	Volatile Organic Compounds (VOCs)
				PAHs (Sum of total)	Sum of monocyclic aromatic hydrocarbons	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene	1,2-dichloroethane	Carbon tetrachloride	Chloroform	cis-1,2-dichloroethene	trans-1,2-dichloroethene	Dichloromethane	Hexachlorobutadiene	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3,5-Trichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	Hexachlorobenzene	Trichlorobenzene (total)	Methyl Ethyl Ketone	Styrene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.5	0.2	0.5	0.5	0.5	0.5	0.5	0.2	0.01	0.01	0.02	0.04	0.01	0.02	0.01	0.02	0.01	0.02	0.4	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.01	0.02	0.02	0.02	0.03	0.01	1	0.5
EPA Vic IWRG1828.2 Category B upper limit				400[#1]		12,800	4,800			9,600		1,600	4,800	210	190	480	48	48	960			64	11	80	800	4.8			24,000		640	4,800		480	32,000	480
EPA Vic IWRG1828.2 Category C upper limit				100[#1]		3,200	1,200			2,400		400	1,200	52	48	120	12	12	240			16	2.8	20	200	1.2			6,000		160	1,200		120	8,000	120
EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit				50[#1]		3,200	1,200			2,400		400	1,200	52	48	120	12	12	240			16	2.8	20	200	1.2			6,000		160	1,200		120	8,000	120
EPA Vic IWRG1828.2 Fill material upper limit																																				
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5
OS_BH07_1.0_20230328	22 Mar 2023	1	EM2305431	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_202303030	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.4	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.03	<0.01	<1	<0.5
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Please refer to IWRG1828.2 Table 2 for a list of sum constituents.
#2 Leachable Concentration based on NSW - Waste Classification Guidelines Part 1: Classifying waste, 2014. Maximum values for leachable c
#3 Yes
#4 M. TRAN
#5 Brown soil with organic matter and synthetic mineral fibres.
#6 No
#7 -
#8 Brown soil with organic matter.
#9 Grey soil with organic matter and synthetic mineral fibres.
#10 Grey soil with organic matter.
#11 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Fill material upper limit

						Semi Volatile Organic Compounds (SVOCs)	Per- and Poly-fluoroalkyl Substances (PFAS)									(n:2) Fluorotelomer Sulfonic Acids				Phenols											Phthalates			
						Formaldehyde	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanoic acid (PFHpA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Sum (PFHxS + PFOS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,4-dinitrophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-nitrophenol	3&4-Methylphenol (m&p-cresol)	Cresol Total	Dinoseb	Phenol	Bis(2-ethylhexyl) phthalate	Vic EPA IWRG 621 Other OCP (Total)	4,4-DDE	a-BHC
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						2	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.001	0.0002	0.5	0.5	0.0005	0.0005	0.05	0.05	0.03	1	5	0.03	1	1	5	5	5	1	1	5	1	0.5	0.03	0.05	0.03
EPA Vic IWRG1828.2 Category B upper limit						8,000														64,000	320	3,200			4,800						32,000			160			
EPA Vic IWRG1828.2 Category C upper limit						2,000														16,000	80	800			1,200						8,000			40			
EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit						2,000														16,000	80	800			1,200						8,000			40			
EPA Vic IWRG1828.2 Fill material upper limit																																				
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0002**	<0.5	<0.5	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	<2	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0003**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05	<0.03
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	<2	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0003**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05	<0.03
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	<2	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0003**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05	<0.03
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	<2	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0003**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05	<0.03
OS_BH07_1.0_20230328	22 Mar 2023	1	EM2305431	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<2	**0.0004**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0004**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05	<0.03
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	<2	**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0002**	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05	<0.03
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	**3**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05	<0.03
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	<2	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05	<0.03
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_202303030	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.5	<0.5	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	**0.0003**	<0.5	<0.5	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	<2	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05	<0.03
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	<2	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.5	<0.5	<0.0005	<0.0005	<0.05	<0.05	<0.03	<1	<5	<0.03	<1	<1	<5	<5	<5	<1	<1	<5	<1	<0.5	<0.03	<0.05	<0.03
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Please refer to IWRG1828.2 Table 2 for a list of sum constituents.
#2 Leachable Concentration based on NSW - Waste Classification Guidelines Part 1: Classifying waste, 2014. Maximum values for leachable c
#3 Yes
#4 M. TRAN
#5 Brown soil with organic matter and synthetic mineral fibres.
#6 No
#7 -
#8 Brown soil with organic matter.
#9 Grey soil with organic matter and synthetic mineral fibres.
#10 Grey soil with organic matter.
#11 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Fill material upper limit

					Organochlorine Pesticides (OCPs)																				Organophosphorous Pesticides (OPPs)											
					Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.03	0.05	0.03	0.03	0.03	0.03	0.03	0.05	0.03	0.03	0.03	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
EPA Vic IWRG1828.2 Category B upper limit						4.8		16						50										4.8													
EPA Vic IWRG1828.2 Category C upper limit						1.2		4						50										1.2													
EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit						1.2		4						50										1.2													
EPA Vic IWRG1828.2 Fill material upper limit																																					
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																	
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_1.0_20230328	22 Mar 2023	1	EM2305431	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_202303030	30 Mar 2023	0.1	EM2305898	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Please refer to IWRG1828.2 Table 2 for a list of sum constituents.
#2 Leachable Concentration based on NSW - Waste Classification Guidelines Part 1: Classifying waste, 2014. Maximum values for leachable c
#3 Yes
#4 M. TRAN
#5 Brown soil with organic matter and synthetic mineral fibres.
#6 No
#7 -
#8 Brown soil with organic matter.
#9 Grey soil with organic matter and synthetic mineral fibres.
#10 Grey soil with organic matter.
#11 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Fill material upper limit

												Polychlorinated Biphenyls (PCBs)	Herbicides	Organotins	Explosives		Acid Sulfate Soils - Acid Base Accounting		Acid Sulfate Soils - Acidity Trail						Acid Sulfate Soils - ANC	Acid Sulfate Soils - Calcium Values				Acid Sulfate Soils - CRS	Acid Sulfate Soils - Liming Rate		Acid Sulfate Soils - Magnesium Values				
					Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Pirimphos-ethyl	Prothiofos	PCBs (Sum of total)	Hedonal	Tributyltin oxide (TBTO)	2,4-Dinitrotoluene	Nitrobenzene	Net Acidity (acidity units)	Net Acidity (sulfur units)	Titratable Peroxide Acidity (23G)	Titratable Sulfidic Acidity (sulfur units)	Titratable Actual Acidity (sulfur units)	Titratable Peroxide Acidity (sulfur units)	Titratable Actual Acidity	Titratable Sulfidic Acidity	ANC Fineness Factor	Acid Reacted Calcium	acidity - Acid Reacted Calcium	Calcium in Peroxide	KCl Extractable Calcium	pH (KCl)	Liming Rate	Liming Rate excluding ANC	Acid Reacted Magnesium	Acid Reacted Magnesium (acidity units)	KCl Extractable Magnesium	Magnesium in Peroxide	Acid Reacted Magnesium (sulfur units)
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mole H+/t	%S	mole H+/t	% pyrite S	%S	%S	mole H+/t	moles H+/t	-	% Ca	mole H+/t	%	%	pH units	kg CaCO3/t	kg CaCO3/t	% Mg	mole H+/t	%	%	%S
EQL					0.05	0.05	0.2	0.2	0.2	0.05	0.05	0.1	0.001	0.01	1	0.5	10	0.02	2		0.02	0.02	2	2	0.5	0.02	10	0.02	0.02	0.1	1	1	0.02	10	0.02	0.02	0.02
EPA Vic IWRG1828.2 Category B upper limit												#2	480	10	21	320																					
EPA Vic IWRG1828.2 Category C upper limit												50	120	2.5	5.2	80																					
EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit												2	120	2.5	5.2	80																					
EPA Vic IWRG1828.2 Fill material upper limit												2																									
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**																																	
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	-	-	-	-	-	-	-	-	-	-	-	-	**30**	**0.05**	**22**	<0.020	**0.021**	**0.035**	**13**	**9**	**1.5**	<0.020	<10	**0.075**	**0.073**	**5.6**	**2**	**2**	<0.020	<10	**0.086**	**0.088**	<0.020
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	-	-	-	-	-	-	-	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	-	-	-	-	-	-	-	-	-	-	-	-	**33**	**0.05**	**72**	**0.063**	**0.053**	**0.116**	**33**	**39**	**1.5**	<0.020	<10	**0.022**	**0.022**	**4.8**	**2**	**2**	<0.020	<10	**0.084**	**0.084**	<0.020
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	-	-	-	-	-	-	-	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	-	-	-	-	-	-	-	-	-	-	-	-	**13**	**0.02**	**20**	<0.020	**0.021**	**0.032**	**13**	**6**	**1.5**	<0.020	<10	**0.023**	**0.022**	**5.5**	**1**	**1**	<0.020	<10	**0.089**	**0.094**	<0.020
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	-	-	-	-	-	-	-	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	-	-	-	-	-	-	-	-	-	-	-	-	<10	<0.02	**15**	<0.020	<0.020	**0.024**	**5**	**10**	**1.5**	<0.020	<10	**0.060**	**0.059**	**6.4**	<1	<1	<0.020	<10	**0.125**	**0.125**	<0.020
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	-	-	-	-	-	-	-	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH07_1.0_20230328	22 Mar 2023	1	EM2305431	Normal	-	-	-	-	-	-	-	-	-	-	-	-	**23**	**0.04**	**41**	**0.029**	**0.037**	**0.066**	**23**	**18**	**1.5**	<0.020	<10	**0.044**	**0.044**	**4.9**	**2**	**2**	<0.020	<10	**0.101**	**0.102**	<0.020
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	-	-	-	-	-	-	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	**40**	**0.06**	**56**	**0.025**	**0.064**	**0.089**	**40**	**16**	**1.5**	<0.020	<10	<0.020	<0.020	**4.6**	**3**	**3**	<0.020	<10	**0.125**	**0.125**	<0.020
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	-	-	-	-	-	-	-	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	-	-	-	-	-	-	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	-	-	-	-	-	-	-	-	-	-	-	-	**36**	**0.06**	**47**	**0.041**	**0.034**	**0.075**	**21**	**26**	**1.5**	<0.020	<10	**0.060**	**0.056**	**5.2**	**3**	**3**	<0.020	<10	**0.106**	**0.116**	<0.020
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	**24**	**0.04**	**52**	**0.048**	**0.036**	**0.084**	**22**	**30**	**1.5**	<0.020	<10	**0.104**	**0.102**	**5.0**	**2**	**2**	<0.020	<10	**0.122**	**0.127**	<0.020
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.1_202303030	30 Mar 2023	0.1	EM2305898	Normal	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	<10	<0.02	**10**	<0.020	<0.020	<0.020	**4**	**6**	**1.5**	<0.020	<10	**0.048**	**0.045**	**5.9**	<1	<1	<0.020	<10	**0.113**	**0.115**	<0.020
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	**25**	**0.04**	**36**	<0.020	**0.041**	**0.058**	**25**	**11**	**1.5**	<0.020	<10	<0.020	<0.020	**4.8**	**2**	**2**	<0.020	<10	**0.086**	**0.086**	<0.020
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	<0.1	<0.001	<0.01	<1.0	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	**17**	**0.03**	**20**	<0.020	**0.027**	**0.031**	**17**	**2**	**1.5**	<0.020	<10	**0.043**	**0.043**	**6.1**	**1**	**1**	<0.020	<10	**0.150**	**0.151**	<0.020
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments

#1 Please refer to IWRG1828.2 Table 2 for a list of sum constituents.
#2 Leachable Concentration based on NSW - Waste Classification Guidelines Part 1: Classifying waste, 2014. Maximum values for leachable c
#3 Yes
#4 M. TRAN
#5 Brown soil with organic matter and synthetic mineral fibres.
#6 No
#7 -
#8 Brown soil with organic matter.
#9 Grey soil with organic matter and synthetic mineral fibres.
#10 Grey soil with organic matter.
#11 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Fill material upper limit

				Acid Sulfate Soils - pH	Acid Sulfate Soils - Sulfur Trail					SPOCAS	Asbestos									
				pH-OX	Peroxide Oxidisable Sulfur (acidity units)	KCl Extractable Sulfur	Peroxide Oxidisable Sulfur	Peroxide Sulfur		Net Acidity excluding ANC (acidity units)	Organic Fibre	Synthetic Mineral Fibre	APPROVED IDENTIFIER:	Sample Weight	Description	Asbestos fibres	Asbestos (Trace)	Asbestos Type	
				pH units	mole H+/t	%	%	%		mole H+/t	-	-	Comment	g	Comment	g/kg	Fibres	Comment	
EQL				0.1	10	0.02	0.02	0.02		10				0.01		0.1	5		
EPA Vic IWRG1828.2 Category B upper limit																			
EPA Vic IWRG1828.2 Category C upper limit																			
EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit																			
EPA Vic IWRG1828.2 Fill material upper limit																			
Field ID	**Date**	**Depth**	**Lab Report Number**	**Sample Type**															
OS_BH01_0.1_20230127	27 Jan 2023	0.1	EM2301187	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_BH01_1.0_20230127	27 Jan 2023	1	EM2301187	Normal	**5.4**	**17**	<0.020	**0.027**	**0.027**	**30**	-	-	-	-	-	-	-	-	
OS_BH02_0.1_20230130	30 Jan 2023	0.1	EM2301269	Normal	-	-	-	-	-	-	**1**[#3]	**1**[#3]	**1**[#4]	**43.0**	**1**[#5]	**0**[#6]	**0**[#6]	**1**[#7]	
OS_BH02_1.0_20230130	30 Jan 2023	1	EM2301269	Normal	**5.4**	<10	<0.020	<0.020	<0.020	**33**	-	-	-	-	-	-	-	-	
OS_BH04_0.1_20230328	28 Mar 2023	0.1	EM2305430	Normal	-	-	-	-	-	-	**1**[#3]	**0**[#5]	**1**[#4]	**65.5**	**1**[#8]	**0**[#6]	**0**[#6]	**1**[#7]	
OS_BH04_1.0_20230328	28 Mar 2023	1	EM2305430	Normal	**5.4**	<10	<0.020	<0.020	<0.020	**13**	-	-	-	-	-	-	-	-	
OS_BH05_0.1_20230329	29 Mar 2023	0.1	EM2305501	Normal	-	-	-	-	-	-	**1**[#3]	**1**[#3]	**1**[#4]	**57.0**	**1**[#9]	**0**[#6]	**0**[#6]	**1**[#7]	
OS_BH05_1.0_20230329	29 Mar 2023	1	EM2305501	Normal	**5.9**	<10	<0.020	<0.020	<0.020	<10	-	-	-	-	-	-	-	-	
OS_BH07_0.1_20230328	28 Mar 2023	0.1	EM2305431	Normal	-	-	-	-	-	-	**1**[#3]	**0**[#5]	**1**[#4]	**45.4**	**1**[#8]	**0**[#6]	**0**[#6]	**1**[#7]	
OS_BH07_1.0_20230328	22 Mar 2023	1	EM2305431	Normal	**5.1**	<10	<0.020	<0.020	<0.020	**23**	-	-	-	-	-	-	-	-	
OS_BH08_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	-	-	-	-	-	**1**[#3]	**0**[#5]	**1**[#4]	**36.8**	**1**[#10]	**0**[#6]	**0**[#6]	**1**[#7]	
OS_BH08_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	**4.6**	<10	<0.020	<0.020	<0.020	**40**	-	-	-	-	-	-	-	-	
OS_BH09_0.1_20230127	27 Jan 2023	0.1	EM2301188	Normal	-	-	-	-	-	-	**1**[#3]	**0**[#5]	**1**[#4]	**39.5**	**1**[#8]	**0**[#6]	**0**[#6]	**1**[#7]	
OS_BH09_0.5_20230127	27 Jan 2023	0.5	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_BH09_1.0_20230127	27 Jan 2023	1	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_BH09_2.0_20230127	27 Jan 2023	2	EM2301188	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_BH10_0.1_20230327	27 Mar 2023	0.1	EM2305362	Normal	-	-	-	-	-	-	**1**[#3]	**0**[#5]	**1**[#4]	**41.2**	**1**[#10]	**0**[#6]	**0**[#6]	**1**[#7]	
OS_BH10_1.0_20230327	27 Mar 2023	1	EM2305362	Normal	**4.4**	**16**	<0.020	**0.025**	**0.025**	**36**	-	-	-	-	-	-	-	-	
OS_TP01_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	**1**[#3]	**0**[#5]	**1**[#4]	**43.9**	**1**[#11]	**0**[#6]	**0**[#6]	**1**[#7]	
OS_TP01_0.5_20230123	23 Jan 2023	0.5	EM2300936	Normal	**4.8**	<10	**0.025**	<0.020	**0.028**	**24**	-	-	-	-	-	-	-	-	
OS_TP02_0.1_20230123	23 Jan 2023	0.1	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP02_0.5_20230123	22 Jan 2023	0.5	EM2300936	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP03_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP03_0.5_20230124	24 Jan 2023	0.5	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP03_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP04_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP04_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP09_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP09_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP09_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP10_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP10_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP11_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP11_0.5_20230330	30 Mar 2023	0.5	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP11_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP12_0.1_20230330	30 Mar 2023	0.1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP12_1.0_20230330	30 Mar 2023	1	EM2305897	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP13_0.1_202303030	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP13_0.5_20230330	30 Mar 2023	0.5	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP14_0.1_20230330	30 Mar 2023	0.1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP14_1.0_20230330	30 Mar 2023	1	EM2305898	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP15_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP15_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP16_0.1_20230124	24 Jan 2023	0.1	EM2301078	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP16_1.0_20230124	24 Jan 2023	1	EM2301078	Normal	**6.2**	<10	<0.020	<0.020	<0.020	<10	-	-	-	-	-	-	-	-	
OS_TP17_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	**1**[#3]	**0**[#5]	**1**[#4]	**42.1**	**1**[#11]	**0**[#6]	**0**[#6]	**1**[#7]	
OS_TP17_1.0_20230123	23 Jan 2023	1	EM2300937	Normal	**4.9**	<10	<0.020	<0.020	<0.020	**25**	-	-	-	-	-	-	-	-	
OS_TP18_0.1_20230123	23 Jan 2023	0.1	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP18_0.5_20230123	23 Jan 2023	0.5	EM2300937	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP20_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP20_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP20_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP21_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP21_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP22_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	**1**[#3]	**0**[#5]	**1**[#4]	**53.8**	**1**[#10]	**0**[#6]	**0**[#6]	**1**[#7]	
OS_TP22_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP22_1.0_20230404	04 Apr 2023	1	EM2306013	Normal	**5.7**	<10	<0.020	<0.020	<0.020	**17**	-	-	-	-	-	-	-	-	
OS_TP23_0.1_20230404	04 Apr 2023	0.1	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OS_TP23_0.5_20230404	04 Apr 2023	0.5	EM2306013	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Comments

#1 Please refer to IWRG1828.2 Table 2 for a list of sum constituents.
#2 Leachable Concentration based on NSW - Waste Classification Guidelines Part 1: Classifying waste, 2014. Maximum values for leachable c
#3 Yes
#4 M. TRAN
#5 Brown soil with organic matter and synthetic mineral fibres.
#6 No
#7 -
#8 Brown soil with organic matter.
#9 Grey soil with organic matter and synthetic mineral fibres.
#10 Grey soil with organic matter.
#11 Grey rocky soil with organic matter.

Environmental Standards

EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic IWRG1828.2 Fill material upper limit

			OS_RIN1_230123	OS_RIN1_230124	OS_RIN1_230127	OS_RIN1_230130	RIN01_230328	RIN01_230329	RIN01_230330	RIN01_230404
			23 Jan 2023	24 Jan 2023	27 Jan 2023	30 Jan 2023	28 Mar 2023	29 Mar 2023	30 Mar 2023	04 Apr 2023
			EM2300936	EM2301078	EM2301187	EM2301269	EM2305431	EM2305501	EM2305897	EM2306013
			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Unit	EQL								
Metals										
Antimony	mg/kg	5	-	-	-	-	-	-	-	-
Arsenic	mg/kg	2	-	-	-	-	-	-	-	-
	µg/L	1	-	<1	-	-	<1	<1	<1	<1
Arsenic (filtered)	µg/L	1	<1	-	<1	<1	-	-	-	-
Barium	mg/kg	10	-	-	-	-	-	-	-	-
	µg/L	1	-	<1	-	-	<1	<1	<1	<1
Barium (filtered)	µg/L	1	<1	-	<1	<1	-	-	-	-
Beryllium	mg/kg	1	-	-	-	-	-	-	-	-
	µg/L	1	-	<1	-	-	<1	<1	<1	<1
Beryllium (filtered)	µg/L	1	<1	-	<1	<1	-	-	-	-
Boron	mg/kg	10	-	-	-	-	-	-	-	-
	µg/L	50	-	<50	-	-	<50	<50	<50	<50
Boron (filtered)	µg/L	50	<50	-	<50	<50	-	-	-	-
Cadmium	mg/kg	0.4	-	-	-	-	-	-	-	-
	µg/L	0.1	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1
Cadmium (filtered)	µg/L	0.1	<0.1	-	<0.1	<0.1	-	-	-	-
Chromium (hexavalent)	mg/kg	0.5	-	-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	2	-	-	-	-	-	-	-	-
	µg/L	1	-	<1	-	-	<1	<1	<1	<1
Chromium (III+VI) (filtered)	µg/L	1	<1	-	<1	<1	-	-	-	-
Cobalt	mg/kg	2	-	-	-	-	-	-	-	-
	µg/L	1	-	<1	-	-	<1	<1	<1	<1
Cobalt (filtered)	µg/L	1	<1	-	<1	<1	-	-	-	-
Copper	mg/kg	5	-	-	-	-	-	-	-	-
	µg/L	1	-	<1	-	-	<1	<1	<1	<1
Copper (filtered)	µg/L	1	<1	-	<1	<1	-	-	-	-
Lead	mg/kg	5	-	-	-	-	-	-	-	-
	µg/L	1	-	<1	-	-	<1	<1	<1	<1
Lead (filtered)	µg/L	1	<1	-	<1	<1	-	-	-	-
Manganese	mg/kg	5	-	-	-	-	-	-	-	-
	µg/L	1	-	<1	-	-	<1	<1	<1	<1
Manganese (filtered)	µg/L	1	<1	-	<1	<1	-	-	-	-
Mercury	mg/kg	0.1	-	-	-	-	-	-	-	-
	µg/L	0.1	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1
Mercury (filtered)	µg/L	0.1	<0.1	-	<0.1	<0.1	-	-	-	-
Molybdenum	mg/kg	2	-	-	-	-	-	-	-	-
Nickel	mg/kg	2	-	-	-	-	-	-	-	-
	µg/L	1	-	<1	-	-	<1	<1	<1	<1
Nickel (filtered)	µg/L	1	<1	-	<1	<1	-	-	-	-
Selenium	mg/kg	2	-	-	-	-	-	-	-	-
	µg/L	10	-	<10	-	-	<10	<10	<10	<10
Selenium (filtered)	µg/L	10	<10	-	<10	<10	-	-	-	-
Silver	mg/kg	2	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5	-	-	-	-	-	-	-	-
	µg/L	10	-	<10	-	-	<10	<10	<10	<10
Vanadium (filtered)	µg/L	10	<10	-	<10	<10	-	-	-	-
Zinc	mg/kg	5	-	-	-	-	-	-	-	-
	µg/L	5	-	<5	-	-	<5	<5	<5	<5
Zinc (filtered)	µg/L	5	<5	-	<5	<5	-	-	-	-

					Metals															Physiochemical	
					Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc	Moisture Content	Moisture Content (dried @ 103°C)
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%
EQL					2	10	1	10	0.4	0.5	2	2	5	5	5	0.1	2	2	5	5	1	1
Field ID	**Date**	**Lab Report Number**	**Sample Type**	**Matrix Type**																		
OS_TP02_0.1_20230123	23 Jan 2023	EM2300936	Normal	Soil	<5	**20**	<1	<50	<1	<0.5	**5**	<2	<5	**15**	**16**	<0.1	<2	<5	**15**	<5	**5.6**	-
OS_QC01_20230123	23 Jan 2023	EM2300936	Field_D	Soil	<5	**20**	<1	<50	<1	<0.5	**5**	<2	<5	**15**	**13**	<0.1	<2	<5	**20**	<5	**5.1**	-
RPD					0	0	0	0	0	0	0	0	0	0	21	0	0	0	29	0	9	-
OS_TP02_0.1_20230123	23 Jan 2023	EM2300936	Normal	Soil	<5	**20**	<1	<50	<1	<0.5	**5**	<2	<5	**15**	**16**	<0.1	<2	<5	**15**	<5	**5.6**	-
OS_QC11_230123	23 Jan 2023	958105	Interlab_D	Soil	<2	**25**	<2	<10	<0.4	<1	**7.2**	<5	<5	**26**	**54**	<0.1	<5	<2	**28**	**6.3**	-	**7.9**
RPD					0	22	0	0	0	0	36	0	0	54	**109**	0	0	0	60	23	-	-
OS_TP18_0.1_20230123	23 Jan 2023	EM2300937	Normal	Soil	<5	**70**	<1	<50	<1	<0.5	**12**	<2	**7**	**9**	**24**	<0.1	**5**	<5	**22**	<5	**10.8**	-
OS_QC03_20230123	23 Jan 2023	EM2300937	Field_D	Soil	<5	**60**	<1	<50	<1	<0.5	**12**	<2	**7**	**10**	**31**	<0.1	**5**	<5	**22**	<5	**8.9**	-
RPD					0	15	0	0	0	0	0	0	0	11	25	0	0	0	0	0	19	-
OS_TP18_0.1_20230123	23 Jan 2023	EM2300937	Normal	Soil	<5	**70**	<1	<50	<1	<0.5	**12**	<2	**7**	**9**	**24**	<0.1	**5**	<5	**22**	<5	**10.8**	-
OS_QC13_230123	23 Jan 2023	958105	Interlab_D	Soil	<2	**72**	<2	<10	<0.4	<1	**14**	<5	**9.2**	**11**	**37**	<0.1	**5.8**	<2	**27**	**7.0**	-	**10**
RPD					0	3	0	0	0	0	15	0	27	20	43	0	15	0	20	33	-	-
OS_TP03_0.5_20230124	24 Jan 2023	EM2301078	Normal	Soil	<5	<10	<1	<50	<1	<0.5	<2	<2	<5	<5	<5	<0.1	<2	<5	**8**	<5	**3.6**	-
OS_QC02_20230124	24 Jan 2023	EM2301078	Field_D	Soil	<5	<10	<1	<50	<1	<0.5	**3**	<2	<5	<5	<5	<0.1	<2	<5	**18**	<5	**2.2**	-
RPD					0	0	0	0	0	0	40	0	0	0	0	0	0	0	77	0	48	-
OS_TP03_0.5_20230124	24 Jan 2023	EM2301078	Normal	Soil	<5	<10	<1	<50	<1	<0.5	<2	<2	<5	<5	<5	<0.1	<2	<5	**8**	<5	**3.6**	-
OS_QC12_230124	24 Jan 2023	958105	Interlab_D	Soil	<2	<10	<2	<10	<0.4	<1	<5	<5	<5	<5	**5.7**	<0.1	<5	<2	**23**	<5	-	**4.6**
RPD					0	0	0	0	0	0	0	0	0	0	13	0	0	0	**97**	0	-	-
OS_BH09_0.5_20230127	27 Jan 2023	EM2301188	Normal	Soil	<5	**50**	<1	<50	<1	<0.5	**16**	**2**	**6**	**7**	**19**	<0.1	**4**	<5	**27**	<5	**5.6**	-
OS_QC04_2023027	27 Jan 2023	EM2301188	Field_D	Soil	<5	**50**	<1	<50	<1	<0.5	**16**	**2**	**6**	**7**	**29**	<0.1	**5**	<5	**25**	<5	**5.4**	-
RPD					0	0	0	0	0	0	0	0	0	0	42	0	22	0	8	0	4	-
OS_BH09_0.5_20230127	27 Jan 2023	EM2301188	Normal	Soil	<5	**50**	<1	<50	<1	<0.5	**16**	**2**	**6**	**7**	**19**	<0.1	**4**	<5	**27**	<5	**5.6**	-
OS_QC14_20230127	27 Jan 2023	958810	Interlab_D	Soil	<2	**53**	<2	<10	<0.4	<1	**19**	<5	**8.7**	**8.1**	**30**	<0.1	**5.3**	<2	**31**	**5.1**	-	**5.7**
RPD					0	6	0	0	0	0	17	0	37	15	45	0	28	0	14	2	-	-

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 80 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

Appendix E. Laboratory Reports

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2300936**	Page	: 1 of 16
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 23-Jan-2023 16:15
Order number	: E1159	Date Analysis Commenced	: 25-Jan-2023
C-O-C number	: 47398	Issue Date	: 06-Feb-2023 13:37
Sampler	: RANULI GOONETILLAKE		
Site	: AREA A - Test Pits		
Quote number	: ME-491-22		
No. of samples received	: 12		
No. of samples analysed	: 6		

ilac-MRA NATA
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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Sanjay Parekh	LCMS Coordinator	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP231X: Poor matrix spike recovery for sample EM2300937-001 due to sample matrix interference.
- EG048G: EM2300820 #23 Poor insoluble matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP074-WF: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- EK030SF: EM2300937 #6, poor matrix spike recovery for cyanide (amenable) due to sample matrix. Confirmed by re-extraction and re-analysis.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.

- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: **RINSATE** (Matrix: **WATER**)				Sample ID	**OS_RIN1_230123**	**----**	**----**	**----**	**----**
				Sampling date / time	23-Jan-2023 15:44	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**EM2300936-012**	**--------**	**--------**	**--------**	**--------**
					Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Boron	7440-42-8	0.05	mg/L		<0.05	**----**	**----**	**----**	**----**
Barium	7440-39-3	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Beryllium	7440-41-7	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	**----**	**----**	**----**	**----**
Cobalt	7440-48-4	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Chromium	7440-47-3	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Copper	7440-50-8	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Manganese	7439-96-5	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Nickel	7440-02-0	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Lead	7439-92-1	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Selenium	7782-49-2	0.01	mg/L		<0.01	**----**	**----**	**----**	**----**
Vanadium	7440-62-2	0.01	mg/L		<0.01	**----**	**----**	**----**	**----**
Zinc	7440-66-6	0.005	mg/L		<0.005	**----**	**----**	**----**	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
			Sampling date / time	23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Compound	CAS Number	LOR	Unit	EM2300936-001	EM2300936-002	EM2300936-006	EM2300936-007	EM2300936-008
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	5.2	----	----	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	5.0	----	----	----
pH OX (23B)	----	0.1	pH Unit	----	4.8	----	----	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	22	----	----	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	52	----	----	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	30	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	0.036	----	----	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	0.084	----	----	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	0.048	----	----	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	0.025	----	----	----
Peroxide Sulfur (23De)	----	0.020	% S	----	0.028	----	----	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	----	<0.020	----	----	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	----	<10	----	----	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	----	0.102	----	----	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	----	0.104	----	----	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	----	<0.020	----	----	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	----	<0.020	----	----	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	----	0.122	----	----	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg	----	0.127	----	----	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	----	<0.020	----	----	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	----	<0.020	----	----	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	1.5	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	0.04	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
			Sampling date / time	23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Compound	CAS Number	LOR	Unit	EM2300936-001	EM2300936-002	EM2300936-006	EM2300936-007	EM2300936-008
				Result	Result	Result	Result	Result
EA029-H: Acid Base Accounting - Continued								
Net Acidity (acidity units)	----	10	mole H+ / t	----	24	----	----	----
Liming Rate	----	1	kg CaCO3/t	----	2	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	0.04	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	24	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	2	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	5.2	----	----	----	----
Moisture Content	----	1.0	%	----	20.2	5.6	5.1	25.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	43.9	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	M. TRAN	----	----	----	----
Synthetic Mineral Fibre	----	-	--	No	----	----	----	----
Organic Fibre	----	-	--	Yes	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Antimony	7440-36-0	5	mg/kg	<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	20	30	20	20	50
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	29	5	5	35
Cobalt	7440-48-4	2	mg/kg	----	3	<2	<2	4
Copper	7440-50-8	5	mg/kg	<5	15	<5	<5	10
Lead	7439-92-1	5	mg/kg	9	14	15	15	17
Manganese	7439-96-5	5	mg/kg	----	18	16	13	24
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	7	<2	<2	9
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	----	61	15	20	49
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	6

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
				Sampling date / time	23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Compound	CAS Number	LOR	Unit		EM2300936-001	EM2300936-002	EM2300936-006	EM2300936-007	EM2300936-008
					Result	Result	Result	Result	Result
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		<1	----	----	----	----
EK030: Cyanide Amenable to Chlorination									
Cyanide amenable to chlorination	----	1	mg/kg		<1	----	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**100**	----	----	----	----
EP010: Formaldehyde									
Formaldehyde	50-00-0	2	mg/kg		<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup									
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	----	<50
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup									
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	----	<50
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		<0.2	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
			Sampling date / time	23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Compound	CAS Number	LOR	Unit	EM2300936-001	EM2300936-002	EM2300936-006	EM2300936-007	EM2300936-008
				Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
^ Total Xylenes	----	0.5	mg/kg	<0.5	----	----	----	----
EP074B: Oxygenated Compounds								
2-Butanone (MEK)	78-93-3	1	mg/kg	<1	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	----	----	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	----	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	----	----	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	----	----	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	----	----	----	----
^ Sum of Trichlorobenzenes	----	0.01	mg/kg	<0.01	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
				Sampling date / time	23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Compound	CAS Number	LOR	Unit		EM2300936-001	EM2300936-002	EM2300936-006	EM2300936-007	EM2300936-008
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	----	**1.2**
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----
^ Cresols (Total)	----	1	mg/kg		<1	----	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
				Sampling date / time	23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Compound	CAS Number	LOR	Unit		EM2300936-001	EM2300936-002	EM2300936-006	EM2300936-007	EM2300936-008
					Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		<1.0	----	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
				Sampling date / time	23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Compound	CAS Number	LOR	Unit		EM2300936-001	EM2300936-002	EM2300936-006	EM2300936-007	EM2300936-008
					Result	Result	Result	Result	Result
EP075I: Organochlorine Pesticides - Continued									
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	----	<10
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
				Sampling date / time	23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Compound	CAS Number	LOR	Unit		EM2300936-001	EM2300936-002	EM2300936-006	EM2300936-007	EM2300936-008
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	----	----	<0.2
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg		----	<1	----	----	<1
EP095: Ethylenediamine Tetraacetic Acid (EDTA)									
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg		<10	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
				Sampling date / time	23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Compound	CAS Number	LOR	Unit		EM2300936-001	EM2300936-002	EM2300936-006	EM2300936-007	EM2300936-008
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)									
2.4-D	94-75-7	0.001	mg/kg		<0.001	----	----	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg		<0.01	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		118	----	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		84.9	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		87.7	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		96.7	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	95.3	----	----	97.1
2-Chlorophenol-D4	93951-73-6	0.5	%		----	101	----	----	102
2.4.6-Tribromophenol	118-79-6	0.5	%		----	80.3	----	----	88.6
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	102	----	----	102
Anthracene-d10	1719-06-8	0.5	%		----	97.6	----	----	112
4-Terphenyl-d14	1718-51-0	0.5	%		----	108	----	----	110
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		102	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		100.0	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		97.3	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		102	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		97.5	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		105	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%		108	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
				Sampling date / time	23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Compound	CAS Number	LOR	Unit		EM2300936-001	EM2300936-002	EM2300936-006	EM2300936-007	EM2300936-008
					Result	Result	Result	Result	Result
EP075T: Base/Neutral Extractable Surrogates (Waste Classification) - Continued									
4-Terphenyl-d14	1718-51-0	0.025	%		**112**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	**94.9**	----	----	**84.1**
Toluene-D8	2037-26-5	0.2	%		----	**101**	----	----	**91.4**
4-Bromofluorobenzene	460-00-4	0.2	%		----	**95.6**	----	----	**88.1**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**74.8**	----	----	----	----
13C8-PFOA	----	0.0002	%		**86.0**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_TP01_0.1_20230123 - 23-Jan-2023 09:28	Grey rocky soil with organic matter.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

ALS Environmental

Automated Guideline Comparison Report

Work Order	: **EM2300936**	Page	: 1 of 11
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE		
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Date Received	: 23-Jan-2023 16:15
Order number	: E1159	Date Analysed	: 25-Jan-2023
C-O-C number	: 47398	Date Issued	: 06-Feb-2023 13:39
No. of samples received	: 12		
No. of samples analysed	: 6	Quote number	: ME-491-22

General Comments

Only results in the 'Analytical Results' section have been compared to the guideline.

Additional information pertinent to this report will be found in the following separate attachments: Certificate of Analysis, Quality Control Report, QA/QC Compliance Assessment to Assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP01_0.1_20230123 23-Jan-2023 09:28 EM2300936-001 MU	OS_TP01_0.5_20230123 23-Jan-2023 07:54 EM2300936-002 MU	OS_TP02_0.1_20230123 23-Jan-2023 09:26 EM2300936-006 MU	OS_QC01_20230123 23-Jan-2023 09:26 EM2300936-007 MU	OS_TP02_0.5_20230123 22-Jan-2023 18:40 EM2300936-008 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	300	<5 --	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	2000	<5 --	----	----	----	----
Barium	EG005T	10	mg/kg	----	25000	**20** ± 2	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	400	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	60000	<50 --	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1 --	----	----	----	----
Copper	EG005T	5	mg/kg	----	20000	<5 --	----	----	----	----
Lead	EG005T	5	mg/kg	----	6000	**9** ± 1	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2 --	----	----	----	----
Nickel	EG005T	2	mg/kg	----	12000	<2 --	----	----	----	----
Selenium	EG005T	5	mg/kg	----	40000	<5 --	----	----	----	----
Silver	EG005T	2	mg/kg	----	720	<2 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	140000	<5 --	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1 --	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5 --	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1 --	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**100** ± 30	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	8000	<2	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2 --	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	12800	<0.5 --	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	4800	<0.5 --	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	480	<0.5 --	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	9600	<0.5 --	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	32000	<1	----	----	----	----
EP074I: Volatile Halogenated Compounds										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
Sample ID										
Sampling date/time						23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
						EM2300936-001 MU	EM2300936-002 MU	EM2300936-006 MU	EM2300936-007 MU	EM2300936-008 MU
EP074I: Volatile Halogenated Compounds - Continued										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	480	<0.01	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	64	<0.4	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	960	<0.02	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	960	<0.01	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	960	<0.02	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	4800	<0.01	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	48	<0.01	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	48	<0.02	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	80	<0.02	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	190	<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	1600	<0.01	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	800	<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	210	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	4800	<0.02	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	640	<0.02	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	24000	<0.02	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	480	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	4800	<0.03	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	3200	<0.03	----	----	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	64000	<0.05	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	320	<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	32000	<1	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	2200	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	160	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	400	<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	320	<0.5	----	----	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	21	<1.0	----	----	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	**OS_TP01_0.1_20230123** 23-Jan-2023 09:28	**OS_TP01_0.5_20230123** 23-Jan-2023 07:54	**OS_TP02_0.1_20230123** 23-Jan-2023 09:26	**OS_QC01_20230123** 23-Jan-2023 09:26	**OS_TP02_0.5_20230123** 22-Jan-2023 18:40
							EM2300936-001 MU	**EM2300936-002** MU	**EM2300936-006** MU	**EM2300936-007** MU	**EM2300936-008** MU
EP075I: Organochlorine Pesticides - Continued											
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8		<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	4.8		<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	50		<0.05	----	----	----	----
Chlordane	EP075-EM	0.03	mg/kg	----	16		<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	50		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600		<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000		<50	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg	----	10		<0.01	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	OS_TP01_0.1_20230123 23-Jan-2023 09:28	OS_TP01_0.5_20230123 23-Jan-2023 07:54	OS_TP02_0.1_20230123 23-Jan-2023 09:26	OS_QC01_20230123 23-Jan-2023 09:26	OS_TP02_0.5_20230123 22-Jan-2023 18:40
							EM2300936-001 MU	EM2300936-002 MU	EM2300936-006 MU	EM2300936-007 MU	EM2300936-008 MU
EG005(ED093)T: Total Metals by ICP-AES											
Antimony	EG005T	5	mg/kg	----	75		<5 --	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	500		<5 --	----	----	----	----
Barium	EG005T	10	mg/kg	----	6250		**20** ± 2	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	100		<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	15000		<50 --	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	100		<1 --	----	----	----	----
Copper	EG005T	5	mg/kg	----	5000		<5 --	----	----	----	----
Lead	EG005T	5	mg/kg	----	1500		**9** ± 1	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	1000		<2 --	----	----	----	----
Nickel	EG005T	2	mg/kg	----	3000		<2 --	----	----	----	----
Selenium	EG005T	5	mg/kg	----	10000		<5 --	----	----	----	----
Silver	EG005T	2	mg/kg	----	180		<2 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	35000		<5 --	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg	----	75		<0.1 --	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500		<0.5 --	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg	----	2500		<1 --	----	----	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg	----	10000		**100** ± 30	----	----	----	----
EP010: Formaldehyde											
Formaldehyde	EP010	2	mg/kg	----	2000		<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	50		<0.1 --	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg	----	4		<0.2 --	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	3200		<0.5 --	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	1200		<0.5 --	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	120		<0.5 --	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	2400		<0.5 --	----	----	----	----
EP074B: Oxygenated Compounds											
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	8000		<1	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
Sample ID										
Sampling date/time						23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
						EM2300936-001 MU	EM2300936-002 MU	EM2300936-006 MU	EM2300936-007 MU	EM2300936-008 MU
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	16	<0.4	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	240	<0.01	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	1200	<0.01	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	12	<0.01	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	12	<0.02	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	20	<0.02	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	48	<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	400	<0.01	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	200	<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	52	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	1200	<0.02	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	160	<0.02	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	6000	<0.02	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	1200	<0.03	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	800	<0.03	----	----	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	16000	<0.05	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	80	<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	8000	<1	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	560	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	40	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	100	<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	80	<0.5	----	----	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	5.2	<1.0	----	----	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	OS_TP01_0.1_20230123 23-Jan-2023 09:28 EM2300936-001 MU	OS_TP01_0.5_20230123 23-Jan-2023 07:54 EM2300936-002 MU	OS_TP02_0.1_20230123 23-Jan-2023 09:26 EM2300936-006 MU	OS_QC01_20230123 23-Jan-2023 09:26 EM2300936-007 MU	OS_TP02_0.5_20230123 22-Jan-2023 18:40 EM2300936-008 MU
EP075I: Organochlorine Pesticides - Continued											
Heptachlor	EP075-EM	0.03	mg/kg		----	1.2	<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg		----	1.2	<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg		----	50	<0.05	----	----	----	----
Chlordane	EP075-EM	0.03	mg/kg		----	4	<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg		----	10	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	650	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	10000	<50	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg		----	2.5	<0.01	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
Sampling date/time						23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Sample ID						EM2300936-001 MU	EM2300936-002 MU	EM2300936-006 MU	EM2300936-007 MU	EM2300936-008 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	75	<5 --	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	500	<5 --	----	----	----	----
Barium	EG005T	10	mg/kg	----	6250	**20** ± 2	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	100	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	15000	<50 --	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1 --	----	----	----	----
Copper	EG005T	5	mg/kg	----	5000	<5 --	----	----	----	----
Lead	EG005T	5	mg/kg	----	1500	**9** ± 1	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2 --	----	----	----	----
Nickel	EG005T	2	mg/kg	----	3000	<2 --	----	----	----	----
Selenium	EG005T	5	mg/kg	----	10000	<5 --	----	----	----	----
Silver	EG005T	2	mg/kg	----	180	<2 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	35000	<5 --	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1 --	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5 --	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1 --	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**100** ± 30	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	2000	<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1 --	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2 --	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	3200	<0.5 --	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	1200	<0.5 --	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	120	<0.5 --	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	2400	<0.5 --	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	8000	<1	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP01_0.1_20230123	OS_TP01_0.5_20230123	OS_TP02_0.1_20230123	OS_QC01_20230123	OS_TP02_0.5_20230123
Sampling date/time						23-Jan-2023 09:28	23-Jan-2023 07:54	23-Jan-2023 09:26	23-Jan-2023 09:26	22-Jan-2023 18:40
Sample ID						EM2300936-001 MU	EM2300936-002 MU	EM2300936-006 MU	EM2300936-007 MU	EM2300936-008 MU
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	16	<0.4	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	240	<0.01	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	1200	<0.01	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	12	<0.01	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	12	<0.02	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	20	<0.02	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	48	<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	400	<0.01	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	200	<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	52	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	1200	<0.02	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	160	<0.02	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	6000	<0.02	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	1200	<0.03	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	800	<0.03	----	----	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	16000	<0.05	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	80	<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	8000	<1	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	560	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	50	<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	80	<0.5	----	----	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	5.2	<1.0	----	----	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**OS_TP01_0.1_20230123** *Sampling date/time* 23-Jan-2023 09:28 **EM2300936-001** MU	**OS_TP01_0.5_20230123** *Sampling date/time* 23-Jan-2023 07:54 **EM2300936-002** MU	**OS_TP02_0.1_20230123** *Sampling date/time* 23-Jan-2023 09:26 **EM2300936-006** MU	**OS_QC01_20230123** *Sampling date/time* 23-Jan-2023 09:26 **EM2300936-007** MU	**OS_TP02_0.5_20230123** *Sampling date/time* 22-Jan-2023 18:40 **EM2300936-008** MU
EP075I: Organochlorine Pesticides - Continued										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	1.2	<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	50	<0.05	----	----	----	----
Chlordane	EP075-EM	0.03	mg/kg	----	4	<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	10	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	325	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	5000	<50	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)										
Tributyltin oxide	EP236	0.01	mg/kg	----	2.5	<0.01	----	----	----	----

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2300936**	Page	: 1 of 24
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 23-Jan-2023
Order number	: E1159	Date Analysis Commenced	: 25-Jan-2023
C-O-C number	: 47398	Issue Date	: 06-Feb-2023
Sampler	: RANULI GOONETILLAKE		
Site	: AREA A - Test Pits		
Quote number	: ME-491-22		
No. of samples received	: 12		
No. of samples analysed	: 6		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Sanjay Parekh	LCMS Coordinator	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4838600)									
EM2300936-001	OS_TP01_0.1_20230123	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	9	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	51	64	22.4	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	14	20	31.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2300937-011	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	70	60	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	12	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4838600) - continued									
EM2300937-011	Anonymous	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	9	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	24	22	8.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	22	22	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QC Lot: 4842104)									
EM2300936-001	OS_TP01_0.1_20230123	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	<10	0.0	No Limit
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QC Lot: 4840915)									
EM2300936-001	OS_TP01_0.1_20230123	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4839307)									
EM2300820-020	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	4.6	4.5	0.0	0% - 20%
EM2300937-006	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	4.5	4.4	0.0	0% - 20%
EA029-A: pH Measurements (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	8.4	8.5	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	7.4	7.3	1.4	0% - 20%
EA029-B: Acidity Trail (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EA029-C: Sulfur Trail (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	0.043	0.043	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	0.681	0.693	1.7	0% - 20%
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	0.638	0.650	1.8	0% - 20%
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	398	405	1.8	0% - 20%
EA029-D: Calcium Values (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.264	0.271	2.6	0% - 50%
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	1.58	1.66	4.4	0% - 20%

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-D: Calcium Values (QC Lot: 4845855) - continued									
EB2302299-015	Anonymous	EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	1.32	1.38	4.8	0% - 20%
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	1.06	1.11	4.8	0% - 20%
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	659	691	4.8	0% - 20%
EA029-E: Magnesium Values (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.209	0.207	0.8	0% - 50%
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.397	0.414	4.2	0% - 20%
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	0.188	0.207	9.5	0% - 50%
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	0.248	0.273	9.5	0% - 50%
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	155	170	9.5	0% - 50%
EA029-H: Acid Base Accounting (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.64	0.65	1.8	0% - 20%
		EA029: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	30	30	0.0	0% - 20%
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	398	405	1.8	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4838570)									
EM2300936-001	OS_TP01_0.1_20230123	EA055: Moisture Content	----	0.1	%	5.2	5.7	9.5	0% - 20%
EM2300937-012	Anonymous	EA055: Moisture Content	----	0.1	%	8.9	9.6	6.8	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4838599)									
EM2300936-001	OS_TP01_0.1_20230123	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2300937-011	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4840900)									
EM2300820-020	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2300936-002	OS_TP01_0.5_20230123	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 4842696)									
EM2300820-020	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EM2300936-001	OS_TP01_0.1_20230123	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK030: Cyanide Amenable to Chlorination (QC Lot: 4842697)									
EM2300936-001	OS_TP01_0.1_20230123	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 4840886)									
EM2300820-020	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	<40	80	62.6	No Limit
EM2300937-006	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	120	100	12.8	No Limit
EP010: Formaldehyde (QC Lot: 4842105)									
EM2300936-001	OS_TP01_0.1_20230123	EP010: Formaldehyde	50-00-0	2	mg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4839585)									
EM2300936-001	OS_TP01_0.1_20230123	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2301180-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QC Lot: 4840920)									
EM2300936-002	OS_TP01_0.5_20230123	EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071SG-S: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QC Lot: 4840920)									
EM2300936-002	OS_TP01_0.5_20230123	EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071SG-S: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4839181)									
EM2300936-001	OS_TP01_0.1_20230123	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 4839181)									
EM2300936-001	OS_TP01_0.1_20230123	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EP074H: Naphthalene (QC Lot: 4839181)									
EM2300936-001	OS_TP01_0.1_20230123	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 4839181)									
EM2300936-001	OS_TP01_0.1_20230123	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 4839181) - continued									
EM2300936-001	OS_TP01_0.1_20230123	EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4840921)									
EM2300936-002	OS_TP01_0.5_20230123	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4840921) - continued									
EM2300936-002	OS_TP01_0.5_20230123	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4839584)									
EM2300936-001	OS_TP01_0.1_20230123	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2301180-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4839584)									
EM2300936-001	OS_TP01_0.1_20230123	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EM2301180-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4839584) - continued									
EM2301180-001	Anonymous	EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4839584)									
EM2300936-001	OS_TP01_0.1_20230123	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2301180-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075C: Phthalate Esters (QC Lot: 4839584)									
EM2300936-001	OS_TP01_0.1_20230123	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075C: Phthalate Esters (QC Lot: 4839584) - continued									
EM2301180-001	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075E: Nitroaromatics and Ketones (QC Lot: 4839584)									
EM2300936-001	OS_TP01_0.1_20230123	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2301180-001	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 4839584)									
EM2300936-001	OS_TP01_0.1_20230123	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2301180-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075I: Organochlorine Pesticides (QC Lot: 4839584) - continued									
EM2301180-001	Anonymous	EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4836176)									
EM2300361-147	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2301056-033	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4839181)									
EM2300936-001	OS_TP01_0.1_20230123	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4839586)									
EM2300936-001	OS_TP01_0.1_20230123	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2301180-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4836176)									
EM2300361-147	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EM2301056-033	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4839181)									
EM2300936-001	OS_TP01_0.1_20230123	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4839586)									
EM2300936-001	OS_TP01_0.1_20230123	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2301180-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 4836176)									
EM2300361-147	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 4836176) - continued									
EM2300361-147	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2301056-033	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4839490)									
EM2300936-001	OS_TP01_0.1_20230123	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2301155-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0005	0.0004	40.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4839490)									
EM2300936-001	OS_TP01_0.1_20230123	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2301155-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4839490)									
EM2300936-001	OS_TP01_0.1_20230123	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2301155-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4839490) - continued									
EM2301155-003	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4839490)									
EM2300936-001	OS_TP01_0.1_20230123	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2301155-003	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0005	0.0004	22.2	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0005	0.0004	22.2	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4833979)									
EM2300886-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EM2300361-203	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4833979) - continued									
EM2300361-203	Anonymous	EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 4833980)									
EM2300909-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EM2300361-203	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4838600)								
EG005T: Antimony	7440-36-0	5	mg/kg	<5	2.57 mg/kg	86.1	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	99.5	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	96.3	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	93.7	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	62.2	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	104	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	89.9	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	91.8	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	97.8	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	101	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	83.0	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	100	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.9 mg/kg	96.8	70.0	130
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	99.0	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	80.7	70.0	130
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4842104)								
EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	50 mg/kg	92.1	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4840915)								
EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	0.025 mg/kg	85.0	70.0	130
EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	0.229 mg/kg	93.0	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4839307)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	101	99.3	101
EA029-A: pH Measurements (QCLot: 4845855)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.4 pH Unit	105	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.2 pH Unit	107	70.0	130
EA029-B: Acidity Trail (QCLot: 4845855)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	96.6	70.0	130
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	25 mole H+ / t	112	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EA029-B: Acidity Trail (QCLot: 4845855) - continued								
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 4845855)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.055 % S	82.2	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.152 % S	77.1	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 4845855)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.201 % Ca	83.4	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.191 % Ca	91.3	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 4845855)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.204 % Mg	86.7	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.234 % Mg	84.4	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 4845855)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4838599)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	99.2	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4840900)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	76.9	70.0	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4842696)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	79.7	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4842697)								
EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	40 mg/kg	74.1	70.0	130
EK040T: Fluoride Total (QCLot: 4840886)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	102	93.1	107
EP010: Formaldehyde (QCLot: 4842105)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP010: Formaldehyde (QCLot: 4842105) - continued								
EP010: Formaldehyde	50-00-0	2	mg/kg	<2	10 mg/kg	98.8	83.9	103
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4839585)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	102	67.4	136
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 4840920)								
EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	900 mg/kg	84.3	48.6	129
EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	2920 mg/kg	89.1	67.5	129
EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	1470 mg/kg	91.8	66.5	133
EP071SG-S: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	5290 mg/kg	89.0	70.0	130
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 4840920)								
EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	1230 mg/kg	79.6	53.8	127
EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	3950 mg/kg	88.4	64.0	134
EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	260 mg/kg	95.4	52.2	128
EP071SG-S: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	5440 mg/kg	86.8	70.0	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4839181)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	104	69.2	116
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	101	67.7	116
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	100	66.6	115
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	97.6	65.2	112
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	101	69.4	111
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	97.4	68.4	110
EP074B: Oxygenated Compounds (QCLot: 4839181)								
EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	1 mg/kg	124	70.0	130
EP074H: Naphthalene (QCLot: 4839181)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	90.9	72.3	114
EP074I: Volatile Halogenated Compounds (QCLot: 4839181)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	112	47.0	138
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	109	57.6	125
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	4.2 mg/kg	104	72.3	115
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	104	60.5	122
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	99.8	70.3	112
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	103	66.6	115
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	104	64.4	122
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	102	58.4	127
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	104	72.9	114
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	101	64.7	115
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	106	72.6	116
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	102	60.0	119

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 4839181) - continued								
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	99.7	71.8	116
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	101	66.1	116
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	81.6	39.8	128
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	101	70.3	113
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	98.8	62.6	113
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	99.4	70.8	110
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	91.6	48.4	120
EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	0.1 mg/kg	84.6	70.0	130
EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	0.1 mg/kg	103	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4840921)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	120	85.7	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	116	81.0	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	114	83.6	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	116	81.3	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	120	79.4	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	115	81.7	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	116	78.3	124
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	118	79.9	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	118	76.9	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	117	80.9	130
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	1.5 mg/kg	118	70.0	121
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	106	80.4	130
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	119	70.2	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	108	67.9	122
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	107	65.8	123
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	107	65.8	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4839584)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	105	74.5	126
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	106	72.7	126
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	108	73.3	134
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	107	72.4	128
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4839584)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	105	71.5	130
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	105	73.4	129
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	106	74.3	129
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	103	70.9	133
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	102	71.8	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4839584) - continued								
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	10 mg/kg	84.1	41.0	156
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	10 mg/kg	114	65.3	134
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	10 mg/kg	102	43.6	128
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	10 mg/kg	108	62.0	128
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	108	34.5	137
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4839584)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	104	73.0	131
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	107	76.3	130
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	107	72.0	135
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	107	74.4	131
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	109	73.3	130
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	109	78.4	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	110	75.3	132
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	110	75.4	130
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	112	69.6	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	113	75.0	133
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	4 mg/kg	113	75.8	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	113	65.1	130
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	115	72.1	134
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	114	72.9	135
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	114	71.3	134
EP075C: Phthalate Esters (QCLot: 4839584)								
EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	2 mg/kg	124	70.0	130
EP075E: Nitroaromatics and Ketones (QCLot: 4839584)								
EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	2 mg/kg	109	70.0	130
EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	2 mg/kg	112	70.0	130
EP075I: Organochlorine Pesticides (QCLot: 4839584)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	110	71.0	129
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	110	74.8	126
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	109	75.7	130
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	108	70.8	130
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	108	76.5	134
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	111	75.5	131
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	109	76.8	130
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	109	73.6	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	110	75.0	133
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	112	75.3	131

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075I: Organochlorine Pesticides (QCLot: 4839584) - continued								
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	110	69.4	134
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	116	71.0	132
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	111	78.0	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	107	69.0	143
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	126	55.7	145
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	115	71.4	135
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	113	74.8	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	113	70.2	135
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	112	77.7	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	114	63.6	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4836176)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	80.2	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4839181)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	119	61.1	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4839586)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	900 mg/kg	102	74.4	129
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	2920 mg/kg	96.3	81.0	123
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1470 mg/kg	99.6	81.8	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4836176)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	82.3	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4839181)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	# 120	59.9	119
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4839586)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1230 mg/kg	96.8	75.4	132
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3950 mg/kg	94.6	80.8	120
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	260 mg/kg	91.4	73.3	136
EP080: BTEXN (QCLot: 4836176)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	78.1	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	81.7	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	85.8	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	89.4	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	91.1	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	90.3	61.8	123
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4839490)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	93.5	72.0	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4839490) - continued								
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	94.3	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	95.2	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4839490)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	91.1	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.7	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.1	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4839490)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	97.2	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	103	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	114	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	89.0	70.0	130
EP231P: PFAS Sums (QCLot: 4839490)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4833979)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	89.0	111
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	100	85.0	112
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	101	83.6	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.6	83.5	111
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.8	83.2	109
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	99.0	84.3	110
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.5	83.1	107
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.4	84.6	108
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.8	84.8	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	84.3	110
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	104	82.3	113
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	97.3	83.7	110
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	108	86.3	112
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	96.0	85.4	115
EG035F: Dissolved Mercury by FIMS (QCLot: 4833980)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.9	71.6	116

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4838600)							
EM2300936-002	OS_TP01_0.5_20230123	EG005T: Arsenic	7440-38-2	50 mg/kg	83.3	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.5	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	97.0	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	96.9	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	98.3	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	98.1	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	94.8	80.0	120
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4842104)							
EM2300937-006	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	50 mg/kg	96.4	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4840915)							
EM2300937-006	Anonymous	EP236: 2.4-D	94-75-7	0.025 mg/kg	82.6	70.0	130
		EP236: Tributyltin oxide	56-35-9	0.229 mg/kg	88.2	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4838599)							
EM2300936-002	OS_TP01_0.5_20230123	EG035T: Mercury	7439-97-6	0.5 mg/kg	102	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4840900)							
EM2300820-023	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 54.6	58.0	114
EM2300820-023	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	67.2	58.0	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4842696)							
EM2300820-023	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	105	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4842697)							
EM2300937-006	Anonymous	EK030SF: Cyanide amenable to chlorination	----	40 mg/kg	# 62.1	70.0	130
EK040T: Fluoride Total (QCLot: 4840886)							
EM2300820-023	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	88.5	70.0	130
EP010: Formaldehyde (QCLot: 4842105)							
EM2300937-006	Anonymous	EP010: Formaldehyde	50-00-0	10 mg/kg	125	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4839585)							
EM2301102-004	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	106	59.6	152
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 4840920)							
EM2300936-008	OS_TP02_0.5_20230123	EP071SG-S: C10 - C14 Fraction	----	900 mg/kg	74.8	45.8	126
		EP071SG-S: C15 - C28 Fraction	----	2920 mg/kg	80.8	64.7	122
		EP071SG-S: C29 - C36 Fraction	----	1470 mg/kg	82.7	62.8	126

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 4840920) - continued							
EM2300936-008	OS_TP02_0.5_20230123	EP071SG-S: C10 - C36 Fraction (sum)	----	5290 mg/kg	80.5	70.0	130
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 4840920)							
EM2300936-008	OS_TP02_0.5_20230123	EP071SG-S: >C10 - C16 Fraction	----	1230 mg/kg	70.4	49.8	122
		EP071SG-S: >C16 - C34 Fraction	----	3950 mg/kg	80.2	66.0	124
		EP071SG-S: >C34 - C40 Fraction	----	260 mg/kg	82.0	49.4	124
		EP071SG-S: >C10 - C40 Fraction (sum)	----	5440 mg/kg	78.3	70.0	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4839181)							
EM2300937-006	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	92.9	53.7	130
		EP074-UT: Toluene	108-88-3	2 mg/kg	91.4	55.1	124
EP074I: Volatile Halogenated Compounds (QCLot: 4839181)							
EM2300937-006	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	87.1	38.4	145
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	87.3	48.1	128
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	87.4	55.5	122
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4840921)							
EM2300936-008	OS_TP02_0.5_20230123	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	96.7	77.2	116
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	96.6	65.5	136
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4839584)							
EM2300937-006	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	3 mg/kg	93.8	44.0	143
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4839584)							
EM2300937-006	Anonymous	EP075-EM: Phenol	108-95-2	3 mg/kg	90.2	44.2	134
		EP075-EM: 2-Nitrophenol	88-75-5	3 mg/kg	87.2	34.2	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4839584)							
EM2300937-006	Anonymous	EP075-EM: Acenaphthene	83-32-9	3 mg/kg	79.3	42.6	138
		EP075-EM: Pyrene	129-00-0	3 mg/kg	95.5	37.8	152
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4836176)							
EM2300361-157	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	62.8	33.4	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4839181)							
EM2300937-006	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	60.0	42.3	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4839586)							
EM2301102-005	Anonymous	EP071-EM: C10 - C14 Fraction	----	900 mg/kg	101	71.3	126
		EP071-EM: C15 - C28 Fraction	----	2920 mg/kg	99.9	75.1	123
		EP071-EM: C29 - C36 Fraction	----	1470 mg/kg	100	78.1	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4836176)							
EM2300361-157	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	52.6	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4839181)							

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4839181) - continued							
EM2300937-006	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	64.7	39.9	109
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4839586)							
EM2301102-005	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1230 mg/kg	107	71.5	130
		EP071-EM: >C16 - C34 Fraction	----	3950 mg/kg	95.9	76.9	119
		EP071-EM: >C34 - C40 Fraction	----	260 mg/kg	92.0	65.3	139
EP080: BTEXN (QCLot: 4836176)							
EM2300361-157	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	63.7	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	73.9	57.1	131
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4839490)							
EM2300937-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	75.4	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	74.8	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	95.5	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4839490)							
EM2300937-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	79.5	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	71.5	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	# 69.0	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	79.4	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	69.7	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4839490)							
EM2300937-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	70.9	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	89.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	# 58.8	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	# 65.5	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4833979)							
EM2300361-203	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	91.1	76.6	124
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	90.4	73.0	120
		EG020A-F: Barium	7440-39-3	0.2 mg/L	91.5	75.0	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	90.7	74.6	118
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	90.5	71.0	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	92.0	78.0	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	92.3	76.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	90.5	75.0	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	92.6	64.0	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	92.8	73.0	131

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020F: Dissolved Metals by ICP-MS (QCLot: 4833979) - continued							
EM2300361-203	Anonymous	EG020A-F: Vanadium	7440-62-2	0.2 mg/L	89.6	73.0	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	90.4	75.0	131
EG035F: Dissolved Mercury by FIMS (QCLot: 4833980)							
EM2300839-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	84.8	70.0	120

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2300936**	Page	: 1 of 12
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 23-Jan-2023
Site	: AREA A - Test Pits	Issue Date	: 06-Feb-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 12
Order number	: E1159	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	QC-4839181-001	----	**C6 - C10 Fraction**	C6_C10	120 %	59.9-119%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EG048: Hexavalent Chromium (Alkaline Digest)	EM2300820--023	Anonymous	**Hexavalent Chromium**	18540-29-9	54.6 %	58.0-114%	**Recovery less than lower data quality objective**
EK030: Cyanide Amenable to Chlorination	EM2300937--006	Anonymous	**Cyanide amenable to chlorination**	----	62.1 %	70.0-130%	**Recovery less than lower data quality objective**
EP231B: Perfluoroalkyl Carboxylic Acids	EM2300937--001	Anonymous	**Perfluorohexanoic acid (PFHxA)**	307-24-4	69.0 %	70.0-132%	**Recovery less than lower data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EM2300937--001	Anonymous	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	39108-34-4	58.8 %	65.0-137%	**Recovery less than lower data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EM2300937--001	Anonymous	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	65.5 %	70.0-130%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
EA029-A: pH Measurements							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP01_0.5_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-B: Acidity Trail							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP01_0.5_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-C: Sulfur Trail							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP01_0.5_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-D: Calcium Values								
Snap Lock Bag - frozen on receipt at ALS (EA029)								
OS_TP01_0.5_20230123		**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-E: Magnesium Values								
Snap Lock Bag - frozen on receipt at ALS (EA029)								
OS_TP01_0.5_20230123		**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-F: Excess Acid Neutralising Capacity								
Snap Lock Bag - frozen on receipt at ALS (EA029)								
OS_TP01_0.5_20230123		**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-G: Retained Acidity								
Snap Lock Bag - frozen on receipt at ALS (EA029)								
OS_TP01_0.5_20230123		**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-H: Acid Base Accounting								
Snap Lock Bag - frozen on receipt at ALS (EA029)								
OS_TP01_0.5_20230123		**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
OS_TP02_0.5_20230123		**22-Jan-2023**	**----**	----	----	**27-Jan-2023**	05-Feb-2023	✓
Soil Glass Jar - Unpreserved (EA055)								
OS_TP01_0.1_20230123,	OS_TP01_0.5_20230123,	**23-Jan-2023**	**----**	----	----	**27-Jan-2023**	06-Feb-2023	✓
OS_TP02_0.1_20230123,	OS_QC01_20230123							
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)								
OS_TP01_0.1_20230123		**23-Jan-2023**	**----**	----	----	**25-Jan-2023**	22-Jul-2023	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
OS_TP02_0.5_20230123		**22-Jan-2023**	**30-Jan-2023**	21-Jul-2023	✓	**30-Jan-2023**	21-Jul-2023	✓
Soil Glass Jar - Unpreserved (EG005T)								
OS_TP01_0.1_20230123,	OS_TP01_0.5_20230123,	**23-Jan-2023**	**30-Jan-2023**	22-Jul-2023	✓	**30-Jan-2023**	22-Jul-2023	✓
OS_TP02_0.1_20230123,	OS_QC01_20230123							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
OS_TP02_0.5_20230123		**22-Jan-2023**	**30-Jan-2023**	19-Feb-2023	✓	**31-Jan-2023**	19-Feb-2023	✓
Soil Glass Jar - Unpreserved (EG035T)								
OS_TP01_0.1_20230123,	OS_TP01_0.5_20230123,	**23-Jan-2023**	**30-Jan-2023**	20-Feb-2023	✓	**31-Jan-2023**	20-Feb-2023	✓
OS_TP02_0.1_20230123,	OS_QC01_20230123							
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)								
OS_TP02_0.5_20230123		**22-Jan-2023**	**31-Jan-2023**	19-Feb-2023	✓	**31-Jan-2023**	07-Feb-2023	✓
Soil Glass Jar - Unpreserved (EG048G)								
OS_TP01_0.1_20230123,	OS_TP01_0.5_20230123,	**23-Jan-2023**	**31-Jan-2023**	20-Feb-2023	✓	**31-Jan-2023**	07-Feb-2023	✓
OS_TP02_0.1_20230123,	OS_QC01_20230123							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	14-Feb-2023	✓
EK030: Cyanide Amenable to Chlorination							
Soil Glass Jar - Unpreserved (EK030SF) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	14-Feb-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	20-Feb-2023	✓	**01-Feb-2023**	20-Feb-2023	✓
EP010: Formaldehyde							
Soil Glass Jar - Unpreserved (EP010) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	22-Jul-2023	✓	**01-Feb-2023**	22-Jul-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S) OS_TP02_0.5_20230123	**22-Jan-2023**	**31-Jan-2023**	05-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP071SG-S) OS_TP01_0.5_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S) OS_TP02_0.5_20230123	**22-Jan-2023**	**31-Jan-2023**	05-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP071SG-S) OS_TP01_0.5_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT) OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) OS_TP02_0.5_20230123	**22-Jan-2023**	**31-Jan-2023**	05-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) OS_TP01_0.5_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP075C: Phthalate Esters							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP075E: Nitroaromatics and Ketones							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) OS_TP02_0.5_20230123	**22-Jan-2023**	**27-Jan-2023**	05-Feb-2023	✓	**27-Jan-2023**	05-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP080) OS_TP01_0.5_20230123	**23-Jan-2023**	**27-Jan-2023**	06-Feb-2023	✓	**27-Jan-2023**	06-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP074-UT) OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
Soil Glass Jar - Unpreserved (EP071-EM) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) OS_TP02_0.5_20230123	**22-Jan-2023**	**27-Jan-2023**	05-Feb-2023	✓	**27-Jan-2023**	05-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP080) OS_TP01_0.5_20230123	**23-Jan-2023**	**27-Jan-2023**	06-Feb-2023	✓	**27-Jan-2023**	06-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP074-UT) OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
Soil Glass Jar - Unpreserved (EP071-EM) OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) OS_TP02_0.5_20230123	**22-Jan-2023**	**27-Jan-2023**	05-Feb-2023	✓	**27-Jan-2023**	05-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP080) OS_TP01_0.5_20230123	**23-Jan-2023**	**27-Jan-2023**	06-Feb-2023	✓	**27-Jan-2023**	06-Feb-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP095: Ethylenediamine Tetraacetic Acid (EDTA)							
Soil Glass Jar - Unpreserved (EP095)							
OS_TP01_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	22-Jul-2023	✓	**31-Jan-2023**	11-Mar-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	22-Jul-2023	✓	**31-Jan-2023**	11-Mar-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	22-Jul-2023	✓	**31-Jan-2023**	11-Mar-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	22-Jul-2023	✓	**31-Jan-2023**	11-Mar-2023	✓
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)							
Soil Glass Jar - Unpreserved (EP236)							
OS_TP01_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	11-Mar-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
OS_RIN1_230123	**23-Jan-2023**	**----**	----	----	**27-Jan-2023**	22-Jul-2023	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
OS_RIN1_230123	**23-Jan-2023**	**----**	----	----	**27-Jan-2023**	20-Feb-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	SOIL	In house: Referenced to APHA 4500 - CN- G. The sample is leached in alkali solution and pretreated by contact with Chlorine (as hypochlorite) prior to determination of Total Cyanide. The measured parameter is the difference between Total Cyanide determined on an untreated sample and Total Cyanide determined post-chlorination. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Formaldehyde	EP010	SOIL	In house: Referenced to ASTM D 6303-98. Determined on 1:5 soil / water extracts by colourimetry using NASH reagent. The Hantszch reaction method is based on the reaction of acetylacetone with formaldehyde in the presence of excess ammonium acetate to form a coloured compound.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	SOIL	In house: Referenced to USEPA SW 846 - 8015. Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	SOIL	In house: Referenced to DIN EN ISO 16588. The esterified derivative of EDTA from an aliquot of a 1:5 soil:water extract is analysed by GCMS in Selected Ion Monitoring (SIM) mode. This technique is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	SOIL	In house: soils are solvent extracted. The extract is analysed by LC-Electrospray-MS-MS, Negative Mode using MRM. Quantification by internal standardisation. Results for Tributyltin expressed as Tributyltin Oxide (TBTO).
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction of solids for 2.4-D and TBTO	EP236-PR	SOIL	In house: 2g of homogenised sample is extracted with alkaline solvent. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2300936**

Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Page	: 1 of 3
Order number	: E1159	Quote number	: EM2022SINKNI0017 (ME-491-22)
C-O-C number	: 47398	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: AREA A - Test Pits		
Sampler	: RANULI GOONETILLAKE		

Dates

Date Samples Received	: 23-Jan-2023 16:15	Issue Date	: 25-Jan-2023
Client Requested Due Date	: 07-Feb-2023	Scheduled Reporting Date	: **01-Feb-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 7.5°c - Ice present
Receipt Detail	:	No. of samples received / analysed	: 12 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **The scheduled reporting date has been extended due to analytical testing conducted by ALS interstate laboratories. Please refer to your quotation for further information.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale & ALS Brisbane.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Preliminary results will be available on the scheduled reporting date listed in this report. However the final report with SPOCAS analysis will be complete on 07/02/2023.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM2300936-001	: 23-Jan-2023 09:28	: OS_TP01_0.1_20230123
EM2300936-002	: 23-Jan-2023 07:54	: OS_TP01_0.5_20230123
EM2300936-003	: 23-Jan-2023 08:27	: OS_TP01_1.0_20230123
EM2300936-004	: 23-Jan-2023 08:28	: OS_TP01_2.0_20230123
EM2300936-005	: 23-Jan-2023 08:28	: OS_TP01_3.0_20230123
EM2300936-006	: 23-Jan-2023 09:26	: OS_TP02_0.1_20230123
EM2300936-008	: 22-Jan-2023 18:40	: OS_TP02_0.5_20230123
EM2300936-009	: 23-Jan-2023 09:28	: OS_TP02_1.0_20230123
EM2300936-010	: 23-Jan-2023 09:27	: OS_TP02_2.0_20230123
EM2300936-011	: 23-Jan-2023 09:25	: OS_TP02_3.0_20230123

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA055-103 Moisture Content	SOIL - EA200G Asbestos Identification in Soils -	SOIL - EG048G Total Hexavalent Chromium (Alkaline digestion)	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-07 SG TRH/BTEXN/PAH (SIM) inc Silica Gel Clean Up
EM2300936-001	23-Jan-2023 09:28	OS_TP01_0.1_20230123	✓	✓		✓	✓		
EM2300936-002	23-Jan-2023 07:54	OS_TP01_0.5_20230123	✓		✓			✓	✓
EM2300936-006	23-Jan-2023 09:26	OS_TP02_0.1_20230123	✓		✓			✓	
EM2300936-007	23-Jan-2023 09:26	OS_QC01_20230123	✓		✓			✓	
EM2300936-008	22-Jan-2023 18:40	OS_TP02_0.5_20230123	✓		✓			✓	✓

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA029 SPOCAS
EM2300936-002	23-Jan-2023 07:54	OS_TP01_0.5_20230123		✓
EM2300936-003	23-Jan-2023 08:27	OS_TP01_1.0_20230123	✓	
EM2300936-004	23-Jan-2023 08:28	OS_TP01_2.0_20230123	✓	
EM2300936-005	23-Jan-2023 08:28	OS_TP01_3.0_20230123	✓	
EM2300936-009	23-Jan-2023 09:28	OS_TP02_1.0_20230123	✓	
EM2300936-010	23-Jan-2023 09:27	OS_TP02_2.0_20230123	✓	
EM2300936-011	23-Jan-2023 09:25	OS_TP02_3.0_20230123	✓	

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - W-03 15 Metals (NEPM Suite)
EM2300936-012	23-Jan-2023 15:44	OS_RIN1_230123	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

APAC Supplier Management		
- A4 - AU Tax Invoice (INV)	Email	APACBISupplierMgmt@jacobs.com
ED MANZ		
- *AU Certificate of Analysis - NATA (COA)	Email	edmanz@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	edmanz@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	edmanz@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	edmanz@jacobs.com
- Chain of Custody (CoC) (COC)	Email	edmanz@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	edmanz@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	edmanz@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	edmanz@jacobs.com
JACOBS RESULTS		
- EDI Format - ESDAT (ESDAT)	Email	jacobs.labresults@esdat.net
- Electronic SRN for ESdat (ESRN_ESDAT)	Email	jacobs.labresults@esdat.net
RANULI GOONETILLAKE		
- *AU Certificate of Analysis - NATA (COA)	Email	ranuli.goonetillake@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ranuli.goonetillake@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ranuli.goonetillake@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ranuli.goonetillake@jacobs.com
- A4 - AU Tax Invoice (INV)	Email	ranuli.goonetillake@jacobs.com
- Chain of Custody (CoC) (COC)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	ranuli.goonetillake@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	ranuli.goonetillake@jacobs.com
STEPHEN SONNENBERG		
- A4 - AU Tax Invoice (INV)	Email	stephen.sonnenberg@jacobs.com
TEA SVILAND		
- *AU Certificate of Analysis - NATA (COA)	Email	tea.sviland@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tea.sviland@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tea.sviland@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tea.sviland@jacobs.com
- Chain of Custody (CoC) (COC)	Email	tea.sviland@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	tea.sviland@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	tea.sviland@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	tea.sviland@jacobs.com

CHAIN OF CUSTODY

ALS COC#: 47398 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA A - Test Pits

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetilleke CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetilleke QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetilleke@jacobs.com, tea.sviland@jacobs.com, edmanz@iacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetilleke@acobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	Oliver DATE TIME: 23-1-23 16:15	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_TP01_0.1_20230123		23/01/2023 09:28 AM	SOIL	ALS: 3 Non ALS: 1	No			Partial 3/9		
002	OS_TP01_0.5_20230123		23/01/2023 07:54 AM	SOIL	ALS: 2 Non ALS: 1	No			Partial 5/9		
003	OS_TP01_1.0_20230123		23/01/2023 08:27 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
004	OS_TP01_2.0_20230123		23/01/2023 08:28 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
005	OS_TP01_3.0_20230123		23/01/2023 08:28 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
006	OS_TP02_0.1_20230123		23/01/2023 09:26 AM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
007	OS_QC01_20230123		23/01/2023 09:26 AM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
008	OS_TP02_0.5_20230123		22/01/2023 06:40 PM	SOIL	ALS: 2 Non ALS: 0	No			Partial 3/9		
009	OS_TP02_1.0_20230123		23/01/2023 09:28 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				

Environmental Division
Melbourne
Work Order Reference
EM2300936

Telephone : +61-3-8549 9600

CHAIN OF CUSTODY

ALS COC#: 47398 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA A - Test Pits

ORDER NO: E1159

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PRIMARY SAMPLER: Ranuli Goonetilleke QUOTE NO: ME-491-22 / EM2022SINKNI0017

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EMAIL INVOICES TO: ranuli.goonetilleke@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	Oliver DATE TIME: 16:15 23-1-23	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_TP02_2.0_20230123		23/01/2023 09:27 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
011	OS_TP02_3.0_20230123		23/01/2023 09:25 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
012	OS_RIN1_230123		23/01/2023 03:44 PM	WATER	ALS: 1 Non ALS: 0	No		X			

CHAIN OF CUSTODY

ALS COC#: 47398 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	Oliver DATE TIME: 16:15 23-1-23	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA A - Test Pits

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetilleke CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetilleke QUOTE NO: ME-491-22 / EM2022SINKNI0017

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EMAIL INVOICES TO: ranuli.goonetilleke@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
001	OS_TP01_0.1_20230123	SOIL SOIL	SOIL	- EA200G Asbestos Identification in Soils - Presence/Absence in grab samples - EP231 (solids) PFAS - Short Suite (12 analytes) - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM) EPA 1828.2 Table 2 Full Solid Suite - excl. Anions
002	OS_TP01_0.5_20230123	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EN020PR Drying at 85 degrees, bagging and labelling (ASS) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EA029 SPOCAS - S-07 SG TRH/BTEXN/PAH (SIM) inc Silica Gel Clean Up
006	OS_TP02_0.1_20230123	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
007	OS_QC01_20230123	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
008	OS_TP02_0.5_20230123	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - S-07 SG TRH/BTEXN/PAH (SIM) inc Silica Gel Clean Up

CHAIN OF CUSTODY

COC#: 47398 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: Oliver 16:15 23-1-23	DATE TIME:	DATE TIME:

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PROJECT MANAGER: Ranuli Goonetilleke CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetilleke QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetilleke@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetilleke@jacobs.com, stephen.sonnenberg@jacobs.com

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	OS_TP01_0.1_20230123	HDPE Soil Jar	200 mL	00621122040550	Grey	No	
001	OS_TP01_0.1_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062233	Orange	No	
001	OS_TP01_0.1_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062348	Orange	No	
002	OS_TP01_0.5_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062216	Orange	No	
002	OS_TP01_0.5_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062249	Orange	No	
003	OS_TP01_1.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062242	Orange	No	
004	OS_TP01_2.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062248	Orange	No	
005	OS_TP01_3.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062236	Orange	No	
006	OS_TP02_0.1_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062320	Orange	No	
007	OS_QC01_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062165	Orange	No	
008	OS_TP02_0.5_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062259	Orange	No	
008	OS_TP02_0.5_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062227	Orange	No	
009	OS_TP02_1.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062276	Orange	No	
010	OS_TP02_2.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062196	Orange	No	
011	OS_TP02_3.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062282	Orange	No	
012	OS_RIN1_230123	Clear Plastic Bottle - Nitric Acid; Unfiltered	60 mL	00120822095493	Red	Yes	

Total Bottle Count: ALS: 16, Non ALS: 2

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2300937**	Page	: 1 of 15
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 23-Jan-2023 16:15
Order number	: E1159	Date Analysis Commenced	: 25-Jan-2023
C-O-C number	: 47493	Issue Date	: 06-Feb-2023 13:39
Sampler	: RANULI GOONETILLAKE		
Site	: Area F Test Pits - Monday		
Quote number	: ME-491-22		
No. of samples received	: 16		
No. of samples analysed	: 7		

ilac-MRA NATA
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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Sanjay Parekh	LCMS Coordinator	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP231X: Poor matrix spike recovery for sample EM2300937-001 due to sample matrix interference.
- EG048G: EM2300820 #23 Poor insoluble matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP074-WF: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- EK030SF: EM2300937 #6, poor matrix spike recovery for cyanide (amenable) due to sample matrix. Confirmed by re-extraction and re-analysis.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.

- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
			Sampling date / time	23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Compound	CAS Number	LOR	Unit	EM2300937-001	EM2300937-003	EM2300937-006	EM2300937-008	EM2300937-011
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	----	**4.5**	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	----	----	**4.8**	----
pH OX (23B)	----	0.1	pH Unit	----	----	----	**4.9**	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	----	----	**25**	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	----	----	**36**	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	----	----	**11**	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	----	----	**0.041**	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	----	----	**0.058**	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	----	----	<0.020	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	----	----	<0.020	----
Peroxide Sulfur (23De)	----	0.020	% S	----	----	----	<0.020	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	----	----	----	<0.020	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	----	----	----	<10	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	----	----	----	<0.020	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	----	----	----	<0.020	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	----	----	----	<0.020	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	----	----	----	<10	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	----	----	----	<0.020	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	----	----	----	**0.086**	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg	----	----	----	**0.086**	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	----	----	----	<0.020	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	----	----	----	<10	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	----	----	----	<0.020	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	----	----	**1.5**	----
Net Acidity (sulfur units)	----	0.02	% S	----	----	----	**0.04**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
			Sampling date / time	23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Compound	CAS Number	LOR	Unit	EM2300937-001	EM2300937-003	EM2300937-006	EM2300937-008	EM2300937-011
				Result	Result	Result	Result	Result
EA029-H: Acid Base Accounting - Continued								
Net Acidity (acidity units)	----	10	mole H+ / t	----	----	----	25	----
Liming Rate	----	1	kg CaCO3/t	----	----	----	2	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	----	----	0.04	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	----	----	25	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	----	----	2	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	----	11.6	----	----
Moisture Content	----	1.0	%	6.2	18.5	----	14.3	10.8
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	----	----	No	----	----
Asbestos Type	1332-21-4	-	--	----	----	-	----	----
Sample weight (dry)	----	0.01	g	----	----	42.1	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	M. TRAN	----	----
Synthetic Mineral Fibre	----	-	--	----	----	No	----	----
Organic Fibre	----	-	--	----	----	Yes	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Antimony	7440-36-0	5	mg/kg	----	----	<5	----	----
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	40	50	90	40	70
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	8	24	----	17	12
Cobalt	7440-48-4	2	mg/kg	<2	3	----	2	<2
Copper	7440-50-8	5	mg/kg	<5	9	11	6	7
Lead	7439-92-1	5	mg/kg	7	12	10	11	9
Manganese	7439-96-5	5	mg/kg	17	18	----	13	24
Molybdenum	7439-98-7	2	mg/kg	----	----	<2	----	----
Nickel	7440-02-0	2	mg/kg	3	6	9	4	5
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	----	----	<2	----	----
Vanadium	7440-62-2	5	mg/kg	16	33	----	21	22
Zinc	7440-66-6	5	mg/kg	<5	<5	6	<5	<5

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
				Sampling date / time	23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
					EM2300937-001	EM2300937-003	EM2300937-006	EM2300937-008	EM2300937-011
					Result	Result	Result	Result	Result
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		----	----	<1	----	----
EK030: Cyanide Amenable to Chlorination									
Cyanide amenable to chlorination	----	1	mg/kg		----	----	<1	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		----	----	**120**	----	----
EP010: Formaldehyde									
Formaldehyde	50-00-0	2	mg/kg		----	----	<2	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
				Sampling date / time	23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
					EM2300937-001	EM2300937-003	EM2300937-006	EM2300937-008	EM2300937-011
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		----	----	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		----	----	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg		----	----	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
			Sampling date / time	23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Compound	CAS Number	LOR	Unit	EM2300937-001	EM2300937-003	EM2300937-006	EM2300937-008	EM2300937-011
				Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	----	----	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg	----	----	<0.5	----	----
EP074B: Oxygenated Compounds								
2-Butanone (MEK)	78-93-3	1	mg/kg	----	----	<1	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	----	----	<1	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	----	----	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	----	----	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg	----	----	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	----	----	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	----	----	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg	----	----	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	----	----	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	----	----	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	----	----	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg	----	----	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	----	----	<0.04	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	----	----	<0.01	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	----	----	<0.02	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	----	----	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	----	----	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	----	----	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	----	----	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	----	----	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	----	----	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	----	----	<0.01	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	----	----	<0.01	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	----	----	<0.01	----	----
^ Sum of Trichlorobenzenes	----	0.01	mg/kg	----	----	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	----	----	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	----	----	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
				Sampling date / time	23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Compound	CAS Number	LOR	Unit		EM2300937-001	EM2300937-003	EM2300937-006	EM2300937-008	EM2300937-011
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		----	----	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		----	----	<0.05	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		----	----	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		----	----	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		----	----	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		----	----	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		----	----	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		----	----	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		----	----	<5	----	----
Dinoseb	88-85-7	5	mg/kg		----	----	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		----	----	<5	----	----
^ Cresols (Total)	----	1	mg/kg		----	----	<1	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		----	----	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		----	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		----	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		----	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		----	----	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		----	----	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
				Sampling date / time	23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Compound	CAS Number	LOR	Unit		EM2300937-001	EM2300937-003	EM2300937-006	EM2300937-008	EM2300937-011
					Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	**1.2**	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		----	----	<0.5	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		----	----	<0.5	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		----	----	<1.0	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		----	----	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		----	----	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		----	----	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		----	----	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		----	----	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		----	----	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		----	----	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		----	----	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		----	----	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		----	----	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		----	----	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		----	----	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		----	----	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		----	----	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		----	----	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		----	----	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		----	----	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		----	----	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		----	----	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		----	----	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		----	----	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons									

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
				Sampling date / time	23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
					EM2300937-001	EM2300937-003	EM2300937-006	EM2300937-008	EM2300937-011
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	10	mg/kg		----	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		----	----	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		----	----	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		----	----	<100	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		----	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	----	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	----	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	----	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	<10	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)									
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg		----	----	<10	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	<0.001	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	<0.0005	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
				Sampling date / time	23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Compound	CAS Number	LOR	Unit		EM2300937-001	EM2300937-003	EM2300937-006	EM2300937-008	EM2300937-011
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)									
2.4-D	94-75-7	0.001	mg/kg		----	----	<0.001	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg		----	----	<0.01	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	**101**	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**104**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**108**	----	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	----	**94.9**	----	----
Toluene-D8	2037-26-5	0.1	%		----	----	**99.8**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		----	----	**108**	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		----	----	**88.1**	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		----	----	**86.0**	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		----	----	**84.8**	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		----	----	**87.4**	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		----	----	**82.9**	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		----	----	**89.6**	----	----
Anthracene-d10	1719-06-8	0.025	%		----	----	**93.0**	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		----	----	**96.3**	----	----
EP231S: PFAS Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
				Sampling date / time	23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Compound	CAS Number	LOR	Unit		EM2300937-001	EM2300937-003	EM2300937-006	EM2300937-008	EM2300937-011
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.0002	%		91.0	----	98.2	----	----
13C8-PFOA	----	0.0002	%		78.8	----	81.0	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_QC03_20230123	OS_TP18_0.5_20230123	----	----	----
			Sampling date / time	23-Jan-2023 14:21	23-Jan-2023 14:25	----	----	----
Compound	CAS Number	LOR	Unit	EM2300937-012	EM2300937-013	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**8.9**	**7.7**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg	**60**	**30**	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	**12**	**10**	----	----	----
Cobalt	7440-48-4	2	mg/kg	<2	<2	----	----	----
Copper	7440-50-8	5	mg/kg	**7**	<5	----	----	----
Lead	7439-92-1	5	mg/kg	**10**	**7**	----	----	----
Manganese	7439-96-5	5	mg/kg	**31**	**8**	----	----	----
Nickel	7440-02-0	2	mg/kg	**5**	**3**	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	----
Vanadium	7440-62-2	5	mg/kg	**22**	**19**	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_TP17_0.1_20230123 - 23-Jan-2023 12:55	Grey rocky soil with organic matter.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

ALS Environmental

Automated Guideline Comparison Report

Work Order	: **EM2300937**	Page	: 1 of 20
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE		
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Date Received	: 23-Jan-2023 16:15
Order number	: E1159	Date Analysed	: 25-Jan-2023
C-O-C number	: 47493	Date Issued	: 06-Feb-2023 13:38
No. of samples received	: 16		
No. of samples analysed	: 7	Quote number	: ME-491-22

General Comments

Only results in the 'Analytical Results' section have been compared to the guideline.

Additional information pertinent to this report will be found in the following separate attachments: Certificate of Analysis, Quality Control Report, QA/QC Compliance Assessment to Assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
Sampling date/time						23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Sample ID						EM2300937-001 MU	EM2300937-003 MU	EM2300937-006 MU	EM2300937-008 MU	EM2300937-011 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	300	----	----	<5 --	----	----
Arsenic	EG005T	5	mg/kg	----	2000	----	----	<5 --	----	----
Barium	EG005T	10	mg/kg	----	25000	----	----	**90** ± 9	----	----
Beryllium	EG005T	1	mg/kg	----	400	----	----	<1 --	----	----
Boron	EG005T	50	mg/kg	----	60000	----	----	<50 --	----	----
Cadmium	EG005T	1	mg/kg	----	400	----	----	<1 --	----	----
Copper	EG005T	5	mg/kg	----	20000	----	----	**11** ± 2	----	----
Lead	EG005T	5	mg/kg	----	6000	----	----	**10** ± 1	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	----	----	<2 --	----	----
Nickel	EG005T	2	mg/kg	----	12000	----	----	**9** ± 0.9	----	----
Selenium	EG005T	5	mg/kg	----	40000	----	----	<5 --	----	----
Silver	EG005T	2	mg/kg	----	720	----	----	<2 --	----	----
Zinc	EG005T	5	mg/kg	----	140000	----	----	**6** ± 2	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	----	----	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	----	----	<0.5 --	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	----	----	<1 --	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	----	----	**120** ± 30	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	8000	----	----	<2	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	----	----	<0.2 --	----	----
Toluene	EP074-UT	0.5	mg/kg	----	12800	----	----	<0.5 --	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	4800	----	----	<0.5 --	----	----
Styrene	EP074-UT	0.5	mg/kg	----	480	----	----	<0.5 --	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	9600	----	----	<0.5 --	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	32000	----	----	<1	----	----
EP074I: Volatile Halogenated Compounds										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
Sampling date/time						23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Sample ID						EM2300937-001 MU	EM2300937-003 MU	EM2300937-006 MU	EM2300937-008 MU	EM2300937-011 MU
EP074I: Volatile Halogenated Compounds - Continued										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	480	----	----	<0.01	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	64	----	----	<0.4	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	960	----	----	<0.02	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	960	----	----	<0.01	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	960	----	----	<0.02	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	4800	----	----	<0.01	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	48	----	----	<0.01	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	48	----	----	<0.02	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	80	----	----	<0.02	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	190	----	----	<0.04	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	1600	----	----	<0.01	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	800	----	----	<0.02	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	210	----	----	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	----	----	<0.02	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	4800	----	----	<0.02	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	640	----	----	<0.02	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	24000	----	----	<0.02	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	480	----	----	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	4800	----	----	<0.03	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	3200	----	----	<0.03	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	64000	----	----	<0.05	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	320	----	----	<0.05	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	32000	----	----	<1	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	2200	----	----	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	160	----	----	<0.5	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	400	----	----	<0.5	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	320	----	----	<0.5	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	21	----	----	<1.0	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	**OS_TP15_0.1_20230123** 23-Jan-2023 11:18 **EM2300937-001** MU	**OS_TP15_1.0_20230123** 23-Jan-2023 11:19 **EM2300937-003** MU	**OS_TP17_0.1_20230123** 23-Jan-2023 12:55 **EM2300937-006** MU	**OS_TP17_1.0_20230123** 23-Jan-2023 13:01 **EM2300937-008** MU	**OS_TP18_0.1_20230123** 23-Jan-2023 14:21 **EM2300937-011** MU
EP075I: Organochlorine Pesticides - Continued											
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8		**----**	**----**	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	4.8		**----**	**----**	<0.03	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	50		**----**	**----**	<0.05	**----**	**----**
Chlordane	EP075-EM	0.03	mg/kg	----	16		**----**	**----**	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	50		**----**	**----**	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600		**----**	**----**	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000		**----**	**----**	<50	**----**	**----**
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg	----	10		**----**	**----**	<0.01	**----**	**----**

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
Sampling date/time						23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Sample ID						EM2300937-001 MU	EM2300937-003 MU	EM2300937-006 MU	EM2300937-008 MU	EM2300937-011 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	75	----	----	<5 --	----	----
Arsenic	EG005T	5	mg/kg	----	500	----	----	<5 --	----	----
Barium	EG005T	10	mg/kg	----	6250	----	----	**90** ± 9	----	----
Beryllium	EG005T	1	mg/kg	----	100	----	----	<1 --	----	----
Boron	EG005T	50	mg/kg	----	15000	----	----	<50 --	----	----
Cadmium	EG005T	1	mg/kg	----	100	----	----	<1 --	----	----
Copper	EG005T	5	mg/kg	----	5000	----	----	**11** ± 2	----	----
Lead	EG005T	5	mg/kg	----	1500	----	----	**10** ± 1	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	----	----	<2 --	----	----
Nickel	EG005T	2	mg/kg	----	3000	----	----	**9** ± 0.9	----	----
Selenium	EG005T	5	mg/kg	----	10000	----	----	<5 --	----	----
Silver	EG005T	2	mg/kg	----	180	----	----	<2 --	----	----
Zinc	EG005T	5	mg/kg	----	35000	----	----	**6** ± 2	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	----	----	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	----	----	<0.5 --	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	----	----	<1 --	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	----	----	**120** ± 30	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	2000	----	----	<2	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	50	----	----	<0.1 --	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	----	----	<0.2 --	----	----
Toluene	EP074-UT	0.5	mg/kg	----	3200	----	----	<0.5 --	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	1200	----	----	<0.5 --	----	----
Styrene	EP074-UT	0.5	mg/kg	----	120	----	----	<0.5 --	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	2400	----	----	<0.5 --	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	8000	----	----	<1	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
Sampling date/time						23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Sample ID						EM2300937-001 MU	EM2300937-003 MU	EM2300937-006 MU	EM2300937-008 MU	EM2300937-011 MU
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	120	----	----	<0.01	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	16	----	----	<0.4	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	240	----	----	<0.02	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	240	----	----	<0.01	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	240	----	----	<0.02	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	1200	----	----	<0.01	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	12	----	----	<0.01	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	12	----	----	<0.02	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	20	----	----	<0.02	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	48	----	----	<0.04	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	400	----	----	<0.01	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	200	----	----	<0.02	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	52	----	----	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	----	----	<0.02	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	1200	----	----	<0.02	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	160	----	----	<0.02	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	6000	----	----	<0.02	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	120	----	----	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	1200	----	----	<0.03	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	800	----	----	<0.03	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	16000	----	----	<0.05	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	80	----	----	<0.05	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	8000	----	----	<1	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	560	----	----	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	40	----	----	<0.5	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	100	----	----	<0.5	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	80	----	----	<0.5	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	5.2	----	----	<1.0	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	**OS_TP15_0.1_20230123** 23-Jan-2023 11:18	**OS_TP15_1.0_20230123** 23-Jan-2023 11:19	**OS_TP17_0.1_20230123** 23-Jan-2023 12:55	**OS_TP17_1.0_20230123** 23-Jan-2023 13:01	**OS_TP18_0.1_20230123** 23-Jan-2023 14:21
							EM2300937-001 MU	**EM2300937-003** MU	**EM2300937-006** MU	**EM2300937-008** MU	**EM2300937-011** MU
EP075I: Organochlorine Pesticides - Continued											
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2		**----**	**----**	<0.03 _ _	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	1.2		**----**	**----**	<0.03 _ _	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	50		**----**	**----**	<0.05 _ _	**----**	**----**
Chlordane	EP075-EM	0.03	mg/kg	----	4		**----**	**----**	<0.03 _ _	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	10		**----**	**----**	<0.03 _ _	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650		**----**	**----**	<10 _ _	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000		**----**	**----**	<50 _ _	**----**	**----**
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg	----	2.5		**----**	**----**	<0.01 _ _	**----**	**----**

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
Sampling date/time						23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Sample ID						EM2300937-001 MU	EM2300937-003 MU	EM2300937-006 MU	EM2300937-008 MU	EM2300937-011 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	75	----	----	<5 - -	----	----
Arsenic	EG005T	5	mg/kg	----	500	----	----	<5 - -	----	----
Barium	EG005T	10	mg/kg	----	6250	----	----	**90** ± 9	----	----
Beryllium	EG005T	1	mg/kg	----	100	----	----	<1 - -	----	----
Boron	EG005T	50	mg/kg	----	15000	----	----	<50 - -	----	----
Cadmium	EG005T	1	mg/kg	----	100	----	----	<1 - -	----	----
Copper	EG005T	5	mg/kg	----	5000	----	----	**11** ± 2	----	----
Lead	EG005T	5	mg/kg	----	1500	----	----	**10** ± 1	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	----	----	<2 - -	----	----
Nickel	EG005T	2	mg/kg	----	3000	----	----	**9** ± 0.9	----	----
Selenium	EG005T	5	mg/kg	----	10000	----	----	<5 - -	----	----
Silver	EG005T	2	mg/kg	----	180	----	----	<2 - -	----	----
Zinc	EG005T	5	mg/kg	----	35000	----	----	**6** ± 2	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	----	----	<0.1 - -	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	----	----	<0.5 - -	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	----	----	<1 - -	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	----	----	**120** ± 30	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	2000	----	----	<2	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	----	----	<0.1 - -	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	----	----	<0.2 - -	----	----
Toluene	EP074-UT	0.5	mg/kg	----	3200	----	----	<0.5 - -	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	1200	----	----	<0.5 - -	----	----
Styrene	EP074-UT	0.5	mg/kg	----	120	----	----	<0.5 - -	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	2400	----	----	<0.5 - -	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	8000	----	----	<1	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP15_0.1_20230123	OS_TP15_1.0_20230123	OS_TP17_0.1_20230123	OS_TP17_1.0_20230123	OS_TP18_0.1_20230123
Sampling date/time						23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Sample ID						EM2300937-001 MU	EM2300937-003 MU	EM2300937-006 MU	EM2300937-008 MU	EM2300937-011 MU
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	120	----	----	<0.01	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	16	----	----	<0.4	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	240	----	----	<0.02	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	240	----	----	<0.01	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	240	----	----	<0.02	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	1200	----	----	<0.01	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	12	----	----	<0.01	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	12	----	----	<0.02	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	20	----	----	<0.02	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	48	----	----	<0.04	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	400	----	----	<0.01	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	200	----	----	<0.02	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	52	----	----	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	----	----	<0.02	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	1200	----	----	<0.02	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	160	----	----	<0.02	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	6000	----	----	<0.02	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	120	----	----	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	1200	----	----	<0.03	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	800	----	----	<0.03	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	16000	----	----	<0.05	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	80	----	----	<0.05	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	8000	----	----	<1	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	560	----	----	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	----	----	<0.5	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	50	----	----	<0.5	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	80	----	----	<0.5	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	5.2	----	----	<1.0	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**OS_TP15_0.1_20230123**	**OS_TP15_1.0_20230123**	**OS_TP17_0.1_20230123**	**OS_TP17_1.0_20230123**	**OS_TP18_0.1_20230123**
Sampling date/time						23-Jan-2023 11:18	23-Jan-2023 11:19	23-Jan-2023 12:55	23-Jan-2023 13:01	23-Jan-2023 14:21
Sample ID						**EM2300937-001** MU	**EM2300937-003** MU	**EM2300937-006** MU	**EM2300937-008** MU	**EM2300937-011** MU
EP075l: Organochlorine Pesticides - Continued										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	**----**	**----**	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	1.2	**----**	**----**	<0.03	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	50	**----**	**----**	<0.05	**----**	**----**
Chlordane	EP075-EM	0.03	mg/kg	----	4	**----**	**----**	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	10	**----**	**----**	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	325	**----**	**----**	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	5000	**----**	**----**	<50	**----**	**----**
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)										
Tributyltin oxide	EP236	0.01	mg/kg	----	2.5	**----**	**----**	<0.01	**----**	**----**

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* **OS_QC03_20230123**	**OS_TP18_0.5_20230123**	----	----	----
				Sampling date/time		23-Jan-2023 14:21	23-Jan-2023 14:25	----	----	----
						EM2300937-012 MU	**EM2300937-013** MU			
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	----	----	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	----	----	----	----	----	----
Barium	EG005T	10	mg/kg	----	----	----	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	----	----	----	----	----	----
Boron	EG005T	50	mg/kg	----	----	----	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	----	----	----	----	----	----
Copper	EG005T	5	mg/kg	----	----	----	----	----	----	----
Lead	EG005T	5	mg/kg	----	----	----	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	----	----	----	----	----	----
Nickel	EG005T	2	mg/kg	----	----	----	----	----	----	----
Selenium	EG005T	5	mg/kg	----	----	----	----	----	----	----
Silver	EG005T	2	mg/kg	----	----	----	----	----	----	----
Zinc	EG005T	5	mg/kg	----	----	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	----	----	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	----	----	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	----	----	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	----	----	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	----	----	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	----	----	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	----	----	----	----	----	----
EP074I: Volatile Halogenated Compounds										
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID*	Guideline Lower Limit	Guideline Upper Limit	**OS_QC03_20 230123**	**OS_TP18_0.5 _20230123**	**----**	**----**	**----**
				Sampling date/time			23-Jan-2023 14:21	23-Jan-2023 14:25	----	----	----
							EM2300937-012 MU	**EM2300937-013** MU			
EP074I: Volatile Halogenated Compounds - Continued											
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
1.1-Dichloroethene	EP074-UT	0.01	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
1.2-Dichloroethane	EP074-UT	0.02	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Carbon Tetrachloride	EP074-UT	0.01	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Chlorobenzene	EP074-UT	0.02	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Chloroform	EP074-UT	0.02	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Hexachlorobutadiene	EP074-UT	0.02	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Methylene chloride	EP074-UT	0.4	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Tetrachloroethene	EP074-UT	0.02	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Trichloroethene	EP074-UT	0.02	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP075A: Phenolic Compounds (Halogenated)											
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
2-Chlorophenol	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP075A: Phenolic Compounds (Non-halogenated)											
Cresols (Total)	EP075-EM	1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP075E: Nitroaromatics and Ketones											
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Nitrobenzene	EP075-EM	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP075I: Organochlorine Pesticides											
Chlordane	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID*	Guideline Lower Limit	Guideline Upper Limit	**OS_QC03_20 230123**	**OS_TP18_0.5 _20230123**	**----**	**----**	**----**
				Sampling date/time			23-Jan-2023 14:21	23-Jan-2023 14:25	----	----	----
							EM2300937-012 MU	**EM2300937-013** MU			
EP075l: Organochlorine Pesticides - Continued											
Heptachlor	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons											
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID*	Guideline Lower Limit	Guideline Upper Limit	**OS_QC03_20 230123**	**OS_TP18_0.5 _20230123**	**----**	**----**	**----**
				Sampling date/time			23-Jan-2023 14:21	23-Jan-2023 14:25	----	----	----
							EM2300937-012 MU	**EM2300937-013** MU			
EG005(ED093)T: Total Metals by ICP-AES											
Antimony	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Arsenic	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Barium	EG005T	10	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Beryllium	EG005T	1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Boron	EG005T	50	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Cadmium	EG005T	1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Copper	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Lead	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Molybdenum	EG005T	2	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Nickel	EG005T	2	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Selenium	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Silver	EG005T	2	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Zinc	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP010: Formaldehyde											
Formaldehyde	EP010	2	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Ethylbenzene	EP074-UT	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Styrene	EP074-UT	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Toluene	EP074-UT	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Total Xylenes	EP074-UT	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP074B: Oxygenated Compounds											
2-Butanone (MEK)	EP074-UT	1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* **OS_QC03_20230123** *Sampling date/time* 23-Jan-2023 14:21 **EM2300937-012** MU	**OS_TP18_0.5_20230123** 23-Jan-2023 14:25 **EM2300937-013** MU	---- ----	---- ----	---- ----
EP074I: Volatile Halogenated Compounds										
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Chlorobenzene	EP074-UT	0.02	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Chloroform	EP074-UT	0.02	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Methylene chloride	EP074-UT	0.4	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Trichloroethene	EP074-UT	0.02	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
EP075A: Phenolic Compounds (Halogenated)										
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
EP075E: Nitroaromatics and Ketones										
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Nitrobenzene	EP075-EM	0.5	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID*	Guideline Lower Limit	Guideline Upper Limit	**OS_QC03_20 230123**	**OS_TP18_0.5 _20230123**	**----**	**----**	**----**
				Sampling date/time			23-Jan-2023 14:21	23-Jan-2023 14:25	----	----	----
							EM2300937-012 MU	**EM2300937-013** MU			
EP075l: Organochlorine Pesticides - Continued											
Chlordane	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Heptachlor	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons											
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

				Sample ID		**OS_QC03_20 230123**	**OS_TP18_0.5 _20230123**	**----**	**----**	**----**
				Sampling date/time	Guideline	Guideline	23-Jan-2023 14:21	23-Jan-2023 14:25	----	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	**EM2300937-012** MU	**EM2300937-013** MU			
EG005(ED093)T: Total Metals by ICP-AES											
Antimony	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Arsenic	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Barium	EG005T	10	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Beryllium	EG005T	1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Boron	EG005T	50	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Cadmium	EG005T	1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Copper	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Lead	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Molybdenum	EG005T	2	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Nickel	EG005T	2	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Selenium	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Silver	EG005T	2	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Zinc	EG005T	5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP010: Formaldehyde											
Formaldehyde	EP010	2	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Ethylbenzene	EP074-UT	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Styrene	EP074-UT	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Toluene	EP074-UT	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Total Xylenes	EP074-UT	0.5	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP074B: Oxygenated Compounds											
2-Butanone (MEK)	EP074-UT	1	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* **OS_QC03_20230123** *Sampling date/time* 23-Jan-2023 14:21 **EM2300937-012** MU	*Sample ID* **OS_TP18_0.5_20230123** *Sampling date/time* 23-Jan-2023 14:25 **EM2300937-013** MU	----	----	----
EP074I: Volatile Halogenated Compounds										
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	----	----	----	----	----	----
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	----	----	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	----	----	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	----	----	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	----	----	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	----	----	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----
EP075E: Nitroaromatics and Ketones										
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	----	----	----	----	----	----
Nitrobenzene	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID*	Guideline Lower Limit	Guideline Upper Limit	**OS_QC03_20230123**	**OS_TP18_0.5_20230123**	**----**	**----**	**----**
				Sampling date/time			23-Jan-2023 14:21	23-Jan-2023 14:25	----	----	----
							EM2300937-012 MU	**EM2300937-013** MU			
EP075l: Organochlorine Pesticides - Continued											
Chlordane	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Heptachlor	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons											
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg		----	----	**----**	**----**	**----**	**----**	**----**

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2300937**	Page	: 1 of 23
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 23-Jan-2023
Order number	: E1159	Date Analysis Commenced	: 25-Jan-2023
C-O-C number	: 47493	Issue Date	: 06-Feb-2023
Sampler	: RANULI GOONETILLAKE		
Site	: Area F Test Pits - Monday		
Quote number	: ME-491-22		
No. of samples received	: 16		
No. of samples analysed	: 7		

ilac-MRA NATA
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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Sanjay Parekh	LCMS Coordinator	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4838600)									
EM2300936-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	9	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	51	64	22.4	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	14	20	31.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2300937-011	OS_TP18_0.1_20230123	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	70	60	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	12	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4838600) - continued									
EM2300937-011	OS_TP18_0.1_20230123	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	9	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	24	22	8.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	22	22	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QC Lot: 4842104)									
EM2300936-001	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	<10	0.0	No Limit
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QC Lot: 4840915)									
EM2300936-001	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4839307)									
EM2300820-020	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	4.6	4.5	0.0	0% - 20%
EM2300937-006	OS_TP17_0.1_20230123	EA001: pH (CaCl2)	----	0.1	pH Unit	4.5	4.4	0.0	0% - 20%
EA029-A: pH Measurements (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	8.4	8.5	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	7.4	7.3	1.4	0% - 20%
EA029-B: Acidity Trail (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EA029-C: Sulfur Trail (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	0.043	0.043	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	0.681	0.693	1.7	0% - 20%
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	0.638	0.650	1.8	0% - 20%
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	398	405	1.8	0% - 20%
EA029-D: Calcium Values (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.264	0.271	2.6	0% - 50%
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	1.58	1.66	4.4	0% - 20%

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-D: Calcium Values (QC Lot: 4845855) - continued									
EB2302299-015	Anonymous	EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	1.32	1.38	4.8	0% - 20%
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	1.06	1.11	4.8	0% - 20%
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	659	691	4.8	0% - 20%
EA029-E: Magnesium Values (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.209	0.207	0.8	0% - 50%
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.397	0.414	4.2	0% - 20%
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	0.188	0.207	9.5	0% - 50%
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	0.248	0.273	9.5	0% - 50%
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	155	170	9.5	0% - 50%
EA029-H: Acid Base Accounting (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.64	0.65	1.8	0% - 20%
		EA029: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	30	30	0.0	0% - 20%
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	398	405	1.8	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4838570)									
EM2300936-001	Anonymous	EA055: Moisture Content	----	0.1	%	5.2	5.7	9.5	0% - 20%
EM2300937-012	OS_QC03_20230123	EA055: Moisture Content	----	0.1	%	8.9	9.6	6.8	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4838599)									
EM2300936-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2300937-011	OS_TP18_0.1_20230123	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4840900)									
EM2300820-020	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2300936-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 4842696)									
EM2300820-020	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EM2300936-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK030: Cyanide Amenable to Chlorination (QC Lot: 4842697)									
EM2300936-001	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 4840886)									
EM2300820-020	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	<40	80	62.6	No Limit
EM2300937-006	OS_TP17_0.1_20230123	EK040T: Fluoride	16984-48-8	40	mg/kg	120	100	12.8	No Limit
EP010: Formaldehyde (QC Lot: 4842105)									
EM2300936-001	Anonymous	EP010: Formaldehyde	50-00-0	2	mg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4839585)									
EM2300936-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2301180-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4839601)									
EM2301206-002	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM2301181-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4839601) - continued									
EM2301181-001	Anonymous	EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4839601)									
EM2301206-002	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM2301181-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4839601) - continued									
EM2301181-001	Anonymous	EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4839181)									
EM2300936-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 4839181)									
EM2300936-001	Anonymous	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EP074H: Naphthalene (QC Lot: 4839181)									
EM2300936-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 4839181)									
EM2300936-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 4839181) - continued									
EM2300936-001	Anonymous	EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4839584)									
EM2300936-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2301180-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4839584)									
EM2300936-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4839584) - continued									
EM2300936-001	Anonymous	EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EM2301180-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4839584)									
EM2300936-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2301180-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4839584) - continued									
EM2301180-001	Anonymous	EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075C: Phthalate Esters (QC Lot: 4839584)									
EM2300936-001	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2301180-001	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075E: Nitroaromatics and Ketones (QC Lot: 4839584)									
EM2300936-001	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2301180-001	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 4839584)									
EM2300936-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075I: Organochlorine Pesticides (QC Lot: 4839584) - continued									
EM2301180-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4839181)									
EM2300936-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4839586)									
EM2300936-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2301180-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4839181)									
EM2300936-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EM2301183-008	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4839586)									
EM2300936-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4839586) - continued									
EM2301180-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4839490)									
EM2300936-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2301155-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0005	0.0004	40.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4839490)									
EM2300936-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2301155-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4839490)									
EM2300936-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2301155-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4839490)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231P: PFAS Sums (QC Lot: 4839490) - continued									
EM2300936-001	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2301155-003	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0005	0.0004	22.2	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0005	0.0004	22.2	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4838600)								
EG005T: Antimony	7440-36-0	5	mg/kg	<5	2.57 mg/kg	86.1	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	99.5	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	96.3	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	93.7	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	62.2	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	104	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	89.9	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	91.8	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	97.8	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	101	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	83.0	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	100	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.9 mg/kg	96.8	70.0	130
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	99.0	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	80.7	70.0	130
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4842104)								
EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	50 mg/kg	92.1	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4840915)								
EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	0.025 mg/kg	85.0	70.0	130
EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	0.229 mg/kg	93.0	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4839307)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	101	99.3	101
EA029-A: pH Measurements (QCLot: 4845855)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.4 pH Unit	105	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.2 pH Unit	107	70.0	130
EA029-B: Acidity Trail (QCLot: 4845855)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	96.6	70.0	130
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	25 mole H+ / t	112	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EA029-B: Acidity Trail (QCLot: 4845855) - continued								
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 4845855)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.055 % S	82.2	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.152 % S	77.1	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 4845855)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.201 % Ca	83.4	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.191 % Ca	91.3	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 4845855)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.204 % Mg	86.7	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.234 % Mg	84.4	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 4845855)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4838599)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	99.2	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4840900)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	76.9	70.0	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4842696)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	79.7	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4842697)								
EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	40 mg/kg	74.1	70.0	130
EK040T: Fluoride Total (QCLot: 4840886)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	102	93.1	107
EP010: Formaldehyde (QCLot: 4842105)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP010: Formaldehyde (QCLot: 4842105) - continued								
EP010: Formaldehyde	50-00-0	2	mg/kg	<2	10 mg/kg	98.8	83.9	103
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4839585)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	102	67.4	136
EP068A: Organochlorine Pesticides (OC) (QCLot: 4839601)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.9	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	100	70.0	124
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	120	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	115	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	112	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	122	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.3	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	114	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	120	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	89.5	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	92.0	55.5	132
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4839601)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	83.2	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	82.6	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	112	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	68.0	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	93.6	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	111	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.3	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	90.2	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	108	66.2	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4839601) - continued								
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	112	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	101	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	131	43.1	131
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4839181)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	104	69.2	116
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	101	67.7	116
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	100	66.6	115
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	97.6	65.2	112
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	101	69.4	111
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	97.4	68.4	110
EP074B: Oxygenated Compounds (QCLot: 4839181)								
EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	1 mg/kg	124	70.0	130
EP074H: Naphthalene (QCLot: 4839181)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	90.9	72.3	114
EP074I: Volatile Halogenated Compounds (QCLot: 4839181)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	112	47.0	138
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	109	57.6	125
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	4.2 mg/kg	104	72.3	115
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	104	60.5	122
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	99.8	70.3	112
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	103	66.6	115
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	104	64.4	122
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	102	58.4	127
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	104	72.9	114
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	101	64.7	115
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	106	72.6	116
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	102	60.0	119
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	99.7	71.8	116
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	101	66.1	116
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	81.6	39.8	128
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	101	70.3	113
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	98.8	62.6	113
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	99.4	70.8	110

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 4839181) - continued								
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	91.6	48.4	120
EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	0.1 mg/kg	84.6	70.0	130
EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	0.1 mg/kg	103	70.0	130
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4839584)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	105	74.5	126
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	106	72.7	126
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	108	73.3	134
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	107	72.4	128
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4839584)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	105	71.5	130
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	105	73.4	129
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	106	74.3	129
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	103	70.9	133
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	102	71.8	132
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	10 mg/kg	84.1	41.0	156
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	10 mg/kg	114	65.3	134
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	10 mg/kg	102	43.6	128
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	10 mg/kg	108	62.0	128
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	108	34.5	137
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4839584)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	104	73.0	131
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	107	76.3	130
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	107	72.0	135
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	107	74.4	131
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	109	73.3	130
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	109	78.4	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	110	75.3	132
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	110	75.4	130
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	112	69.6	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	113	75.0	133
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	4 mg/kg	113	75.8	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	113	65.1	130
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	115	72.1	134
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	114	72.9	135
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	114	71.3	134
EP075C: Phthalate Esters (QCLot: 4839584)								
EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	2 mg/kg	124	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075E: Nitroaromatics and Ketones (QCLot: 4839584)								
EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	2 mg/kg	109	70.0	130
EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	2 mg/kg	112	70.0	130
EP075I: Organochlorine Pesticides (QCLot: 4839584)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	110	71.0	129
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	110	74.8	126
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	109	75.7	130
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	108	70.8	130
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	108	76.5	134
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	111	75.5	131
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	109	76.8	130
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	109	73.6	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	110	75.0	133
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	112	75.3	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	110	69.4	134
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	116	71.0	132
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	111	78.0	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	107	69.0	143
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	126	55.7	145
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	115	71.4	135
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	113	74.8	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	113	70.2	135
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	112	77.7	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	114	63.6	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4839181)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	119	61.1	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4839586)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	900 mg/kg	102	74.4	129
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	2920 mg/kg	96.3	81.0	123
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1470 mg/kg	99.6	81.8	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4839181)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	# 120	59.9	119
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4839586)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1230 mg/kg	96.8	75.4	132
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3950 mg/kg	94.6	80.8	120
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	260 mg/kg	91.4	73.3	136
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4839490)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4839490) - continued								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	93.5	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	94.3	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	95.2	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4839490)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	91.1	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.7	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.1	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4839490)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	97.2	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	103	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	114	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	89.0	70.0	130
EP231P: PFAS Sums (QCLot: 4839490)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4838600)							
EM2300936-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	83.3	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.5	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	97.0	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	96.9	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	98.3	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	98.1	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	94.8	80.0	120
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4842104)							
EM2300937-006	OS_TP17_0.1_20230123	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	50 mg/kg	96.4	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4840915)							
EM2300937-006	OS_TP17_0.1_20230123	EP236: 2.4-D	94-75-7	0.025 mg/kg	82.6	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4840915) - continued							
EM2300937-006	OS_TP17_0.1_20230123	EP236: Tributyltin oxide	56-35-9	0.229 mg/kg	88.2	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4838599)							
EM2300936-002	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	102	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4840900)							
EM2300820-023	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 54.6	58.0	114
EM2300820-023	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	67.2	58.0	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4842696)							
EM2300820-023	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	105	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4842697)							
EM2300937-006	OS_TP17_0.1_20230123	EK030SF: Cyanide amenable to chlorination	----	40 mg/kg	# 62.1	70.0	130
EK040T: Fluoride Total (QCLot: 4840886)							
EM2300820-023	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	88.5	70.0	130
EP010: Formaldehyde (QCLot: 4842105)							
EM2300937-006	OS_TP17_0.1_20230123	EP010: Formaldehyde	50-00-0	10 mg/kg	125	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4839585)							
EM2301102-004	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	106	59.6	152
EP068A: Organochlorine Pesticides (OC) (QCLot: 4839601)							
EM2301078-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	98.4	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	107	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	121	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	111	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	109	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	69.2	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4839601)							
EM2301078-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	116	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	100	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	96.3	55.0	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	110	55.1	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	109	43.8	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4839181)							
EM2300937-006	OS_TP17_0.1_20230123	EP074-UT: Benzene	71-43-2	2 mg/kg	92.9	53.7	130
		EP074-UT: Toluene	108-88-3	2 mg/kg	91.4	55.1	124
EP074I: Volatile Halogenated Compounds (QCLot: 4839181)							
EM2300937-006	OS_TP17_0.1_20230123	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	87.1	38.4	145
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	87.3	48.1	128

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 4839181) - continued							
EM2300937-006	OS_TP17_0.1_20230123	EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	87.4	55.5	122
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4839584)							
EM2300937-006	OS_TP17_0.1_20230123	EP075-EM: 2-Chlorophenol	95-57-8	3 mg/kg	93.8	44.0	143
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4839584)							
EM2300937-006	OS_TP17_0.1_20230123	EP075-EM: Phenol	108-95-2	3 mg/kg	90.2	44.2	134
		EP075-EM: 2-Nitrophenol	88-75-5	3 mg/kg	87.2	34.2	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4839584)							
EM2300937-006	OS_TP17_0.1_20230123	EP075-EM: Acenaphthene	83-32-9	3 mg/kg	79.3	42.6	138
		EP075-EM: Pyrene	129-00-0	3 mg/kg	95.5	37.8	152
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4839181)							
EM2300937-006	OS_TP17_0.1_20230123	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	60.0	42.3	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4839586)							
EM2301102-005	Anonymous	EP071-EM: C10 - C14 Fraction	----	900 mg/kg	101	71.3	126
		EP071-EM: C15 - C28 Fraction	----	2920 mg/kg	99.9	75.1	123
		EP071-EM: C29 - C36 Fraction	----	1470 mg/kg	100	78.1	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4839181)							
EM2300937-006	OS_TP17_0.1_20230123	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	64.7	39.9	109
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4839586)							
EM2301102-005	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1230 mg/kg	107	71.5	130
		EP071-EM: >C16 - C34 Fraction	----	3950 mg/kg	95.9	76.9	119
		EP071-EM: >C34 - C40 Fraction	----	260 mg/kg	92.0	65.3	139
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4839490)							
EM2300937-001	OS_TP15_0.1_20230123	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	75.4	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	74.8	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	95.5	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4839490)							
EM2300937-001	OS_TP15_0.1_20230123	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	79.5	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	71.5	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	# 69.0	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	79.4	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	69.7	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4839490)							
EM2300937-001	OS_TP15_0.1_20230123	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	70.9	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	89.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	# 58.8	65.0	137

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4839490) - continued							
EM2300937-001	OS_TP15_0.1_20230123	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	# 65.5	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2300937**	Page	: 1 of 10
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 23-Jan-2023
Site	: Area F Test Pits - Monday	Issue Date	: 06-Feb-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 16
Order number	: E1159	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	QC-4839181-001	----	**C6 - C10 Fraction**	C6_C10	120 %	59.9-119%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EG048: Hexavalent Chromium (Alkaline Digest)	EM2300820--023	Anonymous	**Hexavalent Chromium**	18540-29-9	54.6 %	58.0-114%	**Recovery less than lower data quality objective**
EK030: Cyanide Amenable to Chlorination	EM2300937--006	OS_TP17_0.1_20230123	**Cyanide amenable to chlorination**	----	62.1 %	70.0-130%	**Recovery less than lower data quality objective**
EP231B: Perfluoroalkyl Carboxylic Acids	EM2300937--001	OS_TP15_0.1_20230123	**Perfluorohexanoic acid (PFHxA)**	307-24-4	69.0 %	70.0-132%	**Recovery less than lower data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EM2300937--001	OS_TP15_0.1_20230123	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	39108-34-4	58.8 %	65.0-137%	**Recovery less than lower data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EM2300937--001	OS_TP15_0.1_20230123	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	65.5 %	70.0-130%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
EA029-A: pH Measurements							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP17_1.0_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-B: Acidity Trail							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP17_1.0_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-C: Sulfur Trail							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP17_1.0_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-D: Calcium Values							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP17_1.0_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-E: Magnesium Values							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP17_1.0_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-F: Excess Acid Neutralising Capacity							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP17_1.0_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-G: Retained Acidity							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP17_1.0_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-H: Acid Base Accounting							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP17_1.0_20230123	**23-Jan-2023**	**02-Feb-2023**	18-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_TP15_0.1_20230123, OS_TP15_1.0_20230123, OS_TP17_0.1_20230123, OS_TP17_1.0_20230123, OS_TP18_0.1_20230123, OS_QC03_20230123, OS_TP18_0.5_20230123	**23-Jan-2023**	**----**	----	----	**27-Jan-2023**	06-Feb-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**----**	----	----	**25-Jan-2023**	22-Jul-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_TP15_0.1_20230123, OS_TP15_1.0_20230123, OS_TP17_0.1_20230123, OS_TP17_1.0_20230123, OS_TP18_0.1_20230123, OS_QC03_20230123, OS_TP18_0.5_20230123	**23-Jan-2023**	**30-Jan-2023**	22-Jul-2023	✓	**30-Jan-2023**	22-Jul-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_TP15_0.1_20230123, OS_TP15_1.0_20230123, OS_TP17_0.1_20230123, OS_TP17_1.0_20230123, OS_TP18_0.1_20230123, OS_QC03_20230123, OS_TP18_0.5_20230123	**23-Jan-2023**	**30-Jan-2023**	20-Feb-2023	✓	**31-Jan-2023**	20-Feb-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_TP15_0.1_20230123, OS_TP15_1.0_20230123, OS_TP17_0.1_20230123, OS_TP17_1.0_20230123, OS_TP18_0.1_20230123, OS_QC03_20230123, OS_TP18_0.5_20230123	**23-Jan-2023**	**31-Jan-2023**	20-Feb-2023	✓	**31-Jan-2023**	07-Feb-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	14-Feb-2023	✓
EK030: Cyanide Amenable to Chlorination							
Soil Glass Jar - Unpreserved (EK030SF)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	14-Feb-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	20-Feb-2023	✓	**01-Feb-2023**	20-Feb-2023	✓
EP010: Formaldehyde							
Soil Glass Jar - Unpreserved (EP010)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	22-Jul-2023	✓	**01-Feb-2023**	22-Jul-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
OS_TP15_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
OS_TP15_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP075C: Phthalate Esters							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP075E: Nitroaromatics and Ketones							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	30-Jan-2023	✓	**30-Jan-2023**	30-Jan-2023	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP095: Ethylenediamine Tetraacetic Acid (EDTA)							
Soil Glass Jar - Unpreserved (EP095)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**31-Jan-2023**	06-Feb-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_TP15_0.1_20230123, OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	22-Jul-2023	✓	**31-Jan-2023**	11-Mar-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
OS_TP15_0.1_20230123, OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	22-Jul-2023	✓	**31-Jan-2023**	11-Mar-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_TP15_0.1_20230123, OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	22-Jul-2023	✓	**31-Jan-2023**	11-Mar-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
OS_TP15_0.1_20230123, OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	22-Jul-2023	✓	**31-Jan-2023**	11-Mar-2023	✓
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)							
Soil Glass Jar - Unpreserved (EP236)							
OS_TP17_0.1_20230123	**23-Jan-2023**	**30-Jan-2023**	06-Feb-2023	✓	**31-Jan-2023**	11-Mar-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	SOIL	In house: Referenced to APHA 4500 - CN- G. The sample is leached in alkali solution and pretreated by contact with Chlorine (as hypochlorite) prior to determination of Total Cyanide. The measured parameter is the difference between Total Cyanide determined on an untreated sample and Total Cyanide determined post-chlorination. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Formaldehyde	EP010	SOIL	In house: Referenced to ASTM D 6303-98. Determined on 1:5 soil / water extracts by colourimetry using NASH reagent. The Hantszch reaction method is based on the reaction of acetylacetone with formaldehyde in the presence of excess ammonium acetate to form a coloured compound.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	SOIL	In house: Referenced to DIN EN ISO 16588. The esterified derivative of EDTA from an aliquot of a 1:5 soil:water extract is analysed by GCMS in Selected Ion Monitoring (SIM) mode. This technique is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	SOIL	In house: soils are solvent extracted. The extract is analysed by LC-Electrospray-MS-MS, Negative Mode using MRM. Quantification by internal standardisation. Results for Tributyltin expressed as Tributyltin Oxide (TBTO).

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.

Preparation Methods	Method	Matrix	Method Descriptions
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction of solids for 2.4-D and TBTO	EP236-PR	SOIL	In house: 2g of homogenised sample is extracted with alkaline solvent. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2300937**

Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Page	: 1 of 3
Order number	: E1159	Quote number	: EM2022SINKNI0017 (ME-491-22)
C-O-C number	: 47493	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Area F Test Pits - Monday		
Sampler	: RANULI GOONETILLAKE		

Dates

Date Samples Received	: 23-Jan-2023 16:15	Issue Date	: 25-Jan-2023
Client Requested Due Date	: 07-Feb-2023	Scheduled Reporting Date	: **01-Feb-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 7.5°c - Ice present
Receipt Detail	:	No. of samples received / analysed	: 16 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **The scheduled reporting date has been extended due to analytical testing conducted by ALS interstate laboratories. Please refer to your quotation for further information.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale & ALS Brisbane.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Preliminary results will be available on the scheduled reporting date listed in this report. However the final report with SPOCAS analysis will be complete on 07/02/2023.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM2300937-001	: 23-Jan-2023 11:18	: OS_TP15_0.1_20230123
EM2300937-002	: 23-Jan-2023 11:19	: OS_TP15_0.5_20230123
EM2300937-003	: 23-Jan-2023 11:19	: OS_TP15_1.0_20230123
EM2300937-004	: 23-Jan-2023 11:19	: OS_TP15_2.0_20230123
EM2300937-005	: 23-Jan-2023 11:20	: OS_TP15_3.0_20230123
EM2300937-006	: 23-Jan-2023 12:55	: OS_TP17_0.1_20230123
EM2300937-007	: 23-Jan-2023 13:00	: OS_TP17_0.5_20230123
EM2300937-008	: 23-Jan-2023 13:01	: OS_TP17_1.0_20230123
EM2300937-009	: 23-Jan-2023 13:01	: OS_TP17_2.0_20230123
EM2300937-010	: 23-Jan-2023 13:02	: OS_TP17_3.0_20230123
EM2300937-011	: 23-Jan-2023 14:21	: OS_TP18_0.1_20230123
EM2300937-013	: 23-Jan-2023 14:25	: OS_TP18_0.5_20230123
EM2300937-014	: 23-Jan-2023 14:25	: OS_TP18_1.0_20230123
EM2300937-015	: 23-Jan-2023 14:26	: OS_TP18_2.0_20230123
EM2300937-016	: 23-Jan-2023 14:26	: OS_TP18_3.0_20230123

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200G Asbestos Identification in Soils -	SOIL - EG048G Total Hexavalent Chromium (Alkaline digestion)	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-12 OC/OP Pesticides
EM2300937-001	23-Jan-2023 11:18	OS_TP15_0.1_20230123		✓		✓	✓	✓	✓
EM2300937-002	23-Jan-2023 11:19	OS_TP15_0.5_20230123	✓						
EM2300937-003	23-Jan-2023 11:19	OS_TP15_1.0_20230123		✓		✓		✓	
EM2300937-004	23-Jan-2023 11:19	OS_TP15_2.0_20230123	✓						
EM2300937-005	23-Jan-2023 11:20	OS_TP15_3.0_20230123	✓						
EM2300937-006	23-Jan-2023 12:55	OS_TP17_0.1_20230123		✓	✓		✓		
EM2300937-007	23-Jan-2023 13:00	OS_TP17_0.5_20230123	✓						
EM2300937-008	23-Jan-2023 13:01	OS_TP17_1.0_20230123		✓		✓		✓	
EM2300937-009	23-Jan-2023 13:01	OS_TP17_2.0_20230123	✓						
EM2300937-010	23-Jan-2023 13:02	OS_TP17_3.0_20230123	✓						
EM2300937-011	23-Jan-2023 14:21	OS_TP18_0.1_20230123		✓		✓		✓	
EM2300937-012	23-Jan-2023 14:21	OS_QC03_20230123		✓		✓		✓	
EM2300937-013	23-Jan-2023 14:25	OS_TP18_0.5_20230123		✓		✓		✓	
EM2300937-014	23-Jan-2023 14:25	OS_TP18_1.0_20230123	✓						
EM2300937-015	23-Jan-2023 14:26	OS_TP18_2.0_20230123	✓						
EM2300937-016	23-Jan-2023 14:26	OS_TP18_3.0_20230123	✓						

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA029 SPOCAS	SOIL - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM)
EM2300937-006	23-Jan-2023 12:55	OS_TP17_0.1_20230123		✓
EM2300937-008	23-Jan-2023 13:01	OS_TP17_1.0_20230123	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

APAC Supplier Management		
- A4 - AU Tax Invoice (INV)	Email	APACBISupplierMgmt@jacobs.com
ED MANZ		
- *AU Certificate of Analysis - NATA (COA)	Email	edmanz@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	edmanz@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	edmanz@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	edmanz@jacobs.com
- Chain of Custody (CoC) (COC)	Email	edmanz@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	edmanz@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	edmanz@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	edmanz@jacobs.com
JACOBS RESULTS		
- EDI Format - ESDAT (ESDAT)	Email	jacobs.labresults@esdat.net
RANULI GOONETILLAKE		
- *AU Certificate of Analysis - NATA (COA)	Email	ranuli.goonetillake@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ranuli.goonetillake@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ranuli.goonetillake@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ranuli.goonetillake@jacobs.com
- A4 - AU Tax Invoice (INV)	Email	ranuli.goonetillake@jacobs.com
- Chain of Custody (CoC) (COC)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	ranuli.goonetillake@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	ranuli.goonetillake@jacobs.com
STEPHEN SONNENBERG		
- A4 - AU Tax Invoice (INV)	Email	stephen.sonnenberg@jacobs.com
TEA SVILAND		
- *AU Certificate of Analysis - NATA (COA)	Email	tea.sviland@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tea.sviland@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tea.sviland@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tea.sviland@jacobs.com
- Chain of Custody (CoC) (COC)	Email	tea.sviland@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	tea.sviland@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	tea.sviland@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	tea.sviland@jacobs.com

CHAIN OF CUSTODY

ALS COC#: 47493 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area F Test Pits - Monday

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	Oliver DATE TIME: 16:15 23-1-23	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_TP15_0.1_20230123		23/01/2023 11:16 AM	SOIL	ALS: 3 Non ALS: 0	No		Partial 4/9		
002	OS_TP15_0.5_20230123		23/01/2023 11:19 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
003	OS_TP15_1.0_20230123		23/01/2023 11:19 AM	SOIL	ALS: 1 Non ALS: 0	No		Partial 2/9		
004	OS_TP15_2.0_20230123		23/01/2023 11:19 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
005	OS_TP15_3.0_20230123		23/01/2023 11:20 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
006	OS_TP17_0.1_20230123		23/01/2023 12:55 PM	SOIL	ALS: 3 Non ALS: 1	No		Partial 3/9		
007	OS_TP17_0.5_20230123		23/01/2023 01:00 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
008	OS_TP17_1.0_20230123		23/01/2023 01:01 PM	SOIL	ALS: 1 Non ALS: 1	No		Partial 4/9		
009	OS_TP17_2.0_20230123		23/01/2023 01:01 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			

Environmental Division Melbourne

Work Order Reference

EM2300937

Telephone : +61-3-8549 9600

CHAIN OF CUSTODY

ALS COC#: 47493 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area F Test Pits - Monday

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: Oliver 16:15 23-1-23	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_TP17_3.0_20230123		23/01/2023 01:02 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
011	OS_TP18_0.1_20230123		23/01/2023 02:21 PM	SOIL	ALS: 1 Non ALS: 0	No		Partial 2/9		
012	OS_QC03_20230123		23/01/2023 02:21 PM	SOIL	ALS: 1 Non ALS: 0	No		Partial 2/9		
013	OS_TP18_0.5_20230123		23/01/2023 02:25 PM	SOIL	ALS: 1 Non ALS: 0	No		Partial 2/9		
014	OS_TP18_1.0_20230123		23/01/2023 02:25 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
015	OS_TP18_2.0_20230123		23/01/2023 02:26 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
016	OS_TP18_3.0_20230123		23/01/2023 02:26 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			

CHAIN OF CUSTODY

ALS COC#: 47493 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

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EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: C

Other comments:

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
001	OS_TP15_0.1_20230123	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - S-12 OC/OP Pesticides - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EP231 (solids) PFAS - Short Suite (12 analytes)
003	OS_TP15_1.0_20230123	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
006	OS_TP17_0.1_20230123	SOIL SOIL	SOIL	- EA200G Asbestos Identification in Soils - Presence/Absence in grab samples - EP231 (solids) PFAS - Short Suite (12 analytes) - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM) EPA 1828.2 Table 2 Full Solid Suite - excl. Anions
008	OS_TP17_1.0_20230123	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EN020PR Drying at 85 degrees, bagging and labelling (ASS) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EA029 SPOCAS
011	OS_TP18_0.1_20230123	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
012	OS_QC03_20230123	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
013	OS_TP18_0.5_20230123	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser

CHAIN OF CUSTODY

(ALS) COC#: 47493 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area F Test Pits - Monday

ORDER NO: E1159

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PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

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EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	OS_TP15_0.1_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062284	Orange	No	
001	OS_TP15_0.1_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062253	Orange	No	
001	OS_TP15_0.1_20230123	HDPE Soil Jar	200 mL	00621122040557	Grey	No	
002	OS_TP15_0.5_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062256	Orange	No	
003	OS_TP15_1.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062223	Orange	No	
004	OS_TP15_2.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062269	Orange	No	
005	OS_TP15_3.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062212	Orange	No	
006	OS_TP17_0.1_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062479	Orange	No	
006	OS_TP17_0.1_20230123	HDPE Soil Jar	200 mL	00621122040577	Grey	No	
006	OS_TP17_0.1_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062519	Orange	No	
007	OS_TP17_0.5_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062186	Orange	No	
008	OS_TP17_1.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062209	Orange	No	
009	OS_TP17_2.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062244	Orange	No	
010	OS_TP17_3.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062355	Orange	No	
011	OS_TP18_0.1_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062506	Orange	No	
012	OS_QC03_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062498	Orange	No	
013	OS_TP18_0.5_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062509	Orange	No	
014	OS_TP18_1.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062511	Orange	No	
015	OS_TP18_2.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062508	Orange	No	
016	OS_TP18_3.0_20230123	Soil Glass Jar - Unpreserved	250 mL	00260822062489	Orange	No	

Total Bottle Count: ALS: 20, Non ALS: 2

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2301078**	Page	: 1 of 12
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 24-Jan-2023 16:25
Order number	: E1159	Date Analysis Commenced	: 27-Jan-2023
C-O-C number	: ----	Issue Date	: 03-Feb-2023 14:30
Sampler	: ----		
Site	: ----		
Quote number	: MEBQ/003/21 - Vic Only - Primary Work		
No. of samples received	: 18		
No. of samples analysed	: 9		

ilac-MRA NATA 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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Sanjay Parekh	LCMS Coordinator	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EG048G: EM2301078 #1 Poor matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- EP231X: Poor matrix spike recovery for sample EM2300820-033 due to sample matrix interference.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime ($CaCO_3$) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	OS_TP03_0.1_20230124	OS_TP03_0.5_20230124	OS_QC02_20230124	OS_TP03_1.0_20230124	OS_TP04_0.1_20230124
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00
					EM2301078-001	EM2301078-002	EM2301078-003	EM2301078-004	EM2301078-007
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**4.7**	**3.6**	**2.2**	**14.6**	**4.5**
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg		**10**	<10	<10	<10	**10**
Beryllium	7440-41-7	1	mg/kg		<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg		<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**3**	<2	**3**	**18**	**4**
Cobalt	7440-48-4	2	mg/kg		<2	<2	<2	**2**	<2
Copper	7440-50-8	5	mg/kg		<5	<5	<5	**6**	<5
Lead	7439-92-1	5	mg/kg		**5**	<5	<5	**9**	**6**
Manganese	7439-96-5	5	mg/kg		**11**	<5	<5	**13**	<5
Nickel	7440-02-0	2	mg/kg		<2	<2	<2	**4**	<2
Selenium	7782-49-2	5	mg/kg		<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg		**9**	**8**	**18**	**17**	**10**
Zinc	7440-66-6	5	mg/kg		<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	<0.05

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	OS_TP03_0.1_20230124	OS_TP03_0.5_20230124	OS_QC02_20230124	OS_TP03_1.0_20230124	OS_TP04_0.1_20230124
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00
					EM2301078-001	EM2301078-002	EM2301078-003	EM2301078-004	EM2301078-007
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	<0.05
EP068S: Organochlorine Pesticide Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP03_0.1_20230124	OS_TP03_0.5_20230124	OS_QC02_20230124	OS_TP03_1.0_20230124	OS_TP04_0.1_20230124
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00
Compound	CAS Number	LOR	Unit		EM2301078-001	EM2301078-002	EM2301078-003	EM2301078-004	EM2301078-007
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate - Continued									
Dibromo-DDE	21655-73-2	0.05	%		**113**	**----**	**----**	**----**	**116**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**114**	**----**	**----**	**----**	**112**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP04_1.0_20230124	OS_TP16_0.1_20230124	OS_TP16_1.0_20230124	----	----
			Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2301078-009	EM2301078-012	EM2301078-014	--------	--------
				Result	Result	Result	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	----	**5.9**	----	----
pH OX (23B)	----	0.1	pH Unit	----	----	**6.2**	----	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	----	**4**	----	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	----	**10**	----	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	----	**6**	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	----	<0.020	----	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	----	<0.020	----	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	----	<0.020	----	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	----	<0.020	----	----
Peroxide Sulfur (23De)	----	0.020	% S	----	----	<0.020	----	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	----	----	<0.020	----	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	----	----	<10	----	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	----	----	**0.045**	----	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	----	----	**0.048**	----	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	----	----	<0.020	----	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	----	----	<10	----	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	----	----	<0.020	----	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	----	----	**0.113**	----	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg	----	----	**0.115**	----	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	----	----	<0.020	----	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	----	----	<10	----	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	----	----	<0.020	----	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	----	**1.5**	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	----	<0.02	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	----	----	<10	----	----
Liming Rate	----	1	kg CaCO3/t	----	----	<1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP04_1.0_20230124	OS_TP16_0.1_20230124	OS_TP16_1.0_20230124	----	----
			Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2301078-009	EM2301078-012	EM2301078-014	--------	--------
				Result	Result	Result	----	----
EA029-H: Acid Base Accounting - Continued								
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	----	<0.02	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	----	<10	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	----	<1	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**14.3**	**5.3**	**18.6**	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Barium	7440-39-3	10	mg/kg	<10	**30**	**30**	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	<50	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	**17**	**25**	**6**	----	----
Cobalt	7440-48-4	2	mg/kg	**2**	**4**	<2	----	----
Copper	7440-50-8	5	mg/kg	**14**	**10**	<5	----	----
Lead	7439-92-1	5	mg/kg	**12**	**13**	**9**	----	----
Manganese	7439-96-5	5	mg/kg	**16**	**41**	**44**	----	----
Nickel	7440-02-0	2	mg/kg	**5**	**8**	**2**	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Vanadium	7440-62-2	5	mg/kg	**38**	**45**	**20**	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP04_1.0_20230124	OS_TP16_0.1_20230124	OS_TP16_1.0_20230124	----	----
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2301078-009	EM2301078-012	EM2301078-014	--------	--------
					Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP04_1.0_20230124	OS_TP16_0.1_20230124	OS_TP16_1.0_20230124	----	----
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2301078-009	EM2301078-012	EM2301078-014	--------	--------
					Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Ethion	563-12-2	0.05	mg/kg	----	<0.05	----	----	----	
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	----	----	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	**0.0003**	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	<0.001	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	<0.0002	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	<0.0005	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	<0.0005	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	<0.0005	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	<0.0005	----	----	----	
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	**0.0003**	----	----	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	**0.0003**	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	**119**	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	----	**125**	----	----	----	
EP231S: PFAS Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP04_1.0_20230124	OS_TP16_0.1_20230124	OS_TP16_1.0_20230124	----	----
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2301078-009	EM2301078-012	EM2301078-014	--------	--------
					Result	Result	Result	----	----
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.0002	%		----	98.5	----	----	----
13C8-PFOA	----	0.0002	%		----	88.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	OS_RIN1_230124	----	----	----	----
				Sampling date / time	24-Jan-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2301078-017	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2301078**	Page	: 1 of 12
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 24-Jan-2023 16:25
Order number	: E1159	Date Analysis Commenced	: 27-Jan-2023
C-O-C number	: ----	Issue Date	: 03-Feb-2023 14:30
Sampler	: ----		
Site	: ----		
Quote number	: MEBQ/003/21 - Vic Only - Primary Work		
No. of samples received	: 18		
No. of samples analysed	: 9		

ilac-MRA NATA 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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Sanjay Parekh	LCMS Coordinator	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EG048G: EM2301078 #1 Poor matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- EP231X: Poor matrix spike recovery for sample EM2300820-033 due to sample matrix interference.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime ($CaCO_3$) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	OS_TP03_0.1_20230124	OS_TP03_0.5_20230124	OS_QC02_20230124	OS_TP03_1.0_20230124	OS_TP04_0.1_20230124
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00
					EM2301078-001	EM2301078-002	EM2301078-003	EM2301078-004	EM2301078-007
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**4.7**	**3.6**	**2.2**	**14.6**	**4.5**
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg		**10**	<10	<10	<10	**10**
Beryllium	7440-41-7	1	mg/kg		<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg		<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**3**	<2	**3**	**18**	**4**
Cobalt	7440-48-4	2	mg/kg		<2	<2	<2	**2**	<2
Copper	7440-50-8	5	mg/kg		<5	<5	<5	**6**	<5
Lead	7439-92-1	5	mg/kg		**5**	<5	<5	**9**	**6**
Manganese	7439-96-5	5	mg/kg		**11**	<5	<5	**13**	<5
Nickel	7440-02-0	2	mg/kg		<2	<2	<2	**4**	<2
Selenium	7782-49-2	5	mg/kg		<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg		**9**	**8**	**18**	**17**	**10**
Zinc	7440-66-6	5	mg/kg		<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	<0.05

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	OS_TP03_0.1_20230124	OS_TP03_0.5_20230124	OS_QC02_20230124	OS_TP03_1.0_20230124	OS_TP04_0.1_20230124
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00
					EM2301078-001	EM2301078-002	EM2301078-003	EM2301078-004	EM2301078-007
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	<0.05
EP068S: Organochlorine Pesticide Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP03_0.1_20230124	OS_TP03_0.5_20230124	OS_QC02_20230124	OS_TP03_1.0_20230124	OS_TP04_0.1_20230124
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00
Compound	CAS Number	LOR	Unit		EM2301078-001	EM2301078-002	EM2301078-003	EM2301078-004	EM2301078-007
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate - Continued									
Dibromo-DDE	21655-73-2	0.05	%		**113**	**----**	**----**	**----**	**116**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**114**	**----**	**----**	**----**	**112**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP04_1.0_20230124	OS_TP16_0.1_20230124	OS_TP16_1.0_20230124	----	----
			Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2301078-009	EM2301078-012	EM2301078-014	--------	--------
				Result	Result	Result	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	----	**5.9**	----	----
pH OX (23B)	----	0.1	pH Unit	----	----	**6.2**	----	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	----	**4**	----	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	----	**10**	----	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	----	**6**	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	----	<0.020	----	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	----	<0.020	----	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	----	<0.020	----	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	----	<0.020	----	----
Peroxide Sulfur (23De)	----	0.020	% S	----	----	<0.020	----	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	----	----	<0.020	----	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	----	----	<10	----	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	----	----	**0.045**	----	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	----	----	**0.048**	----	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	----	----	<0.020	----	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	----	----	<10	----	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	----	----	<0.020	----	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	----	----	**0.113**	----	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg	----	----	**0.115**	----	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	----	----	<0.020	----	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	----	----	<10	----	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	----	----	<0.020	----	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	----	**1.5**	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	----	<0.02	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	----	----	<10	----	----
Liming Rate	----	1	kg CaCO3/t	----	----	<1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP04_1.0_20230124	OS_TP16_0.1_20230124	OS_TP16_1.0_20230124	----	----
			Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2301078-009	EM2301078-012	EM2301078-014	--------	--------
				Result	Result	Result	----	----
EA029-H: Acid Base Accounting - Continued								
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	----	<0.02	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	----	<10	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	----	<1	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**14.3**	**5.3**	**18.6**	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Barium	7440-39-3	10	mg/kg	<10	**30**	**30**	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	<50	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	**17**	**25**	**6**	----	----
Cobalt	7440-48-4	2	mg/kg	**2**	**4**	<2	----	----
Copper	7440-50-8	5	mg/kg	**14**	**10**	<5	----	----
Lead	7439-92-1	5	mg/kg	**12**	**13**	**9**	----	----
Manganese	7439-96-5	5	mg/kg	**16**	**41**	**44**	----	----
Nickel	7440-02-0	2	mg/kg	**5**	**8**	**2**	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Vanadium	7440-62-2	5	mg/kg	**38**	**45**	**20**	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP04_1.0_20230124	OS_TP16_0.1_20230124	OS_TP16_1.0_20230124	----	----
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2301078-009	EM2301078-012	EM2301078-014	--------	--------
					Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP04_1.0_20230124	OS_TP16_0.1_20230124	OS_TP16_1.0_20230124	----	----
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2301078-009	EM2301078-012	EM2301078-014	--------	--------
					Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Ethion	563-12-2	0.05	mg/kg	----	<0.05	----	----	----	
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	----	----	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	**0.0003**	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	<0.001	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	<0.0002	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	<0.0005	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	<0.0005	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	<0.0005	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	<0.0005	----	----	----	
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	**0.0003**	----	----	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	**0.0003**	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	**119**	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	----	**125**	----	----	----	
EP231S: PFAS Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP04_1.0_20230124	OS_TP16_0.1_20230124	OS_TP16_1.0_20230124	----	----
				Sampling date / time	24-Jan-2023 00:00	24-Jan-2023 00:00	24-Jan-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2301078-009	EM2301078-012	EM2301078-014	--------	--------
					Result	Result	Result	----	----
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.0002	%		----	98.5	----	----	----
13C8-PFOA	----	0.0002	%		----	88.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	OS_RIN1_230124	----	----	----	----
				Sampling date / time	24-Jan-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2301078-017	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2301078**	Page	: 1 of 14
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 24-Jan-2023
Order number	: E1159	Date Analysis Commenced	: 27-Jan-2023
C-O-C number	: ----	Issue Date	: 03-Feb-2023
Sampler	: ----		
Site	: ----		
Quote number	: MEBQ/003/21 - Vic Only - Primary Work		
No. of samples received	: 18		
No. of samples analysed	: 9		

ilac-MRA NATA 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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Sanjay Parekh	LCMS Coordinator	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4838601)									
EM2301073-008	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	30	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	9	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	10	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	29	24	22.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	32	25	25.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2301073-017	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	40	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	10	35.4	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	3	29.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	6	32.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	13	10	29.9	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	47	46	3.2	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4838601) - continued									
EM2301073-017	Anonymous	EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	45	23	65.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	12	26.1	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EA029-A: pH Measurements (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	8.4	8.5	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	7.4	7.3	1.4	0% - 20%
EA029-B: Acidity Trail (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EA029-C: Sulfur Trail (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	0.043	0.043	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	0.681	0.693	1.7	0% - 20%
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	0.638	0.650	1.8	0% - 20%
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	398	405	1.8	0% - 20%
EA029-D: Calcium Values (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.264	0.271	2.6	0% - 50%
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	1.58	1.66	4.4	0% - 20%
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	1.32	1.38	4.8	0% - 20%
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	1.06	1.11	4.8	0% - 20%
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	659	691	4.8	0% - 20%
EA029-E: Magnesium Values (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.209	0.207	0.8	0% - 50%
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.397	0.414	4.2	0% - 20%
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	0.188	0.207	9.5	0% - 50%
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	0.248	0.273	9.5	0% - 50%
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	155	170	9.5	0% - 50%
EA029-H: Acid Base Accounting (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA029-H: Acid Base Accounting (QC Lot: 4845855) - continued									
EB2302299-015	Anonymous	EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.64	0.65	1.8	0% - 20%
		EA029: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	30	30	0.0	0% - 20%
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	398	405	1.8	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4838571)									
EM2301073-002	Anonymous	EA055: Moisture Content	----	0.1	%	15.6	16.1	2.8	0% - 50%
EM2301073-012	Anonymous	EA055: Moisture Content	----	0.1	%	5.9	6.0	2.7	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4838572)									
EM2301078-003	OS_QC02_20230124	EA055: Moisture Content	----	0.1	%	2.2	4.0	60.2	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4838602)									
EM2301073-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2301073-017	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4840901)									
EM2301056-014	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2301190-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4839601)									
EM2301206-002	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM2301181-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4839601) - continued									
EM2301181-001	Anonymous	EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4839601)									
EM2301206-002	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.23	<0.23	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4839601) - continued									
EM2301181-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4842989)									
EM2300820-021	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2301224-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0018	0.0020	9.3	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4842989)									
EM2300820-021	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2301224-006	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0004	0.0006	31.9	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4842989)									
EM2300820-021	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4842989) - continued									
EM2300820-021	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2301224-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4842989)									
EM2300820-021	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2301224-006	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0018	0.0020	10.5	0% - 50%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0022	0.0026	16.7	0% - 50%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 4842114)									
EM2300721-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.007	25.2	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EM2301095-011	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 4842114) - continued									
EM2301095-011	Anonymous	EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4842952)									
EM2300721-005	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EM2301104-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4838601)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	100.0	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	96.3	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	93.5	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	61.7	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	104	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	90.5	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	91.4	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	98.2	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	101	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	101	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	99.5	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	81.2	70.0	130
EA029-A: pH Measurements (QCLot: 4845855)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.4 pH Unit	105	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.2 pH Unit	107	70.0	130
EA029-B: Acidity Trail (QCLot: 4845855)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	96.6	70.0	130
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	25 mole H+ / t	112	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 4845855)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.055 % S	82.2	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.152 % S	77.1	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 4845855)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.201 % Ca	83.4	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.191 % Ca	91.3	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA029-D: Calcium Values (QCLot: 4845855) - continued								
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 4845855)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.204 % Mg	86.7	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.234 % Mg	84.4	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 4845855)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4838602)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	100	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4840901)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	78.4	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4839601)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.9	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	100	70.0	124
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	120	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	115	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	112	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	122	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.3	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	114	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	120	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	62.4	131

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 4839601) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	89.5	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	92.0	55.5	132
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4839601)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	83.2	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	82.6	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	112	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	68.0	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	93.6	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	111	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.3	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	90.2	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	108	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	112	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	101	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	131	43.1	131
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4842989)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	99.6	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	96.0	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	93.6	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4842989)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	95.2	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.2	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.2	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.9	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4842989)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	95.5	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	96.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	95.0	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	79.7	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 4842989)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 4842114)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	89.2	115
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	103	86.0	115
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.9	87.2	117
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.2	86.4	115
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	86.9	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	100	87.7	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	86.9	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	88.3	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	88.7	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	87.9	113
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	104	84.8	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	101	87.1	114
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	107	86.7	117
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	102	89.3	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4842952)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	104	73.4	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4838601)							
EM2301073-009	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	96.9	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	101	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	101	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	104	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	103	78.0	120

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4838601) - continued							
EM2301073-009	Anonymous	EG005T: Zinc	7440-66-6	250 mg/kg	101	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4838602)							
EM2301073-009	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	103	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4840901)							
EM2301078-001	OS_TP03_0.1_20230124	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 26.7	58.0	114
EM2301078-001	OS_TP03_0.1_20230124	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 20.7	58.0	114
EP068A: Organochlorine Pesticides (OC) (QCLot: 4839601)							
EM2301078-001	OS_TP03_0.1_20230124	EP068: gamma-BHC	58-89-9	0.5 mg/kg	98.4	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	107	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	121	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	111	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	109	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	69.2	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4839601)							
EM2301078-001	OS_TP03_0.1_20230124	EP068: Diazinon	333-41-5	0.5 mg/kg	116	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	100	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	96.3	55.0	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	110	55.1	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	109	43.8	128
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4842989)							
EM2300820-033	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	79.9	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	101	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	69.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4842989)							
EM2300820-033	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	95.2	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	94.0	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	82.2	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	86.5	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	84.7	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4842989)							
EM2300820-033	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	85.7	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	82.2	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	98.3	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	# 65.3	70.0	130

Sub-Matrix: **WATER**

			Matrix Spike (MS) Report		
			Spike	SpikeRecovery(%)	Acceptable Limits (%)

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 4842114)							
EM2300721-005	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	82.0	123
		EG020A-T: Beryllium	7440-41-7	1 mg/L	105	79.0	126
		EG020A-T: Barium	7440-39-3	1 mg/L	101	80.0	120
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	100	81.8	123
		EG020A-T: Chromium	7440-47-3	1 mg/L	106	78.9	119
		EG020A-T: Cobalt	7440-48-4	1 mg/L	108	80.7	121
		EG020A-T: Copper	7440-50-8	1 mg/L	110	80.4	118
		EG020A-T: Lead	7439-92-1	1 mg/L	111	80.5	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	108	73.0	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	80.0	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	103	81.0	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.8	74.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4842952)							
EM2300993-021	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	94.6	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2301078**	Page	: 1 of 8
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 24-Jan-2023
Site	: ----	Issue Date	: 03-Feb-2023
Sampler	: ----	No. of samples received	: 18
Order number	: E1159	No. of samples analysed	: 9

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG048: Hexavalent Chromium (Alkaline Digest)	EM2301078--001	OS_TP03_0.1_20230124	**Hexavalent Chromium**	18540-29-9	26.7 %	58.0-114%	**Recovery less than lower data quality objective**
EG048: Hexavalent Chromium (Alkaline Digest)	EM2301078--001	OS_TP03_0.1_20230124	**Hexavalent Chromium**	18540-29-9	20.7 %	58.0-114%	**Recovery less than lower data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EM2300820--033	Anonymous	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	65.3 %	70.0-130%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-A: pH Measurements							
Snap Lock Bag - frozen on receipt at ALS (EA029) OS_TP16_1.0_20230124	**24-Jan-2023**	**02-Feb-2023**	19-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-B: Acidity Trail							
Snap Lock Bag - frozen on receipt at ALS (EA029) OS_TP16_1.0_20230124	**24-Jan-2023**	**02-Feb-2023**	19-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-C: Sulfur Trail							
Snap Lock Bag - frozen on receipt at ALS (EA029) OS_TP16_1.0_20230124	**24-Jan-2023**	**02-Feb-2023**	19-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-D: Calcium Values							
Snap Lock Bag - frozen on receipt at ALS (EA029) OS_TP16_1.0_20230124	**24-Jan-2023**	**02-Feb-2023**	19-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-E: Magnesium Values							
Snap Lock Bag - frozen on receipt at ALS (EA029) OS_TP16_1.0_20230124	**24-Jan-2023**	**02-Feb-2023**	19-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-F: Excess Acid Neutralising Capacity							
Snap Lock Bag - frozen on receipt at ALS (EA029) OS_TP16_1.0_20230124	**24-Jan-2023**	**02-Feb-2023**	19-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-G: Retained Acidity							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP16_1.0_20230124	**24-Jan-2023**	**02-Feb-2023**	19-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-H: Acid Base Accounting							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_TP16_1.0_20230124	**24-Jan-2023**	**02-Feb-2023**	19-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_TP03_0.1_20230124, OS_TP03_0.5_20230124, OS_QC02_20230124, OS_TP03_1.0_20230124, OS_TP04_0.1_20230124, OS_TP04_1.0_20230124, OS_TP16_0.1_20230124, OS_TP16_1.0_20230124	**24-Jan-2023**	**----**	----	----	**27-Jan-2023**	07-Feb-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_TP03_0.1_20230124, OS_TP03_0.5_20230124, OS_QC02_20230124, OS_TP03_1.0_20230124, OS_TP04_0.1_20230124, OS_TP04_1.0_20230124, OS_TP16_0.1_20230124, OS_TP16_1.0_20230124	**24-Jan-2023**	**30-Jan-2023**	23-Jul-2023	✓	**30-Jan-2023**	23-Jul-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_TP03_0.1_20230124, OS_TP03_0.5_20230124, OS_QC02_20230124, OS_TP03_1.0_20230124, OS_TP04_0.1_20230124, OS_TP04_1.0_20230124, OS_TP16_0.1_20230124, OS_TP16_1.0_20230124	**24-Jan-2023**	**30-Jan-2023**	21-Feb-2023	✓	**31-Jan-2023**	21-Feb-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_TP03_0.1_20230124, OS_TP03_0.5_20230124, OS_QC02_20230124, OS_TP03_1.0_20230124, OS_TP04_0.1_20230124, OS_TP04_1.0_20230124, OS_TP16_0.1_20230124, OS_TP16_1.0_20230124	**24-Jan-2023**	**31-Jan-2023**	21-Feb-2023	✓	**31-Jan-2023**	07-Feb-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
OS_TP03_0.1_20230124, OS_TP04_0.1_20230124, OS_TP16_0.1_20230124	**24-Jan-2023**	**31-Jan-2023**	07-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
OS_TP03_0.1_20230124, OS_TP04_0.1_20230124, OS_TP16_0.1_20230124	**24-Jan-2023**	**31-Jan-2023**	07-Feb-2023	✓	**31-Jan-2023**	12-Mar-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_TP16_0.1_20230124	**24-Jan-2023**	**31-Jan-2023**	23-Jul-2023	✓	**01-Feb-2023**	12-Mar-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
OS_TP16_0.1_20230124	**24-Jan-2023**	**31-Jan-2023**	23-Jul-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_TP16_0.1_20230124	**24-Jan-2023**	**31-Jan-2023**	23-Jul-2023	✓	**01-Feb-2023**	12-Mar-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
OS_TP16_0.1_20230124	**24-Jan-2023**	**31-Jan-2023**	23-Jul-2023	✓	**01-Feb-2023**	12-Mar-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Soil Glass Jar - Unpreserved (EG020A-T)							
OS_RIN1_230124	**24-Jan-2023**	**31-Jan-2023**	23-Jul-2023	✓	**01-Feb-2023**	23-Jul-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_RIN1_230124	**24-Jan-2023**	**----**	----	----	**01-Feb-2023**	07-Feb-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	3	26	**11.54**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP) - Continued							
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2301078**

Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Page	: 1 of 3
Order number	: E1159	Quote number	: ES2018SINKNI0012 (MEBQ/003/21 - Vic Only - Primary Work)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 24-Jan-2023 16:25	Issue Date	: 27-Jan-2023
Client Requested Due Date	: 01-Feb-2023	Scheduled Reporting Date	: **01-Feb-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 10.7°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 18 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample ID discrepancies were noted on the COC. Please advise ALS if require amendments. COC IDs will be reported.**
- **Additional sample OS_TP01_0.1_230124 was received and was added to the work order as sample # 18. Samples will be kept on hold pending further instructions.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale & ALS Brisbane.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM2301078-001	: [24-Jan-2023]	: OS_TP03_0.1_20230124
EM2301078-002	: [24-Jan-2023]	: OS_TP03_0.5_20230124
EM2301078-004	: [24-Jan-2023]	: OS_TP03_1.0_20230124
EM2301078-005	: [24-Jan-2023]	: OS_TP03_2.0_20230124
EM2301078-006	: [24-Jan-2023]	: OS_TP03_3.0_20230124
EM2301078-007	: [24-Jan-2023]	: OS_TP04_0.1_20230124
EM2301078-008	: [24-Jan-2023]	: OS_TP04_0.5_20230124
EM2301078-009	: [24-Jan-2023]	: OS_TP04_1.0_20230124
EM2301078-010	: [24-Jan-2023]	: OS_TP04_2.0_20230124
EM2301078-011	: [24-Jan-2023]	: OS_TP04_3.0_20230124
EM2301078-012	: [24-Jan-2023]	: OS_TP16_0.1_20230124
EM2301078-013	: [24-Jan-2023]	: OS_TP16_0.5_20230124
EM2301078-014	: [24-Jan-2023]	: OS_TP16_1.0_20230124
EM2301078-015	: [24-Jan-2023]	: OS_TP16_2.0_20230124
EM2301078-016	: [24-Jan-2023]	: OS_TP16_3.0_20230124

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA029 SPOCAS	SOIL - EA055-103 Moisture Content	SOIL - EG048G Total Hexavalent Chromium (Alkaline digestion)	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-12 OC/OP Pesticides
EM2301078-001	24-Jan-2023 00:00	OS_TP03_0.1_20230124			✓	✓		✓	✓
EM2301078-002	24-Jan-2023 00:00	OS_TP03_0.5_20230124			✓	✓		✓	
EM2301078-003	24-Jan-2023 00:00	OS_QC02_20230124			✓	✓		✓	
EM2301078-004	24-Jan-2023 00:00	OS_TP03_1.0_20230124			✓	✓		✓	
EM2301078-005	24-Jan-2023 00:00	OS_TP03_2.0_20230124	✓						
EM2301078-006	24-Jan-2023 00:00	OS_TP03_3.0_20230124	✓						
EM2301078-007	24-Jan-2023 00:00	OS_TP04_0.1_20230124			✓	✓		✓	✓
EM2301078-008	24-Jan-2023 00:00	OS_TP04_0.5_20230124	✓						
EM2301078-009	24-Jan-2023 00:00	OS_TP04_1.0_20230124			✓	✓		✓	
EM2301078-010	24-Jan-2023 00:00	OS_TP04_2.0_20230124	✓						
EM2301078-011	24-Jan-2023 00:00	OS_TP04_3.0_20230124	✓						
EM2301078-012	24-Jan-2023 00:00	OS_TP16_0.1_20230124			✓	✓	✓	✓	✓
EM2301078-013	24-Jan-2023 00:00	OS_TP16_0.5_20230124	✓						
EM2301078-014	24-Jan-2023 00:00	OS_TP16_1.0_20230124		✓	✓	✓		✓	
EM2301078-015	24-Jan-2023 00:00	OS_TP16_2.0_20230124	✓						
EM2301078-016	24-Jan-2023 00:00	OS_TP16_3.0_20230124	✓						
EM2301078-018	24-Jan-2023 00:00	OS_TP01_0.1 _230124	✓						

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested
EM2301078-017	24-Jan-2023 00:00	OS_RIN1_230124	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

APAC Supplier Management		
- A4 - AU Tax Invoice (INV)	Email	APACBISupplierMgmt@jacobs.com
INVOICE ONLY (JACOBS)		
- A4 - AU Tax Invoice (INV)	Email	au-ap@jacobs.com
LAB RESULTS esdat		
- EDI Format - ESDAT (ESDAT)	Email	jacobs.labresults@esdat.net
RANULI GOONETILLAKE		
- *AU Certificate of Analysis - NATA (COA)	Email	ranuli.goonetillake@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ranuli.goonetillake@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ranuli.goonetillake@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ranuli.goonetillake@jacobs.com
- Chain of Custody (CoC) (COC)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - XTab (XTAB)	Email	ranuli.goonetillake@jacobs.com
STEPHEN SONNENBERG		
- A4 - AU Tax Invoice (INV)	Email	stephen.sonnenberg@jacobs.com

Company	Jacobs	Project №	[IA5000D]	Project Manager	Stephen Sonnenberg	Sampler(s)	
Address	12/432 Flinders Street Melbourne	Project Name	Officer South DSS Functional Design	EDD Format	Esdat & Envirolab	Handed over by	
Contact Name	Ranuli Goonetillake			Facility Code		Email for Invoice	stephen.sonnenberg@jacobs.com; ranuli.goonetillake@jacobs.com
Phone №	[0451131758]					Email for Results	ranuli.goonetillake@jacobs.com; tea.eviland@jacobs.com; jacobs.labresults@esdat.net; EDMANZ@jacobs.com
Special Directions	Please place samples without analysis requested on hold pending results of other analysis.						
Purchase Order	E1159						
Quote ID №							

Analyses [illegible]

Containers: 500mL Plastic; 250mL Plastic; 60mL Plastic; 250mL Amber Glass; 40mL VOA vial; 125mL PFAS Bottle; Jar (Glass or HDPE); Other (Asbestos ASBB, Mil Container)

Required Turnaround Time (TAT)

- ☐ Overnight (reporting by 9am)
- ☐ Same day ◆
- ☐ 1 day ◆
- ☐ 2 days ◆
- ☐ 3 days ◆
- ☑ 5 days (Standard)
- ☐ Other [illegible]

◆ Surcharge will apply

Sample Comments / Dangerous Goods Hazard Warning

	№	Client Sample ID	Sampled Date/Time	Matrix	EPA 1828.2 Table 2 Full Solid Suite - excl. Anions	15 Metals (NEPM 2013 Suite - incl. Digestion)	OC/OP Pesticides	TRH/BTEXN/PAH (SIM) inc Silica Gel Clean Up	Total Hexavalent Chromium Alkaline digestion) by Discrete Analyser	PFAS - Short Suite (12 analytes)	Asbestos Identification in Soils - Presence/Absence in grab samples	Drying at 85 degrees, bagging and labelling (ASS)	SPOCAS	15 Metals (Total) (NEPM)		Hold
(1)	1	OS_TP03_0.1_20230124	24/1/23	S		X	X		X							
(2)	2	OS_TP03_0.5_20230124	24/1/23	S		X			X							
(3)	3	OS_QC02_20230124	24/1/23	S		X			X							
(4)	4	OS_TP03_1.0_20230124	24/1/23	S		X			X							
(5)	5	OS_TP03_2.0_20230124	24/1/23	S												X
(6)	6	OS_TP03_3.0_20230124	24/1/23	S												X
(7)	7	OS_TP04_0.1_20230124	24/1/23	S		X	X		X							
(8)	8	OS_TP04_0.5_20230124	24/1/23	S												X
(9)	9	OS_TP04_1.0_20230124	24/1/23	S		X			X							
(10)	10	OS_TP04_2.0_20230124	24/1/23	S												X
(11)	11	OS_TP04_3.0_20230124	24/1/23	S												X
(12)	12	OS_TP16_0.1_20230124	24/1/23	S		X	X		X	X						
(13)	14	OS_TP16_0.5_20230124	24/1/23	S												X
(14)	15	OS_TP16_1.0_20230124	24/1/23	S		X			X			X	X			
(15)	17	OS_TP16_2.0_20230124	24/1/23	S												X
(16)	18	OS_TP16_3.0_20230124	24/1/23	S												X
(17)	19	OS_RIN1_230124	24/1/23	W										X		

Environmental Division
Melbourne
Work Order Reference
EM2301078

Telephone : + 61-3-8549 9600

(18) Exchange
OS_TP01_0.1_230124
↑ [illegible]

B/W 24/01
1625

Company	Jacobs
Address	12/452 Flinders Street Melbourne
Contact Name	Ranuli Goonetilleke
Phone No	0451121750
Special Directions	Please place samples without analysis requested on hold pending results of other analysis.
Purchase Order	E1159
Quote ID No	

Project No	IA000001
Project Name	Officer South DSS Functional Design
Project Manager	Stephen Sonnenberg
EDD Format	Endet & EnviroSys
Facility Code	

Sampler(s)	
Handed over by	
Email for Invoice	stephen.sonnenberg@jacobs.com; ranuli.goonetilleke@jacobs.com
Email for Results	ranuli.goonetilleke@jacobs.com; lee.evland@jacobs.com; jacobs.labresults@eadal.net; CDMANC@jacobs.com

Analyses (Where suitable pre-preserved bottles are supplied, 'Ice' or 'Ice/Cool' is sufficient. Indicate preservative required if 'Other' is selected)

No	Client Sample ID	Sampled Date/Time	Matrix (Solid (S), Water (W))	EPA 1826.2 Table 2 Full Solid Suite - excl. Anions	15 Metals (NEPM 2013 Suite - incl. Digestion)	OC/OP Pesticides	TRH/BTEX/PAH (SIM) inc Silica Gel Clean Up	Total Hexavalent Chromium Alkaline digestion by Discrete Analyser	PFAS - Short Suite (12 analytes)	Asbestos Identification in Soils - Presence/Absence in grab samples	Drying at 85 degrees, bagging and labelling (ASS)	SPOCAS	15 Metals (Total) (NEPM)		Hold
1	OS_TP01_0.1_20230124	24/1/23	S		X	X		X							
2	OS_TP01_0.5_20230124	24/1/23	S		X			X							
3	OS_QC02_20230124	24/1/23	S		X			X							
4	OS_TP03_1.0_20230124	24/1/23	S		X			X							
5	OS_TP03_2.0_20230124	24/1/23	S												X
6	OS_TP03_3.0_20230124	24/1/23	S												X
7	OS_TP04_0.1_20230124	24/1/23	S		X	X		X							
8	OS_TP04_0.5_20230124	24/1/23	S												X
9	OS_TP04_1.0_20230124	24/1/23	S		X			X							
10	OS_TP04_2.0_20230124	24/1/23	S												X
11	OS_TP04_3.0_20230124	24/1/23	S												X
12	OS_TP16_0.1_20230124	24/1/23	S		X	X		X	X						
13	OS_TP16_0.5_20230124	24/1/23	S												X
14	OS_TP16_1.0_20230124	24/1/23	S		X			X			X	X			
15	OS_TP16_2.0_20230124	24/1/23	S												X
16	OS_TP16_3.0_20230124	24/1/23	S												X
17	OS_RIN1_230124	24/1/23	W										X		

Containers (Change container type if size if necessary)

500mL Plastic	250mL Plastic	60mL Plastic	250mL Amber Glass	40mL VOA vial	125mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos 40x40, WA Guidelines)

Required Turnaround Time (TAT) (Default will be 5 days if not ticked)

- ☐ Overnight (reporting by 9am) ♦
- ☐ Same day ♦
- ☐ 1 day ♦
- ☐ 2 days ♦
- ☐ 3 days ♦
- ☑ 5 days (Standard)
- ☐ Other ( )

♦Surcharge will apply

Sample Comments / Dangerous Goods Hazard Warning

Environmental Division
Melbourne
Work Order Reference
EM2301078

Telephone : + 61-3-8549 9600

18 Example: OS_TP01_0.1_230124

BW 24/01
1625

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2301187**	Page	: 1 of 10
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: Level 11, 452 Flinders Street MELBOURNE 3000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 27-Jan-2023 16:05
Order number	: E1159	Date Analysis Commenced	: 01-Feb-2023
C-O-C number	: 47619	Issue Date	: 06-Feb-2023 13:06
Sampler	: RANULI GOONETILLAKE		
Site	: AREA A BOREHOLE		
Quote number	: ME-491-22		
No. of samples received	: 11		
No. of samples analysed	: 3		

ilac-MRA NATA
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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EG048G: EM2301128 #3 Poor matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- EP071SG-S: EM2301222_001 Poor duplicate precision due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EP071SG-S: EM2301222_002 Poor matrix spike recovery due to sample matrix. Confirmed by re-extraction and re-analysis.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime ($CaCO_3$) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: **RINSATE** (Matrix: **WATER**)				Sample ID	**OS_RIN1_230127**	**----**	**----**	**----**	**----**
				Sampling date / time	27-Jan-2023 15:17	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**EM2301187-011**	**--------**	**--------**	**--------**	**--------**
					Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Boron	7440-42-8	0.05	mg/L		<0.05	**----**	**----**	**----**	**----**
Barium	7440-39-3	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Beryllium	7440-41-7	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	**----**	**----**	**----**	**----**
Cobalt	7440-48-4	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Chromium	7440-47-3	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Copper	7440-50-8	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Manganese	7439-96-5	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Nickel	7440-02-0	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Lead	7439-92-1	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Selenium	7782-49-2	0.01	mg/L		<0.01	**----**	**----**	**----**	**----**
Vanadium	7440-62-2	0.01	mg/L		<0.01	**----**	**----**	**----**	**----**
Zinc	7440-66-6	0.005	mg/L		<0.005	**----**	**----**	**----**	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH01_0.1_20230127	OS_BH01_1.0_20230127	----	----	----
			Sampling date / time	27-Jan-2023 08:30	27-Jan-2023 08:32	----	----	----
Compound	CAS Number	LOR	Unit	EM2301187-001	EM2301187-003	--------	--------	--------
				Result	Result	----	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	**5.6**	----	----	----
pH OX (23B)	----	0.1	pH Unit	----	**5.4**	----	----	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	**13**	----	----	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	**22**	----	----	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	**9**	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	**0.021**	----	----	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	**0.035**	----	----	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	<0.020	----	----	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	<0.020	----	----	----
Peroxide Sulfur (23De)	----	0.020	% S	----	**0.027**	----	----	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	----	**0.027**	----	----	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	----	**17**	----	----	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	----	**0.073**	----	----	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	----	**0.075**	----	----	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	----	<0.020	----	----	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	----	<0.020	----	----	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	----	**0.086**	----	----	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg	----	**0.088**	----	----	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	----	<0.020	----	----	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	----	<0.020	----	----	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	**1.5**	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	**0.05**	----	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	----	**30**	----	----	----
Liming Rate	----	1	kg CaCO3/t	----	**2**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH01_0.1_20230127	OS_BH01_1.0_20230127	----	----	----
			Sampling date / time	27-Jan-2023 08:30	27-Jan-2023 08:32	----	----	----
Compound	CAS Number	LOR	Unit	EM2301187-001	EM2301187-003	--------	--------	--------
				Result	Result	----	----	----
EA029-H: Acid Base Accounting - Continued								
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	0.05	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	30	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	2	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	8.5	16.7	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg	20	150	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	5	18	----	----	----
Cobalt	7440-48-4	2	mg/kg	<2	3	----	----	----
Copper	7440-50-8	5	mg/kg	<5	8	----	----	----
Lead	7439-92-1	5	mg/kg	7	11	----	----	----
Manganese	7439-96-5	5	mg/kg	18	9	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	4	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	----
Vanadium	7440-62-2	5	mg/kg	16	33	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH01_0.1_20230127	OS_BH01_1.0_20230127	----	----	----
				Sampling date / time	27-Jan-2023 08:30	27-Jan-2023 08:32	----	----	----
Compound	CAS Number	LOR	Unit		EM2301187-001	EM2301187-003	--------	--------	--------
					Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH01_0.1_20230127	OS_BH01_1.0_20230127	----	----	----
				Sampling date / time	27-Jan-2023 08:30	27-Jan-2023 08:32	----	----	----
Compound	CAS Number	LOR	Unit		EM2301187-001	EM2301187-003	--------	--------	--------
					Result	Result	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup									
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	----	----
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup									
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH01_0.1_20230127	OS_BH01_1.0_20230127	----	----	----
				Sampling date / time	27-Jan-2023 08:30	27-Jan-2023 08:32	----	----	----
Compound	CAS Number	LOR	Unit		EM2301187-001	EM2301187-003	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		----	<1	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0002**	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH01_0.1_20230127	OS_BH01_1.0_20230127	----	----	----
				Sampling date / time	27-Jan-2023 08:30	27-Jan-2023 08:32	----	----	----
Compound	CAS Number	LOR	Unit		EM2301187-001	EM2301187-003	--------	--------	--------
					Result	Result	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0002**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0002**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**99.1**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**104**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	**81.2**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	**90.6**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	**96.8**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	**87.5**	----	----	----
Anthracene-d10	1719-06-8	0.5	%		----	**111**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	**101**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	**93.2**	----	----	----
Toluene-D8	2037-26-5	0.2	%		----	**75.3**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	**86.9**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**97.0**	----	----	----	----
13C8-PFOA	----	0.0002	%		**100**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2301187**	Page	: 1 of 16
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: Level 11, 452 Flinders Street MELBOURNE 3000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 27-Jan-2023
Order number	: E1159	Date Analysis Commenced	: 01-Feb-2023
C-O-C number	: 47619	Issue Date	: 06-Feb-2023
Sampler	: RANULI GOONETILLAKE		
Site	: AREA A BOREHOLE		
Quote number	: ME-491-22		
No. of samples received	: 11		
No. of samples analysed	: 3		

ilac-MRA NATA 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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4844466)									
EM2301128-001	Anonymous	EG005T: Barium	7440-39-3	10	mg/kg	180	210	17.0	0% - 20%
		EG005T: Copper	7440-50-8	5	mg/kg	128	117	8.4	0% - 20%
EM2301128-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<5	<5	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	80	72	9.6	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	10	10	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	65	55	17.5	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	13	12	9.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	55	80	37.3	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	1180	1160	2.1	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	16	16	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	861	875	1.6	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2301172-006	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	420	400	5.1	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	48	41	15.8	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	19	18	6.1	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	36	43	19.6	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	13	15	11.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	8	21.7	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	288	308	6.5	0% - 20%

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4844466) - continued									
EM2301172-006	Anonymous	EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	64	53	19.3	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	22	23	6.4	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EA029-A: pH Measurements (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	8.4	8.5	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	7.4	7.3	1.4	0% - 20%
EA029-B: Acidity Trail (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EA029-C: Sulfur Trail (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	0.043	0.043	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	0.681	0.693	1.7	0% - 20%
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	0.638	0.650	1.8	0% - 20%
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	398	405	1.8	0% - 20%
EA029-D: Calcium Values (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.264	0.271	2.6	0% - 50%
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	1.58	1.66	4.4	0% - 20%
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	1.32	1.38	4.8	0% - 20%
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	1.06	1.11	4.8	0% - 20%
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	659	691	4.8	0% - 20%
EA029-E: Magnesium Values (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.209	0.207	0.8	0% - 50%
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.397	0.414	4.2	0% - 20%
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	0.188	0.207	9.5	0% - 50%
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	0.248	0.273	9.5	0% - 50%
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	155	170	9.5	0% - 50%
EA029-H: Acid Base Accounting (QC Lot: 4845855)									
EB2302299-015	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-H: Acid Base Accounting (QC Lot: 4845855) - continued									
EB2302299-015	Anonymous	EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.64	0.65	1.8	0% - 20%
		EA029: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	30	30	0.0	0% - 20%
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	398	405	1.8	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4845742)									
EM2301187-001	OS_BH01_0.1_20230127	EA055: Moisture Content	----	0.1	%	8.5	9.4	10.3	No Limit
EM2301222-004	Anonymous	EA055: Moisture Content	----	0.1	%	23.6	23.0	2.3	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4844467)									
EM2301128-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2301172-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4844456)									
EM2301128-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2301188-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4843504)									
EM2301128-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4843504)									
EM2301128-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4843504) - continued									
EM2301128-001	Anonymous	EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QC Lot: 4843499)									
EM2301222-001	Anonymous	EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	1290	# 630	68.6	0% - 50%
		EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	1310	# 630	70.2	0% - 50%
		EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071SG-S: C10 - C36 Fraction (sum)	----	50	mg/kg	2600	# 1260	69.4	0% - 20%
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QC Lot: 4843499)									
EM2301222-001	Anonymous	EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	2360	# 1150	69.0	0% - 20%
		EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	400	190	71.5	No Limit
		EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071SG-S: >C10 - C40 Fraction (sum)	----	50	mg/kg	2760	# 1340	69.3	0% - 20%
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4843500)									
EM2301222-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4843500) - continued									
EM2301222-001	Anonymous	EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4844427)									
EM2301128-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2301305-027	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4844427)									
EM2301128-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EM2301305-027	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 4844427)									
EM2301128-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2301305-027	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4844259)									
EM2300997-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2301187-001	OS_BH01_0.1_20230127	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0002	0.0003	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4844259)									
EM2300997-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4844259) - continued									
EM2301187-001	OS_BH01_0.1_20230127	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4844259)									
EM2300997-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2301187-001	OS_BH01_0.1_20230127	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4844259)									
EM2300997-002	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2301187-001	OS_BH01_0.1_20230127	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0002	0.0003	40.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0002	0.0003	40.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4844564)									
EM2301244-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4844564) - continued									
EM2301244-011	Anonymous	EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EM2301040-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.010	0.011	0.0	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 4844563)									
EM2301289-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EM2301040-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4844466)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	103	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	100.0	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	112	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	69.0	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	112	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	96.7	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	98.1	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	98.5	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	99.2	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	106	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	106	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	86.8	70.0	130
EA029-A: pH Measurements (QCLot: 4845855)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.4 pH Unit	105	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.2 pH Unit	107	70.0	130
EA029-B: Acidity Trail (QCLot: 4845855)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	96.6	70.0	130
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	25 mole H+ / t	112	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 4845855)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.055 % S	82.2	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.152 % S	77.1	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 4845855)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.201 % Ca	83.4	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.191 % Ca	91.3	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA029-D: Calcium Values (QCLot: 4845855) - continued								
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 4845855)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.204 % Mg	86.7	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.234 % Mg	84.4	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 4845855)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4844467)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	118	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4844456)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	75.7	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4843504)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	70.0	124
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.5	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.3	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.0	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	81.1	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	80.9	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	81.0	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.1	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	76.7	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.0	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	74.8	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	75.7	62.4	131

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 4843504) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	72.5	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	73.7	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	73.8	55.5	132
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4843504)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	72.1	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	70.0	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	77.3	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	79.7	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	80.3	68.0	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	76.8	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	79.2	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	81.1	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	74.7	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	78.0	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	76.0	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	79.8	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	75.5	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	78.8	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	77.4	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	73.5	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	71.6	43.1	131
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 4843499)								
EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	900 mg/kg	73.6	48.6	129
EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	2920 mg/kg	80.0	67.5	129
EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	1470 mg/kg	82.6	66.5	133
EP071SG-S: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	5290 mg/kg	79.6	70.0	130
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 4843499)								
EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	1230 mg/kg	70.8	53.8	127
EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	3950 mg/kg	80.1	64.0	134
EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	260 mg/kg	85.1	52.2	128
EP071SG-S: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	5440 mg/kg	78.1	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4843500)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	97.1	85.7	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	105	81.0	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	107	83.6	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	109	81.3	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4843500) - continued								
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	102	79.4	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	87.3	81.7	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	91.1	78.3	124
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	92.5	79.9	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	101	76.9	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	106	80.9	130
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	1.5 mg/kg	95.9	70.0	121
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	91.5	80.4	130
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	90.1	70.2	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	95.3	67.9	122
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	92.7	65.8	123
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	103	65.8	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4844427)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	81.0	58.6	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4844427)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	82.4	59.3	128
EP080: BTEXN (QCLot: 4844427)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	81.0	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	76.2	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	78.7	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	87.2	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	91.8	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	81.3	61.8	123
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4844259)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	94.9	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	83.3	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	91.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4844259)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	87.8	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.7	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.1	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.2	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4844259)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	92.8	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	97.3	64.0	140

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4844259) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	101	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	82.1	70.0	130
EP231P: PFAS Sums (QCLot: 4844259)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4844564)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.6	89.0	111
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	91.8	85.0	112
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.5	83.6	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	83.5	111
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.6	83.2	109
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.7	84.3	110
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.0	83.1	107
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.8	84.6	108
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.0	84.8	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.7	84.3	110
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	103	82.3	113
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	95.9	83.7	110
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	86.3	112
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	92.7	85.4	115
EG035F: Dissolved Mercury by FIMS (QCLot: 4844563)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	91.9	71.6	116

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4844466)							
EM2301128-003	Anonymous	EG005T: Chromium	7440-47-3	50 mg/kg	116	79.0	121
		EG005T: Nickel	7440-02-0	50 mg/kg	97.1	78.0	120
EM2301128-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	97.6	78.0	124

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4844466) - continued							
EM2301128-003	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	102	79.7	116
		EG005T: Copper	7440-50-8	250 mg/kg	103	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	106	80.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	112	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4844467)							
EM2301128-003	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	107	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4844456)							
EM2301128-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 7.8	58.0	114
EM2301128-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 19.6	58.0	114
EP068A: Organochlorine Pesticides (OC) (QCLot: 4843504)							
EM2301128-003	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	89.5	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	93.4	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	89.1	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	86.8	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	94.1	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	91.9	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4843504)							
EM2301128-003	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	88.1	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	97.1	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	85.6	55.0	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	84.7	55.1	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	72.0	43.8	128
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 4843499)							
EM2301222-002	Anonymous	EP071SG-S: C10 - C14 Fraction	----	900 mg/kg	68.4	45.8	126
		EP071SG-S: C15 - C28 Fraction	----	2920 mg/kg	66.6	64.7	122
		EP071SG-S: C29 - C36 Fraction	----	1470 mg/kg	# 61.3	62.8	126
		EP071SG-S: C10 - C36 Fraction (sum)	----	5290 mg/kg	# 61.1	70.0	130
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 4843499)							
EM2301222-002	Anonymous	EP071SG-S: >C10 - C16 Fraction	----	1230 mg/kg	65.2	49.8	122
		EP071SG-S: >C16 - C34 Fraction	----	3950 mg/kg	# 64.4	66.0	124
		EP071SG-S: >C34 - C40 Fraction	----	260 mg/kg	# 45.0	49.4	124
		EP071SG-S: >C10 - C40 Fraction (sum)	----	5440 mg/kg	# 59.4	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4843500)							
EM2301222-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	78.9	77.2	116
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	85.7	65.5	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4844427)							

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4844427) - continued							
EM2301128-003	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	67.2	33.4	124
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4844427)							
EM2301128-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	65.6	30.8	120
EP080: BTEXN (QCLot: 4844427)							
EM2301128-003	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	81.4	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	79.9	57.1	131
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4844259)							
EM2300997-004	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	103	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	83.7	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	86.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4844259)							
EM2300997-004	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	95.4	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	96.1	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	79.7	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	84.1	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	88.3	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4844259)							
EM2300997-004	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	93.3	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	99.8	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	96.1	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	70.7	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4844564)							
EM2301040-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	97.6	76.6	124
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	91.2	73.0	120
		EG020A-F: Barium	7440-39-3	0.2 mg/L	95.8	75.0	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	96.0	74.6	118
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	93.0	71.0	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	94.2	78.0	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	95.8	76.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	96.9	75.0	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	98.2	64.0	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	93.0	73.0	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	92.9	73.0	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	104	75.0	131

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG035F: Dissolved Mercury by FIMS (QCLot: 4844563)							
EM2301187-011	OS_RIN1_230127	EG035F: Mercury	7439-97-6	0.01 mg/L	94.6	70.0	120

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2301187**	Page	: 1 of 8
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 27-Jan-2023
Site	: AREA A BOREHOLE	Issue Date	: 06-Feb-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 11
Order number	: E1159	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cl	EM2301222--001	Anonymous	**C15 - C28 Fraction**	----	68.6 %	0% - 50%	**RPD exceeds LOR based limits**
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cl	EM2301222--001	Anonymous	**C29 - C36 Fraction**	----	70.2 %	0% - 50%	**RPD exceeds LOR based limits**
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cl	EM2301222--001	Anonymous	**C10 - C36 Fraction (sum)**	----	69.4 %	0% - 20%	**RPD exceeds LOR based limits**
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2(	EM2301222--001	Anonymous	**>C16 - C34 Fraction**	----	69.0 %	0% - 20%	**RPD exceeds LOR based limits**
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2(	EM2301222--001	Anonymous	**>C10 - C40 Fraction (sum)**	----	69.3 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EG048: Hexavalent Chromium (Alkaline Digest)	EM2301128--003	Anonymous	**Hexavalent Chromium**	18540-29-9	7.8 %	58.0-114%	**Recovery less than lower data quality objective**
EG048: Hexavalent Chromium (Alkaline Digest)	EM2301128--003	Anonymous	**Hexavalent Chromium**	18540-29-9	19.6 %	58.0-114%	**Recovery less than lower data quality objective**
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cl	EM2301222--002	Anonymous	**C29 - C36 Fraction**	----	61.3 %	62.8-126%	**Recovery less than lower data quality objective**
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cl	EM2301222--002	Anonymous	**C10 - C36 Fraction (sum)**	----	61.1 %	70.0-130%	**Recovery less than lower data quality objective**
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2(	EM2301222--002	Anonymous	**>C16 - C34 Fraction**	----	64.4 %	66.0-124%	**Recovery less than lower data quality objective**
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2(	EM2301222--002	Anonymous	**>C34 - C40 Fraction**	----	45.0 %	49.4-124%	**Recovery less than lower data quality objective**
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2(	EM2301222--002	Anonymous	**>C10 - C40 Fraction (sum)**	----	59.4 %	70.0-130%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA029-A: pH Measurements							
Snap Lock Bag - frozen (EA029)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**02-Feb-2023**	22-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-B: Acidity Trail							
Snap Lock Bag - frozen (EA029)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**02-Feb-2023**	22-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-C: Sulfur Trail							
Snap Lock Bag - frozen (EA029)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**02-Feb-2023**	22-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-D: Calcium Values							
Snap Lock Bag - frozen (EA029)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**02-Feb-2023**	22-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-E: Magnesium Values							
Snap Lock Bag - frozen (EA029)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**02-Feb-2023**	22-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-F: Excess Acid Neutralising Capacity							
Snap Lock Bag - frozen (EA029)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**02-Feb-2023**	22-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-G: Retained Acidity							
Snap Lock Bag - frozen (EA029)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**02-Feb-2023**	22-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA029-H: Acid Base Accounting							
Snap Lock Bag - frozen (EA029)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**02-Feb-2023**	22-Oct-2025	✓	**03-Feb-2023**	03-May-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_BH01_0.1_20230127, OS_BH01_1.0_20230127	**27-Jan-2023**	**----**	----	----	**01-Feb-2023**	10-Feb-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_BH01_0.1_20230127, OS_BH01_1.0_20230127	**27-Jan-2023**	**02-Feb-2023**	26-Jul-2023	✓	**02-Feb-2023**	26-Jul-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_BH01_0.1_20230127, OS_BH01_1.0_20230127	**27-Jan-2023**	**02-Feb-2023**	24-Feb-2023	✓	**03-Feb-2023**	24-Feb-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_BH01_0.1_20230127, OS_BH01_1.0_20230127	**27-Jan-2023**	**01-Feb-2023**	24-Feb-2023	✓	**02-Feb-2023**	08-Feb-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
OS_BH01_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**02-Feb-2023**	13-Mar-2023	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
OS_BH01_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**02-Feb-2023**	13-Mar-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**01-Feb-2023**	13-Mar-2023	✓
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**01-Feb-2023**	13-Mar-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
OS_BH01_1.0_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**02-Feb-2023**	13-Mar-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**03-Feb-2023**	10-Feb-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**03-Feb-2023**	10-Feb-2023	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
OS_BH01_1.0_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**03-Feb-2023**	10-Feb-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_BH01_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	26-Jul-2023	✓	**01-Feb-2023**	13-Mar-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
OS_BH01_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	26-Jul-2023	✓	**01-Feb-2023**	13-Mar-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_BH01_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	26-Jul-2023	✓	**01-Feb-2023**	13-Mar-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
OS_BH01_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	26-Jul-2023	✓	**01-Feb-2023**	13-Mar-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
OS_RIN1_230127	**27-Jan-2023**	**----**	----	----	**02-Feb-2023**	26-Jul-2023	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
OS_RIN1_230127	**27-Jan-2023**	**----**	----	----	**03-Feb-2023**	24-Feb-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	SOIL	In house: Referenced to USEPA SW 846 - 8015. Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2301187**

Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: Level 11, 452 Flinders Street MELBOURNE 3000	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Page	: 1 of 3
Order number	: E1159	Quote number	: EM2022SINKNI0017 (ME-491-22)
C-O-C number	: 47619	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: AREA A BOREHOLE		
Sampler	: RANULI GOONETILLAKE		

Dates

Date Samples Received	: 27-Jan-2023 16:05	Issue Date	: 30-Jan-2023
Client Requested Due Date	: 07-Feb-2023	Scheduled Reporting Date	: **03-Feb-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 4.1°c - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale & ALS Brisbane.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM2301187-001	: 27-Jan-2023 08:30	: OS_BH01_0.1_20230127
EM2301187-002	: 27-Jan-2023 08:31	: OS_BH01_0.5_20230127
EM2301187-003	: 27-Jan-2023 08:32	: OS_BH01_1.0_20230127
EM2301187-004	: 27-Jan-2023 08:39	: OS_BH01_2.0_20230127
EM2301187-005	: 27-Jan-2023 09:02	: OS_BH01_3.0_20230127
EM2301187-006	: 27-Jan-2023 09:22	: OS_BH01_4.0_20230127
EM2301187-007	: 27-Jan-2023 09:39	: OS_BH01_5.0_20230127
EM2301187-008	: 27-Jan-2023 10:31	: OS_BH01_6.0_20230127
EM2301187-009	: 27-Jan-2023 10:32	: OS_BH01_7.0_20230127
EM2301187-010	: 27-Jan-2023 10:32	: OS_BH01_8.0_20230127

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EG048G Total Hexavalent Chromium (Alkaline digestion)	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-07 SG TRH/BTEXN/PAH (SIM) inc Silica Gel Clean Up	SOIL - S-12 OC/OP Pesticides
EM2301187-001	27-Jan-2023 08:30	OS_BH01_0.1_20230127		✓	✓	✓	✓		✓
EM2301187-002	27-Jan-2023 08:31	OS_BH01_0.5_20230127	✓						
EM2301187-003	27-Jan-2023 08:32	OS_BH01_1.0_20230127		✓	✓		✓	✓	
EM2301187-004	27-Jan-2023 08:39	OS_BH01_2.0_20230127	✓						
EM2301187-005	27-Jan-2023 09:02	OS_BH01_3.0_20230127	✓						
EM2301187-006	27-Jan-2023 09:22	OS_BH01_4.0_20230127	✓						
EM2301187-007	27-Jan-2023 09:39	OS_BH01_5.0_20230127	✓						
EM2301187-008	27-Jan-2023 10:31	OS_BH01_6.0_20230127	✓						
EM2301187-009	27-Jan-2023 10:32	OS_BH01_7.0_20230127	✓						
EM2301187-010	27-Jan-2023 10:32	OS_BH01_8.0_20230127	✓						

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA029 SPOCAS
EM2301187-003	27-Jan-2023 08:32	OS_BH01_1.0_20230127	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-03 15 Metals (NEPM Suite)
EM2301187-011	27-Jan-2023 15:17	OS_RIN1_230127	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

APAC Supplier Management		
- A4 - AU Tax Invoice (INV)	Email	APACBISupplierMgmt@jacobs.com
ED MANZ		
- *AU Certificate of Analysis - NATA (COA)	Email	edmanz@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	edmanz@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	edmanz@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	edmanz@jacobs.com
- Chain of Custody (CoC) (COC)	Email	edmanz@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	edmanz@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	edmanz@jacobs.com
ESDAT REPORTS		
- *AU Certificate of Analysis - NATA (COA)	Email	jacobs.labresults@esdat.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jacobs.labresults@esdat.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jacobs.labresults@esdat.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	jacobs.labresults@esdat.net
- Chain of Custody (CoC) (COC)	Email	jacobs.labresults@esdat.net
- EDI Format - ENMRG (ENMRG)	Email	jacobs.labresults@esdat.net
- EDI Format - ESDAT (ESDAT)	Email	jacobs.labresults@esdat.net
RANULI GOONETILLAKE		
- *AU Certificate of Analysis - NATA (COA)	Email	ranuli.goonetillake@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ranuli.goonetillake@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ranuli.goonetillake@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ranuli.goonetillake@jacobs.com
- A4 - AU Tax Invoice (INV)	Email	ranuli.goonetillake@jacobs.com
- Chain of Custody (CoC) (COC)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	ranuli.goonetillake@jacobs.com
STEPHEN SONNENBERG		
- A4 - AU Tax Invoice (INV)	Email	stephen.sonnenberg@jacobs.com
TEA SVILAND		
- *AU Certificate of Analysis - NATA (COA)	Email	tea.sviland@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tea.sviland@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tea.sviland@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tea.sviland@jacobs.com
- Chain of Custody (CoC) (COC)	Email	tea.sviland@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	tea.sviland@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	tea.sviland@jacobs.com

ALSCompass
SAMPLING Intelligence

ALS

Environmental Division
Melbourne
Work Order Reference
EM2301187

Telephone : +61-3-8549 9600

Custody Document for Submissions via ALS Compass App

Project: _____ Client: Jacobs Project Manager: _____

Phor ( )

ALS Compass COC Reference: 47619 # Samples: _____ Sar

Phon ( )

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
			Oliver (ALS) 27/1/23 @ 16:05
Date / Time:	Date / Time:	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 47619 ALS Laboratory: EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA A BOREHOLE

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard Info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_BH01_0.1_20230127		27/01/2023 08:30 AM	SOIL	ALS: 3 Non ALS: 0	No			Partial 4/9		
002	OS_BH01_0.5_20230127		27/01/2023 08:31 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
003	OS_BH01_1.0_20230127		27/01/2023 08:32 AM	SOIL	ALS: 2 Non ALS: 1	No			Partial 5/9		
004	OS_BH01_2.0_20230127		27/01/2023 08:39 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
005	OS_BH01_3.0_20230127		27/01/2023 09:02 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
006	OS_BH01_4.0_20230127		27/01/2023 09:22 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
007	OS_BH01_5.0_20230127		27/01/2023 09:39 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
008	OS_BH01_6.0_20230127		27/01/2023 10:31 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
009	OS_BH01_7.0_20230127		27/01/2023 10:32 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				

CHAIN OF CUSTODY

(ALS) *COC#:* 47619 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA A BOREHOLE

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_BH01_8.0_20230127		27/01/2023 10:32 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
011	OS_RIN1_230127		27/01/2023 03:17 PM	WATER	ALS: 1 Non ALS: 0	No		X			

CHAIN OF CUSTODY

ALS COC#: 47619 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA A BOREHOLE

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake

PRIMARY SAMPLER: Ranuli Goonetillake

CONTACT PH:

QUOTE NO: ME-491-22

SAMPLER MOBILE: / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
001	OS_BH01_0.1_20230127	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - S-12 OC/OP Pesticides - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EP231 (solids) PFAS - Short Suite (12 analytes)
003	OS_BH01_1.0_20230127	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EN020PR Drying at 85 degrees, bagging and labelling (ASS) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EA029 SPOCAS - S-07 SG TRH/BTEXN/PAH (SIM) Inc Silica Gel Clean Up

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2301188**	Page	: 1 of 10
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 27-Jan-2023 16:05
Order number	: E1159	Date Analysis Commenced	: 31-Jan-2023
C-O-C number	: 47621	Issue Date	: 03-Feb-2023 18:37
Sampler	: RANULI GOONETILLAKE		
Site	: AREA F BOREHOLE		
Quote number	: ME-491-22		
No. of samples received	: 9		
No. of samples analysed	: 5		

ilac-MRA NATA
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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EG048G: EM2301128 #3 Poor matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-WF: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- EK040T: EM2301091 #13, Poor matrix spike recovery for total fluoride due to matrix effects.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_QC04_2023027	OS_BH09_0.1_20230127	OS_BH09_0.5_20230127	OS_BH09_1.0_20230127	OS_BH09_2.0_20230127
			Sampling date / time	27-Jan-2023 13:05	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:07
Compound	CAS Number	LOR	Unit	EM2301188-001	EM2301188-002	EM2301188-003	EM2301188-004	EM2301188-005
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	4.2	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	10.5	----	----	----
Moisture Content	----	1.0	%	5.4	----	5.6	12.3	14.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	----	No	----	----	----
Asbestos Type	1332-21-4	-	--	----	-	----	----	----
Sample weight (dry)	----	0.01	g	----	39.5	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	M. TRAN	----	----	----
Synthetic Mineral Fibre	----	-	--	----	No	----	----	----
Organic Fibre	----	-	--	----	Yes	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Antimony	7440-36-0	5	mg/kg	----	<5	----	----	----
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	50	100	50	20	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	16	----	16	13	15
Cobalt	7440-48-4	2	mg/kg	2	----	2	3	3
Copper	7440-50-8	5	mg/kg	6	10	6	6	8
Lead	7439-92-1	5	mg/kg	7	11	7	9	11
Manganese	7439-96-5	5	mg/kg	29	----	19	9	8
Molybdenum	7439-98-7	2	mg/kg	----	<2	----	----	----
Nickel	7440-02-0	2	mg/kg	5	8	4	4	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	----	<2	----	----	----
Vanadium	7440-62-2	5	mg/kg	25	----	27	19	34
Zinc	7440-66-6	5	mg/kg	<5	7	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_QC04_2023027	OS_BH09_0.1_20230127	OS_BH09_0.5_20230127	OS_BH09_1.0_20230127	OS_BH09_2.0_20230127
				Sampling date / time	27-Jan-2023 13:05	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:07
Compound	CAS Number	LOR	Unit		EM2301188-001	EM2301188-002	EM2301188-003	EM2301188-004	EM2301188-005
					Result	Result	Result	Result	Result
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		----	<1	----	----	----
EK030: Cyanide Amenable to Chlorination									
Cyanide amenable to chlorination	----	1	mg/kg		----	<1	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		----	**110**	----	----	----
EP010: Formaldehyde									
Formaldehyde	50-00-0	2	mg/kg		----	<2	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	----	----
Styrene	100-42-5	0.5	mg/kg		----	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		----	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	----	----	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	1	mg/kg		----	<1	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	<1	----	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		----	<0.02	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		----	<0.01	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg		----	<0.4	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		----	<0.02	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		----	<0.01	----	----	----
Chloroform	67-66-3	0.02	mg/kg		----	<0.02	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		----	<0.01	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		----	<0.01	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		----	<0.02	----	----	----

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	OS_QC04_2023027	OS_BH09_0.1_20230127	OS_BH09_0.5_20230127	OS_BH09_1.0_20230127	OS_BH09_2.0_20230127
				Sampling date / time	27-Jan-2023 13:05	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:07
					EM2301188-001	EM2301188-002	EM2301188-003	EM2301188-004	EM2301188-005
					Result	Result	Result	Result	Result
EP074I: Volatile Halogenated Compounds - Continued									
Trichloroethene	79-01-6	0.02	mg/kg		----	<0.02	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		----	<0.04	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		----	<0.01	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		----	<0.02	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		----	<0.02	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		----	<0.02	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		----	<0.02	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		----	<0.02	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		----	<0.02	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		----	<0.01	----	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		----	<0.01	----	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg		----	<0.01	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg		----	<0.01	----	----	----
^ Sum of Trichlorobenzenes	----	0.01	mg/kg		----	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		----	<0.03	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		----	<0.03	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		----	<0.05	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		----	<0.05	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		----	<1	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		----	<1	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		----	<1	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		----	<1	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		----	<5	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		----	<5	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		----	<5	----	----	----
Dinoseb	88-85-7	5	mg/kg		----	<5	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		----	<5	----	----	----
^ Cresols (Total)	----	1	mg/kg		----	<1	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		----	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_QC04_2023027	OS_BH09_0.1_20230127	OS_BH09_0.5_20230127	OS_BH09_1.0_20230127	OS_BH09_2.0_20230127
				Sampling date / time	27-Jan-2023 13:05	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:07
Compound	CAS Number	LOR	Unit		EM2301188-001	EM2301188-002	EM2301188-003	EM2301188-004	EM2301188-005
					Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		----	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		----	<0.5	----	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		----	<1.0	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		----	<0.03	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		----	<0.03	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		----	<0.03	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		----	<0.03	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		----	<0.03	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		----	<0.03	----	----	----
Aldrin	309-00-2	0.03	mg/kg		----	<0.03	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		----	<0.03	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		----	<0.03	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_QC04_2023027	OS_BH09_0.1_20230127	OS_BH09_0.5_20230127	OS_BH09_1.0_20230127	OS_BH09_2.0_20230127
				Sampling date / time	27-Jan-2023 13:05	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:07
Compound	CAS Number	LOR	Unit		EM2301188-001	EM2301188-002	EM2301188-003	EM2301188-004	EM2301188-005
					Result	Result	Result	Result	Result
EP075I: Organochlorine Pesticides - Continued									
trans-Chlordane	5103-74-2	0.03	mg/kg		----	<0.03	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		----	<0.03	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		----	<0.03	----	----	----
Endrin	72-20-8	0.03	mg/kg		----	<0.03	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		----	<0.03	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		----	<0.03	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		----	<0.03	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		----	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	----	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_QC04_2023027	OS_BH09_0.1_20230127	OS_BH09_0.5_20230127	OS_BH09_1.0_20230127	OS_BH09_2.0_20230127
				Sampling date / time	27-Jan-2023 13:05	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:07
Compound	CAS Number	LOR	Unit		EM2301188-001	EM2301188-002	EM2301188-003	EM2301188-004	EM2301188-005
					Result	Result	Result	Result	Result
EP095: Ethylenediamine Tetraacetic Acid (EDTA) - Continued									
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg		----	<10	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	**0.0002**	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	**0.0002**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	**0.0002**	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)									
2.4-D	94-75-7	0.001	mg/kg		----	<0.001	----	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg		----	<0.01	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**95.5**	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	OS_QC04_2023027	OS_BH09_0.1_20230127	OS_BH09_0.5_20230127	OS_BH09_1.0_20230127	OS_BH09_2.0_20230127
				Sampling date / time	27-Jan-2023 13:05	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:06	27-Jan-2023 13:07
					EM2301188-001	EM2301188-002	EM2301188-003	EM2301188-004	EM2301188-005
					Result	Result	Result	Result	Result
EP074S: VOC Surrogates (Ultra-Trace) - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	**99.3**	----	----	----
Toluene-D8	2037-26-5	0.1	%		----	**88.9**	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		----	**93.6**	----	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		----	**104**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		----	**87.4**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		----	**91.4**	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		----	**92.5**	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		----	**86.9**	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		----	**100**	----	----	----
Anthracene-d10	1719-06-8	0.025	%		----	**96.8**	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		----	**91.4**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	**102**	----	----	----
13C8-PFOA	----	0.0002	%		----	**104**	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_BH09_0.1_20230127 - 27-Jan-2023 13:06	Brown soil with organic matter.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2301188**	Page	: 1 of 18
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 27-Jan-2023
Order number	: E1159	Date Analysis Commenced	: 31-Jan-2023
C-O-C number	: 47621	Issue Date	: 03-Feb-2023
Sampler	: RANULI GOONETILLAKE		
Site	: AREA F BOREHOLE		
Quote number	: ME-491-22		
No. of samples received	: 9		
No. of samples analysed	: 5		

ilac-MRA NATA 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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4844466)									
EM2301128-001	Anonymous	EG005T: Barium	7440-39-3	10	mg/kg	180	210	17.0	0% - 20%
		EG005T: Copper	7440-50-8	5	mg/kg	128	117	8.4	0% - 20%
EM2301128-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<5	<5	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	80	72	9.6	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	10	10	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	9	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	65	55	17.5	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	13	12	9.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	55	80	37.3	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	1180	1160	2.1	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	16	16	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	861	875	1.6	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2301172-006	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	420	400	5.1	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	48	41	15.8	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	19	18	6.1	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	36	43	19.6	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4844466) - continued									
EM2301172-006	Anonymous	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	13	15	11.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	8	21.7	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	288	308	6.5	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	64	53	19.3	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	22	23	6.4	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4844468)									
EM2301188-005	OS_BH09_2.0_20230127	EG005T: Barium	7440-39-3	10	mg/kg	20	10	0.0	No Limit
EM2301188-005	OS_BH09_2.0_20230127	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	16	9.8	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	3	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	5	0.0	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	10	19.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	11	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	8	10	16.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	34	34	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QC Lot: 4846973)									
EM2301188-002	OS_BH09_0.1_20230127	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	<10	0.0	No Limit
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QC Lot: 4845503)									
EM2301188-002	OS_BH09_0.1_20230127	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4846986)									
EM2301172-003	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.0	8.0	0.0	0% - 20%
EM2301260-007	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.1	8.1	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4845742)									
EM2301187-001	Anonymous	EA055: Moisture Content	----	0.1	%	8.5	9.4	10.3	No Limit
EM2301222-004	Anonymous	EA055: Moisture Content	----	0.1	%	23.6	23.0	2.3	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4844467)									
EM2301128-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2301172-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4844469)									
EM2301188-005	OS_BH09_2.0_20230127	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4844456)									
EM2301128-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2301188-002	OS_BH09_0.1_20230127	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 4845722)									
EM2301260-005	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<5	<5	0.0	No Limit
EM2301188-002	OS_BH09_0.1_20230127	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK030: Cyanide Amenable to Chlorination (QC Lot: 4845723)									
EM2301188-002	OS_BH09_0.1_20230127	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 4844431)									
EM2301091-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	140	210	34.8	No Limit
EM2301128-003	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	80	<40	61.1	No Limit
EP010: Formaldehyde (QC Lot: 4846974)									
EM2301188-002	OS_BH09_0.1_20230127	EP010: Formaldehyde	50-00-0	2	mg/kg	<2	<2	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4843484)									
EM2301091-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2301172-007	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4843471)									
EM2301091-038	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2301251-002	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 4843471)									
EM2301091-038	Anonymous	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EM2301251-002	Anonymous	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074H: Naphthalene (QC Lot: 4843471)									
EM2301091-038	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2301251-002	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 4843471)									
EM2301091-038	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EM2301251-002	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 4843471) - continued									
EM2301251-002	Anonymous	EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4843482)									
EM2301091-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2301172-007	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4843482)									
EM2301091-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EM2301172-007	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4843482)									
EM2301091-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4843482) - continued									
EM2301091-001	Anonymous	EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2301172-007	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075C: Phthalate Esters (QC Lot: 4843482)									
EM2301091-001	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2301172-007	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075E: Nitroaromatics and Ketones (QC Lot: 4843482)									
EM2301091-001	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2301172-007	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 4843482)									
EM2301091-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075I: Organochlorine Pesticides (QC Lot: 4843482) - continued									
EM2301091-001	Anonymous	EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2301172-007	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4843471)									
EM2301091-038	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2301251-002	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4843483)									
EM2301091-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2301172-007	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4843471)									
EM2301091-038	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EM2301251-002	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4843483)									
EM2301091-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2301172-007	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4844259)									
EM2300997-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2301187-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0002	0.0003	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4844259)									
EM2300997-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2301187-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4844259)									
EM2300997-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4844259) - continued									
EM2300997-002	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2301187-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4844259)									
EM2300997-002	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2301187-001	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0002	0.0003	40.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0002	0.0003	40.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4844466)								
EG005T: Antimony	7440-36-0	5	mg/kg	<5	----	----	----	----
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	103	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	100.0	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	112	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	69.0	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	112	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	96.7	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	98.1	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	98.5	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	99.2	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	90.2	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	106	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.9 mg/kg	84.8	70.0	130
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	106	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	86.8	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4844468)								
EG005T: Antimony	7440-36-0	5	mg/kg	<5	2.57 mg/kg	104	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	105	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	102	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	113	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	69.0	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	112	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	97.5	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	98.1	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	100	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	100	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	92.5	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	107	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.9 mg/kg	84.8	70.0	130
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	106	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4844468) - continued								
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	88.2	70.0	130
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4846973)								
EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	50 mg/kg	96.2	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4845503)								
EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	0.025 mg/kg	89.6	70.0	130
EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	0.229 mg/kg	92.4	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4846986)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	99.5	98.8	101
				----	7 pH Unit	100	99.3	101
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4844467)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	118	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4844469)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	112	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4844456)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	75.7	70.0	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4845722)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	70.6	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4845723)								
EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	40 mg/kg	92.0	70.0	130
EK040T: Fluoride Total (QCLot: 4844431)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	107	93.1	107
EP010: Formaldehyde (QCLot: 4846974)								
EP010: Formaldehyde	50-00-0	2	mg/kg	<2	25 mg/kg	97.7	83.9	103
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4843484)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	91.4	67.4	136
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4843471)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	70.5	69.2	116
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	71.9	67.7	116
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	71.3	66.6	115
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	72.5	65.2	112
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	77.0	69.4	111
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	74.5	68.4	110
EP074B: Oxygenated Compounds (QCLot: 4843471)								
EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	1 mg/kg	91.4	70.0	130
EP074H: Naphthalene (QCLot: 4843471)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	88.6	72.3	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 4843471)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	64.4	47.0	138
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	63.4	57.6	125
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	4.2 mg/kg	76.2	72.3	115
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	69.1	60.5	122
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	72.6	70.3	112
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	78.3	66.6	115
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	68.0	64.4	122
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	65.6	58.4	127
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	81.9	72.9	114
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	67.2	64.7	115
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	88.6	72.6	116
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	72.0	60.0	119
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	75.7	71.8	116
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	89.4	66.1	116
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	77.1	39.8	128
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	75.2	70.3	113
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	74.7	62.6	113
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	80.6	70.8	110
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	76.4	48.4	120
EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	0.1 mg/kg	70.6	70.0	130
EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	0.1 mg/kg	87.5	70.0	130
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4843482)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	90.5	74.5	126
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	91.7	72.7	126
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	96.2	73.3	134
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	93.2	72.4	128
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4843482)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	92.3	71.5	130
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	95.8	73.4	129
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	94.1	74.3	129
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	93.2	70.9	133
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	85.6	71.8	132
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	10 mg/kg	92.8	41.0	156
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	10 mg/kg	98.3	65.3	134
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	10 mg/kg	96.0	43.6	128
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	10 mg/kg	95.4	62.0	128
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	91.2	34.5	137
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4843482)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4843482) - continued								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	92.5	73.0	131
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	93.7	76.3	130
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	93.0	72.0	135
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	96.1	74.4	131
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	95.4	73.3	130
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	94.5	78.4	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	90.4	75.3	132
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	93.5	75.4	130
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	97.5	69.6	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	96.1	75.0	133
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	4 mg/kg	98.6	75.8	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	98.0	65.1	130
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	99.3	72.1	134
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	100	72.9	135
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	99.7	71.3	134
EP075C: Phthalate Esters (QCLot: 4843482)								
EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	2 mg/kg	103	70.0	130
EP075E: Nitroaromatics and Ketones (QCLot: 4843482)								
EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	2 mg/kg	95.7	70.0	130
EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	2 mg/kg	98.8	70.0	130
EP075I: Organochlorine Pesticides (QCLot: 4843482)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	91.0	71.0	129
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	91.5	74.8	126
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	89.6	75.7	130
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	91.1	70.8	130
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	92.7	76.5	134
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	90.2	75.5	131
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	91.3	76.8	130
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	92.9	73.6	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	89.4	75.0	133
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	89.8	75.3	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	90.1	69.4	134
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	96.1	71.0	132
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	87.6	78.0	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	87.6	69.0	143
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	92.7	55.7	145
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	92.6	71.4	135

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075I: Organochlorine Pesticides (QCLot: 4843482) - continued								
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	96.8	74.8	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	93.0	70.2	135
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	91.3	77.7	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	92.0	63.6	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4843471)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	86.0	61.1	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4843483)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	900 mg/kg	96.7	74.4	129
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	2920 mg/kg	103	81.0	123
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1470 mg/kg	108	81.8	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4843471)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	85.3	59.9	119
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4843483)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1230 mg/kg	95.0	75.4	132
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3950 mg/kg	102	80.8	120
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	260 mg/kg	88.4	73.3	136
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4844259)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	94.9	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	83.3	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	91.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4844259)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	87.8	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.7	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.1	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.2	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4844259)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	92.8	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	97.3	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	101	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	82.1	70.0	130
EP231P: PFAS Sums (QCLot: 4844259)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4844466)							
EM2301128-003	Anonymous	EG005T: Chromium	7440-47-3	50 mg/kg	116	79.0	121
		EG005T: Nickel	7440-02-0	50 mg/kg	97.1	78.0	120
EM2301128-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	97.6	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	79.7	116
		EG005T: Copper	7440-50-8	250 mg/kg	103	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	106	80.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	112	80.0	120
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4844468)							
EM2301260-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	97.1	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.5	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	102	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	99.0	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	101	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	106	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	98.7	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4844467)							
EM2301128-003	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	107	76.0	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4844469)							
EM2301260-001	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	110	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4844456)							
EM2301128-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 7.8	58.0	114
EM2301128-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 19.6	58.0	114
EK040T: Fluoride Total (QCLot: 4844431)							
EM2301091-013	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	# 65.3	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4843484)							
EM2301091-023	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	113	59.6	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4843471)							
EM2301091-040	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	99.1	53.7	130
		EP074-UT: Toluene	108-88-3	2 mg/kg	96.2	55.1	124
EP074I: Volatile Halogenated Compounds (QCLot: 4843471)							
EM2301091-040	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	104	38.4	145
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	96.0	48.1	128

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 4843471) - continued							
EM2301091-040	Anonymous	EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	87.2	55.5	122
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4843482)							
EM2301091-013	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	3 mg/kg	85.3	44.0	143
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4843482)							
EM2301091-013	Anonymous	EP075-EM: Phenol	108-95-2	3 mg/kg	91.8	44.2	134
		EP075-EM: 2-Nitrophenol	88-75-5	3 mg/kg	45.7	34.2	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4843482)							
EM2301091-013	Anonymous	EP075-EM: Acenaphthene	83-32-9	3 mg/kg	83.8	42.6	138
		EP075-EM: Pyrene	129-00-0	3 mg/kg	81.1	37.8	152
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4843471)							
EM2301091-040	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	93.3	42.3	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4843483)							
EM2301091-020	Anonymous	EP071-EM: C10 - C14 Fraction	----	900 mg/kg	104	71.3	126
		EP071-EM: C15 - C28 Fraction	----	2920 mg/kg	108	75.1	123
		EP071-EM: C29 - C36 Fraction	----	1470 mg/kg	114	78.1	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4843471)							
EM2301091-040	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	83.2	39.9	109
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4843483)							
EM2301091-020	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1230 mg/kg	102	71.5	130
		EP071-EM: >C16 - C34 Fraction	----	3950 mg/kg	108	76.9	119
		EP071-EM: >C34 - C40 Fraction	----	260 mg/kg	95.6	65.3	139
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4844259)							
EM2300997-004	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	103	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	83.7	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	86.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4844259)							
EM2300997-004	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	95.4	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	96.1	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	79.7	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	84.1	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	88.3	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4844259)							
EM2300997-004	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	93.3	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	99.8	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	96.1	65.0	137

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4844259) - continued							
EM2300997-004	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	70.7	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2301188**	Page	: 1 of 10
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 27-Jan-2023
Site	: AREA F BOREHOLE	Issue Date	: 03-Feb-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 9
Order number	: E1159	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG048: Hexavalent Chromium (Alkaline Digest)	EM2301128--003	Anonymous	**Hexavalent Chromium**	18540-29-9	7.8 %	58.0-114%	**Recovery less than lower data quality objective**
EG048: Hexavalent Chromium (Alkaline Digest)	EM2301128--003	Anonymous	**Hexavalent Chromium**	18540-29-9	19.6 %	58.0-114%	**Recovery less than lower data quality objective**
EK040T: Fluoride Total	EM2301091--013	Anonymous	**Fluoride**	16984-48-8	65.3 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**02-Feb-2023**	03-Feb-2023	✓	**02-Feb-2023**	02-Feb-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_QC04_2023027, OS_BH09_0.1_20230127, OS_BH09_0.5_20230127, OS_BH09_1.0_20230127, OS_BH09_2.0_20230127	**27-Jan-2023**	**----**	----	----	**01-Feb-2023**	10-Feb-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**----**	----	----	**31-Jan-2023**	26-Jul-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_QC04_2023027, OS_BH09_0.1_20230127, OS_BH09_0.5_20230127, OS_BH09_1.0_20230127, OS_BH09_2.0_20230127	**27-Jan-2023**	**02-Feb-2023**	26-Jul-2023	✓	**02-Feb-2023**	26-Jul-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_QC04_2023027, OS_BH09_0.1_20230127, OS_BH09_0.5_20230127, OS_BH09_1.0_20230127, OS_BH09_2.0_20230127	**27-Jan-2023**	**02-Feb-2023**	24-Feb-2023	✓	**03-Feb-2023**	24-Feb-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_QC04_2023027, OS_BH09_0.1_20230127, OS_BH09_0.5_20230127, OS_BH09_1.0_20230127, OS_BH09_2.0_20230127	**27-Jan-2023**	**01-Feb-2023**	24-Feb-2023	✓	**02-Feb-2023**	08-Feb-2023	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**03-Feb-2023**	15-Feb-2023	✓
EK030: Cyanide Amenable to Chlorination							
Soil Glass Jar - Unpreserved (EK030SF)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**02-Feb-2023**	15-Feb-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	24-Feb-2023	✓	**03-Feb-2023**	24-Feb-2023	✓
EP010: Formaldehyde							
Soil Glass Jar - Unpreserved (EP010)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**02-Feb-2023**	26-Jul-2023	✓	**02-Feb-2023**	26-Jul-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**02-Feb-2023**	13-Mar-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	03-Feb-2023	✓	**03-Feb-2023**	03-Feb-2023	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	03-Feb-2023	✓	**03-Feb-2023**	03-Feb-2023	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	03-Feb-2023	✓	**03-Feb-2023**	03-Feb-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	03-Feb-2023	✓	**03-Feb-2023**	03-Feb-2023	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**03-Feb-2023**	13-Mar-2023	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**03-Feb-2023**	13-Mar-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**03-Feb-2023**	13-Mar-2023	✓
EP075C: Phthalate Esters							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**03-Feb-2023**	13-Mar-2023	✓
EP075E: Nitroaromatics and Ketones							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**03-Feb-2023**	13-Mar-2023	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**03-Feb-2023**	13-Mar-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071-EM) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**02-Feb-2023**	13-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP074-UT) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	03-Feb-2023	✓	**03-Feb-2023**	03-Feb-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071-EM) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**02-Feb-2023**	13-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP074-UT) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	03-Feb-2023	✓	**03-Feb-2023**	03-Feb-2023	✓
EP095: Ethylenediamine Tetraacetic Acid (EDTA)							
Soil Glass Jar - Unpreserved (EP095) OS_BH09_0.1_20230127	**27-Jan-2023**	**02-Feb-2023**	10-Feb-2023	✓	**02-Feb-2023**	14-Mar-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	26-Jul-2023	✓	**01-Feb-2023**	13-Mar-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	26-Jul-2023	✓	**01-Feb-2023**	13-Mar-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	26-Jul-2023	✓	**01-Feb-2023**	13-Mar-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	26-Jul-2023	✓	**01-Feb-2023**	13-Mar-2023	✓
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)							
Soil Glass Jar - Unpreserved (EP236)							
OS_BH09_0.1_20230127	**27-Jan-2023**	**01-Feb-2023**	10-Feb-2023	✓	**02-Feb-2023**	13-Mar-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	5	39	**12.82**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	39	**10.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	39	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	SOIL	In house: Referenced to APHA 4500 - CN- G. The sample is leached in alkali solution and pretreated by contact with Chlorine (as hypochlorite) prior to determination of Total Cyanide. The measured parameter is the difference between Total Cyanide determined on an untreated sample and Total Cyanide determined post-chlorination. This method is compliant with NEPM Schedule B(3).
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.

Analytical Methods	Method	Matrix	Method Descriptions
Formaldehyde	EP010	SOIL	In house: Referenced to ASTM D 6303-98. Determined on 1:5 soil / water extracts by colourimetry using NASH reagent. The Hantszch reaction method is based on the reaction of acetylacetone with formaldehyde in the presence of excess ammonium acetate to form a coloured compound.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	SOIL	In house: Referenced to DIN EN ISO 16588. The esterified derivative of EDTA from an aliquot of a 1:5 soil:water extract is analysed by GCMS in Selected Ion Monitoring (SIM) mode. This technique is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	SOIL	In house: soils are solvent extracted. The extract is analysed by LC-Electrospray-MS-MS, Negative Mode using MRM. Quantification by internal standardisation. Results for Tributyltin expressed as Tributyltin Oxide (TBTO).

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction of solids for 2.4-D and TBTO	EP236-PR	SOIL	In house: 2g of homogenised sample is extracted with alkaline solvent. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2301188**

Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Page	: 1 of 3
Order number	: E1159	Quote number	: EM2022SINKNI0017 (ME-491-22)
C-O-C number	: 47621	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: AREA F BOREHOLE		
Sampler	: RANULI GOONETILLAKE		

Dates

Date Samples Received	: 27-Jan-2023 16:05	Issue Date	: 30-Jan-2023
Client Requested Due Date	: 03-Feb-2023	Scheduled Reporting Date	: **03-Feb-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 4.1°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 9 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM2301188-002	: 27-Jan-2023 13:06	: OS_BH09_0.1_20230127
EM2301188-003	: 27-Jan-2023 13:06	: OS_BH09_0.5_20230127
EM2301188-004	: 27-Jan-2023 13:06	: OS_BH09_1.0_20230127
EM2301188-005	: 27-Jan-2023 13:07	: OS_BH09_2.0_20230127
EM2301188-006	: 27-Jan-2023 13:07	: OS_BH09_3.0_20230127
EM2301188-007	: 27-Jan-2023 13:07	: OS_BH09_4.0_20230127
EM2301188-008	: 27-Jan-2023 13:08	: OS_BH09_5.0_20230127
EM2301188-009	: 27-Jan-2023 13:08	: OS_BH09_6.0_20230127

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200G Asbestos Identification in Soils -	SOIL - EG048G Total Hexavalent Chromium (Alkaline digestion)	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)
EM2301188-001	27-Jan-2023 13:05	OS_QC04_2023027		✓		✓			✓
EM2301188-002	27-Jan-2023 13:06	OS_BH09_0.1_20230127		✓	✓		✓	✓	
EM2301188-003	27-Jan-2023 13:06	OS_BH09_0.5_20230127		✓		✓			✓
EM2301188-004	27-Jan-2023 13:06	OS_BH09_1.0_20230127		✓		✓			✓
EM2301188-005	27-Jan-2023 13:07	OS_BH09_2.0_20230127		✓		✓			✓
EM2301188-006	27-Jan-2023 13:07	OS_BH09_3.0_20230127	✓						
EM2301188-007	27-Jan-2023 13:07	OS_BH09_4.0_20230127	✓						
EM2301188-008	27-Jan-2023 13:08	OS_BH09_5.0_20230127	✓						
EM2301188-009	27-Jan-2023 13:08	OS_BH09_6.0_20230127	✓						

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

APAC Supplier Management		
- A4 - AU Tax Invoice (INV)	Email	APACBISupplierMgmt@jacobs.com
ED MANZ		
- *AU Certificate of Analysis - NATA (COA)	Email	edmanz@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	edmanz@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	edmanz@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	edmanz@jacobs.com
- Chain of Custody (CoC) (COC)	Email	edmanz@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	edmanz@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	edmanz@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	edmanz@jacobs.com
RANULI GOONETILLAKE		
- *AU Certificate of Analysis - NATA (COA)	Email	ranuli.goonetillake@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ranuli.goonetillake@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ranuli.goonetillake@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ranuli.goonetillake@jacobs.com
- Chain of Custody (CoC) (COC)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	ranuli.goonetillake@jacobs.com
STEPHEN SONNENBERG		
- *AU Certificate of Analysis - NATA (COA)	Email	stephen.sonnenberg@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	stephen.sonnenberg@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	stephen.sonnenberg@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	stephen.sonnenberg@jacobs.com
- Chain of Custody (CoC) (COC)	Email	stephen.sonnenberg@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	stephen.sonnenberg@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	stephen.sonnenberg@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	stephen.sonnenberg@jacobs.com
TEA SVILAND		
- *AU Certificate of Analysis - NATA (COA)	Email	tea.sviland@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tea.sviland@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tea.sviland@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tea.sviland@jacobs.com
- Chain of Custody (CoC) (COC)	Email	tea.sviland@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	tea.sviland@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	tea.sviland@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	tea.sviland@jacobs.com

ALSCompass SAMPLING Intelligence

ALS

Environmental Division
Melbourne
Work Order Reference
EM2301188

Telephone : + 61-3-8549 9600

Custody Document for Submissions via ALS Compass App

Project: _____ Client: Jacobs Project Manager: _____

Phone: ( )

ALS Compass COC Reference: 47621 # Samples: _____ Sampler: _____

Phone: ( )

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by: Oliver	Relinquished by:	Received by:
Date / Time:	Date / Time: 27-1-23 16:05	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 47621 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA F BOREHOLE

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@iacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_QC04_2023027		27/01/2023 01:05 PM	SOIL	ALS: 1 Non ALS: 0	No		Partial 2/9		
002	OS_BH09_0.1_20230127		27/01/2023 01:06 PM	SOIL	ALS: 3 Non ALS: 1	No		Partial 3/9		
003	OS_BH09_0.5_20230127		27/01/2023 01:06 PM	SOIL	ALS: 1 Non ALS: 0	No		Partial 2/9		
004	OS_BH09_1.0_20230127		27/01/2023 01:06 PM	SOIL	ALS: 1 Non ALS: 0	No		Partial 2/9		
005	OS_BH09_2.0_20230127		27/01/2023 01:07 PM	SOIL	ALS: 1 Non ALS: 0	No		Partial 2/9		
006	OS_BH09_3.0_20230127		27/01/2023 01:07 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
007	OS_BH09_4.0_20230127		27/01/2023 01:07 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
008	OS_BH09_5.0_20230127		27/01/2023 01:08 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
009	OS_BH09_6.0_20230127		27/01/2023 01:08 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			

CHAIN OF CUSTODY

ALS COC#: 47621 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA F BOREHOLE

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@iacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
001	OS_QC04_2023027	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
002	OS_BH09_0.1_20230127	SOIL SOIL	SOIL	- EA200G Asbestos Identification in Soils - Presence/Absence in grab samples - EP231 (solids) PFAS - Short Suite (12 analytes) - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM) EPA 1828.2 Table 2 Full Solid Suite - excl. Anions
003	OS_BH09_0.5_20230127	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
004	OS_BH09_1.0_20230127	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
005	OS_BH09_2.0_20230127	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2301269**	Page	: 1 of 13
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 30-Jan-2023 14:45
Order number	: E1159	Date Analysis Commenced	: 31-Jan-2023
C-O-C number	: 47620	Issue Date	: 08-Feb-2023 18:43
Sampler	: RANULI GOONETILLAKE		
Site	: AREA B BOREHOLE		
Quote number	: ME-491-22		
No. of samples received	: 11		
No. of samples analysed	: 3		

ilac-MRA NATA
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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-WF: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- EP231X: Poor matrix spike recovery for sample EM2301288-001 due to sample matrix interference.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: **RINSATE** (Matrix: **WATER**)				Sample ID	**OS_RIN1_230130**	**----**	**----**	**----**	**----**
				Sampling date / time	30-Jan-2023 11:20	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**EM2301269-011**	**--------**	**--------**	**--------**	**--------**
					Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Boron	7440-42-8	0.05	mg/L		<0.05	**----**	**----**	**----**	**----**
Barium	7440-39-3	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Beryllium	7440-41-7	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	**----**	**----**	**----**	**----**
Cobalt	7440-48-4	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Chromium	7440-47-3	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Copper	7440-50-8	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Manganese	7439-96-5	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Nickel	7440-02-0	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Lead	7439-92-1	0.001	mg/L		<0.001	**----**	**----**	**----**	**----**
Selenium	7782-49-2	0.01	mg/L		<0.01	**----**	**----**	**----**	**----**
Vanadium	7440-62-2	0.01	mg/L		<0.01	**----**	**----**	**----**	**----**
Zinc	7440-66-6	0.005	mg/L		<0.005	**----**	**----**	**----**	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH02_0.1_20230130	OS_BH02_1.0_20230130	----	----	----
			Sampling date / time	30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
Compound	CAS Number	LOR	Unit	EM2301269-001	EM2301269-003	--------	--------	--------
				Result	Result	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**4.6**	----	----	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	**4.8**	----	----	----
pH OX (23B)	----	0.1	pH Unit	----	**5.4**	----	----	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	**33**	----	----	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	**72**	----	----	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	**39**	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	**0.053**	----	----	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	**0.116**	----	----	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	**0.063**	----	----	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	<0.020	----	----	----
Peroxide Sulfur (23De)	----	0.020	% S	----	<0.020	----	----	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	----	<0.020	----	----	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	----	<10	----	----	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	----	**0.022**	----	----	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	----	**0.022**	----	----	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	----	<0.020	----	----	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	----	<0.020	----	----	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	----	**0.084**	----	----	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg	----	**0.084**	----	----	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	----	<0.020	----	----	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	----	<0.020	----	----	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	**1.5**	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	**0.05**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH02_0.1_20230130	OS_BH02_1.0_20230130	----	----	----
			Sampling date / time	30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
Compound	CAS Number	LOR	Unit	EM2301269-001	EM2301269-003	--------	--------	--------
				Result	Result	----	----	----
EA029-H: Acid Base Accounting - Continued								
Net Acidity (acidity units)	----	10	mole H+ / t	----	33	----	----	----
Liming Rate	----	1	kg CaCO3/t	----	2	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	0.05	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	33	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	2	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	13.0	----	----	----	----
Moisture Content	----	1.0	%	----	20.0	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	43.0	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	M. TRAN	----	----	----	----
Synthetic Mineral Fibre	----	-	--	Yes	----	----	----	----
Organic Fibre	----	-	--	Yes	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Antimony	7440-36-0	5	mg/kg	<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg	30	20	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	----	16	----	----	----
Cobalt	7440-48-4	2	mg/kg	----	<2	----	----	----
Copper	7440-50-8	5	mg/kg	<5	7	----	----	----
Lead	7439-92-1	5	mg/kg	9	12	----	----	----
Manganese	7439-96-5	5	mg/kg	----	9	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	2	3	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	----
Silver	7440-22-4	2	mg/kg	<2	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	----	33	----	----	----
Zinc	7440-66-6	5	mg/kg	6	<5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH02_0.1_20230130	OS_BH02_1.0_20230130	----	----	----
			Sampling date / time	30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
Compound	CAS Number	LOR	Unit	EM2301269-001	EM2301269-003	--------	--------	--------
				Result	Result	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	**1**	----	----	----	----
EK030: Cyanide Amenable to Chlorination								
Cyanide amenable to chlorination	----	1	mg/kg	<1	----	----	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**70**	----	----	----	----
EP010: Formaldehyde								
Formaldehyde	50-00-0	2	mg/kg	<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	----	----	----	----
EP074B: Oxygenated Compounds								
2-Butanone (MEK)	78-93-3	1	mg/kg	<1	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH02_0.1_20230130	OS_BH02_1.0_20230130	----	----	----
				Sampling date / time	30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
Compound	CAS Number	LOR	Unit		EM2301269-001	EM2301269-003	--------	--------	--------
					Result	Result	----	----	----
EP074I: Volatile Halogenated Compounds - Continued									
Chloroform	67-66-3	0.02	mg/kg		<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	----	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	----	----	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	----	----	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg		<0.01	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg		<0.01	----	----	----	----
^ Sum of Trichlorobenzenes	----	0.01	mg/kg		<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH02_0.1_20230130	OS_BH02_1.0_20230130	----	----	----
				Sampling date / time	30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
Compound	CAS Number	LOR	Unit		EM2301269-001	EM2301269-003	--------	--------	--------
					Result	Result	----	----	----
EP075A: Phenolic Compounds (Non-halogenated) - Continued									
^ Cresols (Total)	----	1	mg/kg		<1	----	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		<1.0	----	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH02_0.1_20230130	OS_BH02_1.0_20230130	----	----	----
			Sampling date / time	30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
Compound	CAS Number	LOR	Unit	EM2301269-001	EM2301269-003	--------	--------	--------
				Result	Result	----	----	----
EP075I: Organochlorine Pesticides - Continued								
Heptachlor	76-44-8	0.03	mg/kg	<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg	<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	----	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg	<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg	<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg	<0.03	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg	<0.03	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg	<0.03	----	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH02_0.1_20230130	OS_BH02_1.0_20230130	----	----	----
				Sampling date / time	30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
Compound	CAS Number	LOR	Unit		EM2301269-001	EM2301269-003	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)									
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg		<10	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0003**	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0003**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0003**	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)									
2.4-D	94-75-7	0.001	mg/kg		<0.001	----	----	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH02_0.1_20230130	OS_BH02_1.0_20230130	----	----	----
				Sampling date / time	30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
Compound	CAS Number	LOR	Unit		EM2301269-001	EM2301269-003	--------	--------	--------
					Result	Result	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**87.1**	----	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**86.7**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		**88.5**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**96.8**	----	----	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		**83.4**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**82.1**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**85.8**	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		**87.1**	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**80.6**	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**83.9**	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%		**86.6**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**89.8**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**89.4**	----	----	----	----
13C8-PFOA	----	0.0002	%		**87.8**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_BH02_0.1_20230130 - 30-Jan-2023 08:16	Brown soil with organic matter and synthetic mineral fibres.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

ALS Environmental

Automated Guideline Comparison Report

Work Order	: **EM2301269**	Page	: 1 of 11
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE		
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Date Received	: 30-Jan-2023 14:45
Order number	: E1159	Date Analysed	: 31-Jan-2023
C-O-C number	: 47620	Date Issued	: 08-Feb-2023 18:46
No. of samples received	: 11		
No. of samples analysed	: 3	Quote number	: ME-491-22

General Comments

Only results in the 'Analytical Results' section have been compared to the guideline.

Additional information pertinent to this report will be found in the following separate attachments: Certificate of Analysis, Quality Control Report, QA/QC Compliance Assessment to Assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_BH02_0.1_20230130	OS_BH02_1.0_20230130	----	----	----
Sampling date/time						30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
						EM2301269-001 MU	EM2301269-003 MU			
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	300	<5 --	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	2000	<5 --	----	----	----	----
Barium	EG005T	10	mg/kg	----	25000	**30** ± 3	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	400	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	60000	<50 --	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1 --	----	----	----	----
Copper	EG005T	5	mg/kg	----	20000	<5 --	----	----	----	----
Lead	EG005T	5	mg/kg	----	6000	**9** ± 1	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2 --	----	----	----	----
Nickel	EG005T	2	mg/kg	----	12000	**2** ± 0.3	----	----	----	----
Selenium	EG005T	5	mg/kg	----	40000	<5 --	----	----	----	----
Silver	EG005T	2	mg/kg	----	720	<2 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	140000	**6** ± 2	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1 --	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5 --	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	**1** ± 0.1	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**70** ± 30	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	8000	<2	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2 --	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	12800	<0.5 --	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	4800	<0.5 --	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	480	<0.5 --	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	9600	<0.5 --	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	32000	<1	----	----	----	----
EP074I: Volatile Halogenated Compounds										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* **OS_BH02_0.1_20230130**	**OS_BH02_1.0_20230130**	----	----	----
						Sampling date/time 30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
						EM2301269-001 MU	**EM2301269-003** MU			
EP074I: Volatile Halogenated Compounds - Continued										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	480	<0.01	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	64	<0.4	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	960	<0.02	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	960	<0.01	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	960	<0.02	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	4800	<0.01	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	48	<0.01	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	48	<0.02	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	80	<0.02	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	190	<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	1600	<0.01	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	800	<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	210	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	4800	<0.02	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	640	<0.02	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	24000	<0.02	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	480	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	4800	<0.03	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	3200	<0.03	----	----	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	64000	<0.05	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	320	<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	32000	<1	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	2200	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	160	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	400	<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	320	<0.5	----	----	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	21	<1.0	----	----	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	**OS_BH02_0.1_20230130** 30-Jan-2023 08:16 **EM2301269-001** MU	**OS_BH02_1.0_20230130** 30-Jan-2023 08:17 **EM2301269-003** MU	---- ----	---- ----	---- ----
EP075I: Organochlorine Pesticides - Continued											
Heptachlor	EP075-EM	0.03	mg/kg		----	4.8	<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg		----	4.8	<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg		----	50	<0.05	----	----	----	----
Chlordane	EP075-EM	0.03	mg/kg		----	16	<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg		----	50	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	2600	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	40000	<50	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg		----	10	<0.01	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID: OS_BH02_0.1_20230130	Sample ID: OS_BH02_1.0_20230130	Sample ID: ----	Sample ID: ----	Sample ID: ----
Sampling date/time						30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
						EM2301269-001 MU	EM2301269-003 MU			
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	75	<5 --	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	500	<5 --	----	----	----	----
Barium	EG005T	10	mg/kg	----	6250	**30** ± 3	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	100	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	15000	<50 --	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1 --	----	----	----	----
Copper	EG005T	5	mg/kg	----	5000	<5 --	----	----	----	----
Lead	EG005T	5	mg/kg	----	1500	**9** ± 1	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2 --	----	----	----	----
Nickel	EG005T	2	mg/kg	----	3000	**2** ± 0.3	----	----	----	----
Selenium	EG005T	5	mg/kg	----	10000	<5 --	----	----	----	----
Silver	EG005T	2	mg/kg	----	180	<2 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	35000	**6** ± 2	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1 --	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5 --	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	**1** ± 0.1	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**70** ± 30	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	2000	<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	50	<0.1 --	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2 --	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	3200	<0.5 --	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	1200	<0.5 --	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	120	<0.5 --	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	2400	<0.5 --	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	8000	<1	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID: OS_BH02_0.1_20230130	Sample ID: OS_BH02_1.0_20230130	Sample ID: ----	Sample ID: ----	Sample ID: ----
			Sampling date/time			30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
						EM2301269-001 MU	EM2301269-003 MU			
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	16	<0.4	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	240	<0.01	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	1200	<0.01	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	12	<0.01	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	12	<0.02	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	20	<0.02	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	48	<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	400	<0.01	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	200	<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	52	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	1200	<0.02	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	160	<0.02	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	6000	<0.02	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	1200	<0.03	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	800	<0.03	----	----	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	16000	<0.05	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	80	<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	8000	<1	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	560	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	40	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	100	<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	80	<0.5	----	----	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	5.2	<1.0	----	----	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	**OS_BH02_0.1_20230130** 30-Jan-2023 08:16 **EM2301269-001**	MU	**OS_BH02_1.0_20230130** 30-Jan-2023 08:17 **EM2301269-003**	MU	---- ----	---- ----	---- ----
EP075l: Organochlorine Pesticides - Continued													
Heptachlor	EP075-EM	0.03	mg/kg		----	1.2	<0.03	--	**----**		**----**	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg		----	1.2	<0.03	--	**----**		**----**	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg		----	50	<0.05	--	**----**		**----**	**----**	**----**
Chlordane	EP075-EM	0.03	mg/kg		----	4	<0.03	--	**----**		**----**	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg		----	10	<0.03	--	**----**		**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons													
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	650	<10	--	**----**		**----**	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	10000	<50	--	**----**		**----**	**----**	**----**
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)													
Tributyltin oxide	EP236	0.01	mg/kg		----	2.5	<0.01	--	**----**		**----**	**----**	**----**

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

				Sample ID		**OS_BH02_0.1_20230130**	**OS_BH02_1.0_20230130**	----	----	----
				Sampling date/time	Guideline	30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	**EM2301269-001** MU	**EM2301269-003** MU			
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg		----	75	<5 --	----	----	----
Arsenic	EG005T	5	mg/kg		----	500	<5 --	----	----	----
Barium	EG005T	10	mg/kg		----	6250	**30** ± 3	----	----	----
Beryllium	EG005T	1	mg/kg		----	100	<1 --	----	----	----
Boron	EG005T	50	mg/kg		----	15000	<50 --	----	----	----
Cadmium	EG005T	1	mg/kg		----	100	<1 --	----	----	----
Copper	EG005T	5	mg/kg		----	5000	<5 --	----	----	----
Lead	EG005T	5	mg/kg		----	1500	**9** ± 1	----	----	----
Molybdenum	EG005T	2	mg/kg		----	1000	<2 --	----	----	----
Nickel	EG005T	2	mg/kg		----	3000	**2** ± 0.3	----	----	----
Selenium	EG005T	5	mg/kg		----	10000	<5 --	----	----	----
Silver	EG005T	2	mg/kg		----	180	<2 --	----	----	----
Zinc	EG005T	5	mg/kg		----	35000	**6** ± 2	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg		----	75	<0.1 --	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg		----	500	<0.5 --	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg		----	2500	**1** ± 0.1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg		----	10000	**70** ± 30	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg		----	2000	<2	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	2	<0.1 --	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg		----	4	<0.2 --	----	----	----
Toluene	EP074-UT	0.5	mg/kg		----	3200	<0.5 --	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg		----	1200	<0.5 --	----	----	----
Styrene	EP074-UT	0.5	mg/kg		----	120	<0.5 --	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg		----	2400	<0.5 --	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg		----	8000	<1	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* **OS_BH02_0.1_20230130**	**OS_BH02_1.0_20230130**	----	----	----
				Sampling date/time		30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
						EM2301269-001 MU	**EM2301269-003** MU			
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	16	<0.4	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	240	<0.01	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	1200	<0.01	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	12	<0.01	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	12	<0.02	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	20	<0.02	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	48	<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	400	<0.01	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	200	<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	52	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	1200	<0.02	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	160	<0.02	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	6000	<0.02	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	1200	<0.03	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	800	<0.03	----	----	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	16000	<0.05	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	80	<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	8000	<1	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	560	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	50	<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	80	<0.5	----	----	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	5.2	<1.0	----	----	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID*	Guideline Lower Limit	Guideline Upper Limit	**OS_BH02_0.1 _20230130**	**OS_BH02_1.0 _20230130**	**----**	**----**	**----**
				Sampling date/time			30-Jan-2023 08:16	30-Jan-2023 08:17	----	----	----
							EM2301269-001 MU	**EM2301269-003** MU			
EP075l: Organochlorine Pesticides - Continued											
Heptachlor	EP075-EM	0.03	mg/kg		----	1.2	<0.03	**----**	**----**	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg		----	1.2	<0.03	**----**	**----**	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg		----	50	<0.05	**----**	**----**	**----**	**----**
Chlordane	EP075-EM	0.03	mg/kg		----	4	<0.03	**----**	**----**	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg		----	10	<0.03	**----**	**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	325	<10	**----**	**----**	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	5000	<50	**----**	**----**	**----**	**----**
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg		----	2.5	<0.01	**----**	**----**	**----**	**----**

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2301269**	Page	: 1 of 19
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 30-Jan-2023
Order number	: E1159	Date Analysis Commenced	: 31-Jan-2023
C-O-C number	: 47620	Issue Date	: 08-Feb-2023
Sampler	: RANULI GOONETILLAKE		
Site	: AREA B BOREHOLE		
Quote number	: ME-491-22		
No. of samples received	: 11		
No. of samples analysed	: 3		

ilac-MRA NATA 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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4851907)									
EM2301158-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	80	70	17.6	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	33	22	40.8	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	23	22	0.0	0% - 50%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	74	82	9.5	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	28	37	28.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	377	391	3.6	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	41	26	45.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	34	38	10.1	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2301503-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	190	180	0.0	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	126	103	19.5	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	27	27	0.0	0% - 50%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	113	103	9.2	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4851907) - continued									
EM2301503-002	Anonymous	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	39	32	19.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	92	86	7.5	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	1010	839	18.6	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	89	76	15.3	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	112	94	17.1	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QC Lot: 4850542)									
EM2301158-001	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	<10	0.0	No Limit
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QC Lot: 4848909)									
EM2301158-001	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EM2301503-002	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4853373)									
EM2301269-001	OS_BH02_0.1_20230130	EA001: pH (CaCl2)	----	0.1	pH Unit	4.6	4.6	0.0	0% - 20%
EM2301352-007	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.6	6.6	0.0	0% - 20%
EA029-A: pH Measurements (QC Lot: 4854540)									
EM2301269-003	OS_BH02_1.0_20230130	EA029: pH KCl (23A)	----	0.1	pH Unit	4.8	4.8	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	5.4	5.3	1.9	0% - 20%
EA029-B: Acidity Trail (QC Lot: 4854540)									
EM2301269-003	OS_BH02_1.0_20230130	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.053	0.051	3.9	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	0.116	0.114	1.1	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	0.063	0.064	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	33	32	3.9	0% - 50%
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	72	71	0.0	0% - 20%
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	39	40	0.0	0% - 50%
EA029-C: Sulfur Trail (QC Lot: 4854540)									
EM2301269-003	OS_BH02_1.0_20230130	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-D: Calcium Values (QC Lot: 4854540)									

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-D: Calcium Values (QC Lot: 4854540) - continued									
EM2301269-003	OS_BH02_1.0_20230130	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.022	0.021	0.0	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.022	0.021	0.0	No Limit
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-E: Magnesium Values (QC Lot: 4854540)									
EM2301269-003	OS_BH02_1.0_20230130	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.084	0.082	2.4	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.084	0.082	2.4	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-H: Acid Base Accounting (QC Lot: 4854540)									
EM2301269-003	OS_BH02_1.0_20230130	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	0.05	0.05	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.05	0.05	0.0	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	2	2	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	2	2	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	33	32	3.9	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	33	32	3.9	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4847859)									
EM2300811-001	Anonymous	EA055: Moisture Content	----	0.1	%	31.6	32.5	2.9	0% - 20%
EM2301442-020	Anonymous	EA055: Moisture Content	----	0.1	%	7.0	6.3	10.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4851906)									
EM2301158-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2301503-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4850536)									
EM2301269-001	OS_BH02_0.1_20230130	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2301335-017	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 4854543)									
EM2301335-016	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EM2301158-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK030: Cyanide Amenable to Chlorination (QC Lot: 4854544)									
EM2301158-001	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EM2301503-001	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 4850523)									
EM2301158-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	220	180	19.1	No Limit
EM2301503-005	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	80	90	13.8	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP010: Formaldehyde (QC Lot: 4850543)									
EM2301158-001	Anonymous	EP010: Formaldehyde	50-00-0	2	mg/kg	<2	<2	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4848917)									
EM2301158-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2301430-003	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4848593)									
EM2301269-001	OS_BH02_0.1_20230130	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 4848593)									
EM2301269-001	OS_BH02_0.1_20230130	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EP074H: Naphthalene (QC Lot: 4848593)									
EM2301269-001	OS_BH02_0.1_20230130	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 4848593)									
EM2301269-001	OS_BH02_0.1_20230130	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4848919)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4848919) - continued									
EM2301158-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2301430-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.50	<0.50	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.50	<0.50	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<1.00	<1.00	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<1.00	<1.00	0.0	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4848919)									
EM2301158-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EM2301430-003	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<20	<20	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<20	<20	0.0	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4848919)									
EM2301158-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4848919) - continued									
EM2301158-001	Anonymous	EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2301430-003	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075C: Phthalate Esters (QC Lot: 4848919)									
EM2301158-001	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2301430-003	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075E: Nitroaromatics and Ketones (QC Lot: 4848919)									
EM2301158-001	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2301430-003	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 4848919)									
EM2301158-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075I: Organochlorine Pesticides (QC Lot: 4848919) - continued									
EM2301158-001	Anonymous	EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2301430-003	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4848593)									
EM2301269-001	OS_BH02_0.1_20230130	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4848918)									
EM2301158-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2301430-003	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4848593)									
EM2301269-001	OS_BH02_0.1_20230130	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4848918)									
EM2301158-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2301430-003	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4844263)									
EM2301269-001	OS_BH02_0.1_20230130	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0003	0.0004	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4844263)									
EM2301269-001	OS_BH02_0.1_20230130	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4844263)									
EM2301269-001	OS_BH02_0.1_20230130	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4844263)									
EM2301269-001	OS_BH02_0.1_20230130	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0003	0.0004	28.6	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0003	0.0004	28.6	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4845551)									
EM2301169-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.074	0.074	0.0	0% - 20%
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.554	0.548	1.0	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4845551) - continued									
EM2301169-002	Anonymous	EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.200	0.200	0.0	0% - 20%
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.058	0.057	0.0	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.095	0.095	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.254	0.247	3.1	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.052	0.059	11.6	0% - 50%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	0.07	0.08	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	12.2	12.1	0.8	0% - 20%
EM2301169-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.129	0.121	6.7	0% - 20%
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.165	0.163	1.0	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.073	0.072	1.8	0% - 20%
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.022	0.022	0.0	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.624	0.623	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.139	0.136	2.0	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.007	23.4	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	0.06	0.06	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	7.01	6.71	4.3	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 4845553)									
EM2301169-012	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4851907)								
EG005T: Antimony	7440-36-0	5	mg/kg	<5	2.57 mg/kg	111	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	106	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	102	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	100	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	66.2	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	108	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	97.2	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	98.4	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	103	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	97.0	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	95.1	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	104	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.9 mg/kg	86.7	70.0	130
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	99.5	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	84.9	70.0	130
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4850542)								
EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	50 mg/kg	88.7	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4848909)								
EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	0.025 mg/kg	100	70.0	130
EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	0.229 mg/kg	87.2	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4853373)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	101	99.3	101
EA029-A: pH Measurements (QCLot: 4854540)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.4 pH Unit	98.5	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.2 pH Unit	112	70.0	130
EA029-B: Acidity Trail (QCLot: 4854540)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	116	70.0	130
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	25 mole H+ / t	113	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EA029-B: Acidity Trail (QCLot: 4854540) - continued								
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 4854540)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.055 % S	97.7	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.152 % S	85.0	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 4854540)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.201 % Ca	102	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.191 % Ca	99.7	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 4854540)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.204 % Mg	79.7	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.234 % Mg	83.4	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 4854540)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4851906)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	89.8	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4850536)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	79.1	70.0	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4854543)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	86.0	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4854544)								
EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	40 mg/kg	109	70.0	130
EK040T: Fluoride Total (QCLot: 4850523)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	95.3	93.1	107
EP010: Formaldehyde (QCLot: 4850543)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP010: Formaldehyde (QCLot: 4850543) - continued								
EP010: Formaldehyde	50-00-0	2	mg/kg	<2	25 mg/kg	93.0	83.9	103
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4848917)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	106	67.4	136
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4848593)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	88.2	69.2	116
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	88.7	67.7	116
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	86.7	66.6	115
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	84.0	65.2	112
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	86.5	69.4	111
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	84.3	68.4	110
EP074B: Oxygenated Compounds (QCLot: 4848593)								
EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	1 mg/kg	102	70.0	130
EP074H: Naphthalene (QCLot: 4848593)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	86.5	72.3	114
EP074I: Volatile Halogenated Compounds (QCLot: 4848593)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	103	47.0	138
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	96.2	57.6	125
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	4.2 mg/kg	92.1	72.3	115
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	91.2	60.5	122
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	89.8	70.3	112
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	91.8	66.6	115
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	90.9	64.4	122
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	90.2	58.4	127
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	96.2	72.9	114
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	89.6	64.7	115
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	91.3	72.6	116
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	88.2	60.0	119
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	85.8	71.8	116
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	90.1	66.1	116
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	76.0	39.8	128
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	91.0	70.3	113
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	79.4	62.6	113
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	82.9	70.8	110
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	73.1	48.4	120
EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	0.1 mg/kg	72.7	70.0	130
EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	0.1 mg/kg	79.0	70.0	130
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4848919)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4848919) - continued								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	84.6	74.5	126
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	86.4	72.7	126
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	87.1	73.3	134
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	84.6	72.4	128
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4848919)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	85.6	71.5	130
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	85.7	73.4	129
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	86.1	74.3	129
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	83.0	70.9	133
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	84.8	71.8	132
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	10 mg/kg	69.9	41.0	156
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	10 mg/kg	86.8	65.3	134
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	10 mg/kg	80.0	43.6	128
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	10 mg/kg	80.6	62.0	128
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	78.5	34.5	137
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4848919)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	86.2	73.0	131
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	86.0	76.3	130
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	86.7	72.0	135
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	88.4	74.4	131
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	88.3	73.3	130
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	87.6	78.4	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	87.8	75.3	132
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	87.3	75.4	130
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	89.0	69.6	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	91.0	75.0	133
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	4 mg/kg	90.4	75.8	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	90.0	65.1	130
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	90.4	72.1	134
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	90.4	72.9	135
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	90.4	71.3	134
EP075C: Phthalate Esters (QCLot: 4848919)								
EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	2 mg/kg	90.9	70.0	130
EP075E: Nitroaromatics and Ketones (QCLot: 4848919)								
EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	2 mg/kg	85.7	70.0	130
EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	2 mg/kg	86.8	70.0	130
EP075I: Organochlorine Pesticides (QCLot: 4848919)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075I: Organochlorine Pesticides (QCLot: 4848919) - continued								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	87.6	71.0	129
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	87.7	74.8	126
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	88.0	75.7	130
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	87.6	70.8	130
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	88.9	76.5	134
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	87.5	75.5	131
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	87.1	76.8	130
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	86.1	73.6	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	86.0	75.0	133
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	88.2	75.3	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	87.8	69.4	134
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	89.6	71.0	132
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	88.9	78.0	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	87.2	69.0	143
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	108	55.7	145
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	89.7	71.4	135
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	88.7	74.8	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	89.1	70.2	135
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	88.0	77.7	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	89.3	63.6	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4848593)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	91.9	61.1	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4848918)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	900 mg/kg	102	74.4	129
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	2920 mg/kg	92.2	81.0	123
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1470 mg/kg	95.7	81.8	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4848593)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	88.9	59.9	119
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4848918)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1230 mg/kg	99.1	75.4	132
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3950 mg/kg	87.1	80.8	120
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	260 mg/kg	99.3	73.3	136
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4844263)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	92.0	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	89.4	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	92.9	68.0	136

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4844263)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	97.1	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.1	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.3	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.7	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4844263)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	99.4	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	122	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	112	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	106	70.0	130
EP231P: PFAS Sums (QCLot: 4844263)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4845551)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	107	89.0	111
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	92.2	85.0	112
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.7	83.6	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	102	83.5	111
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.3	83.2	109
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	100	84.3	110
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.7	83.1	107
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.7	84.6	108
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	94.9	84.8	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	84.3	110
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.0	82.3	113
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	96.1	83.7	110
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	110	86.3	112
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	115	85.4	115
EG035F: Dissolved Mercury by FIMS (QCLot: 4845553)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	91.9	71.6	116

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4851907)							
EM2301158-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	86.8	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.3	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	99.0	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	96.5	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	98.9	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	108	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	96.6	80.0	120
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4850542)							
EM2301269-001	OS_BH02_0.1_20230130	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	50 mg/kg	89.0	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4848909)							
EM2301158-002	Anonymous	EP236: 2.4-D	94-75-7	0.025 mg/kg	103	70.0	130
		EP236: Tributyltin oxide	56-35-9	0.229 mg/kg	104	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4851906)							
EM2301158-002	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	86.5	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4850536)							
EM2301269-003	OS_BH02_1.0_20230130	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	72.7	58.0	114
EM2301269-003	OS_BH02_1.0_20230130	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	79.9	58.0	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4854543)							
EM2301158-002	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	99.4	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4854544)							
EM2301158-002	Anonymous	EK030SF: Cyanide amenable to chlorination	----	40 mg/kg	94.4	70.0	130
EK040T: Fluoride Total (QCLot: 4850523)							
EM2301158-002	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	98.0	70.0	130
EP010: Formaldehyde (QCLot: 4850543)							
EM2301269-001	OS_BH02_0.1_20230130	EP010: Formaldehyde	50-00-0	12.5 mg/kg	78.8	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4848917)							
EM2301269-001	OS_BH02_0.1_20230130	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	120	59.6	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4848593)							
EM2301503-001	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	88.9	53.7	130
		EP074-UT: Toluene	108-88-3	2 mg/kg	89.5	55.1	124
EP074I: Volatile Halogenated Compounds (QCLot: 4848593)							
EM2301503-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	93.2	38.4	145
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	83.2	48.1	128

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 4848593) - continued							
EM2301503-001	Anonymous	EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	81.0	55.5	122
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4848919)							
EM2301158-002	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	3 mg/kg	89.0	44.0	143
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4848919)							
EM2301158-002	Anonymous	EP075-EM: Phenol	108-95-2	3 mg/kg	91.8	44.2	134
		EP075-EM: 2-Nitrophenol	88-75-5	3 mg/kg	87.6	34.2	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4848919)							
EM2301158-002	Anonymous	EP075-EM: Acenaphthene	83-32-9	3 mg/kg	81.7	42.6	138
		EP075-EM: Pyrene	129-00-0	3 mg/kg	101	37.8	152
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4848593)							
EM2301503-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	88.2	42.3	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4848918)							
EM2301419-001	Anonymous	EP071-EM: C10 - C14 Fraction	----	900 mg/kg	106	71.3	126
		EP071-EM: C15 - C28 Fraction	----	2920 mg/kg	96.4	75.1	123
		EP071-EM: C29 - C36 Fraction	----	1470 mg/kg	99.9	78.1	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4848593)							
EM2301503-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	84.8	39.9	109
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4848918)							
EM2301419-001	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1230 mg/kg	103	71.5	130
		EP071-EM: >C16 - C34 Fraction	----	3950 mg/kg	91.2	76.9	119
		EP071-EM: >C34 - C40 Fraction	----	260 mg/kg	105	65.3	139
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4844263)							
EM2301288-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	89.9	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	87.8	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	81.2	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4844263)							
EM2301288-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	93.1	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	99.4	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	96.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	94.7	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	93.4	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4844263)							
EM2301288-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	102	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	107	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	103	65.0	137

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4844263) - continued							
EM2301288-001	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	# 54.3	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4845551)							
EM2301169-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	89.3	76.6	124
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	104	73.0	120
		EG020A-F: Barium	7440-39-3	0.2 mg/L	102	75.0	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.7	74.6	118
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	108	71.0	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	121	78.0	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	106	76.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	89.8	75.0	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	99.6	64.0	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	113	73.0	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	106	73.0	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	90.5	75.0	131
EG035F: Dissolved Mercury by FIMS (QCLot: 4845553)							
EM2301169-013	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	78.9	70.0	120

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2301269**	Page	: 1 of 11
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 30-Jan-2023
Site	: AREA B BOREHOLE	Issue Date	: 08-Feb-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 11
Order number	: E1159	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EM2301288--001	Anonymous	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	54.3 %	70.0-130%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**06-Feb-2023**	06-Feb-2023	✓	**06-Feb-2023**	06-Feb-2023	✓
EA029-A: pH Measurements							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_BH02_1.0_20230130	**30-Jan-2023**	**07-Feb-2023**	25-Oct-2025	✓	**07-Feb-2023**	08-May-2023	✓
EA029-B: Acidity Trail							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_BH02_1.0_20230130	**30-Jan-2023**	**07-Feb-2023**	25-Oct-2025	✓	**07-Feb-2023**	08-May-2023	✓
EA029-C: Sulfur Trail							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_BH02_1.0_20230130	**30-Jan-2023**	**07-Feb-2023**	25-Oct-2025	✓	**07-Feb-2023**	08-May-2023	✓
EA029-D: Calcium Values							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_BH02_1.0_20230130	**30-Jan-2023**	**07-Feb-2023**	25-Oct-2025	✓	**07-Feb-2023**	08-May-2023	✓
EA029-E: Magnesium Values							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_BH02_1.0_20230130	**30-Jan-2023**	**07-Feb-2023**	25-Oct-2025	✓	**07-Feb-2023**	08-May-2023	✓
EA029-F: Excess Acid Neutralising Capacity							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_BH02_1.0_20230130	**30-Jan-2023**	**07-Feb-2023**	25-Oct-2025	✓	**07-Feb-2023**	08-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-G: Retained Acidity							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_BH02_1.0_20230130	**30-Jan-2023**	**07-Feb-2023**	25-Oct-2025	✓	**07-Feb-2023**	08-May-2023	✓
EA029-H: Acid Base Accounting							
Snap Lock Bag - frozen on receipt at ALS (EA029)							
OS_BH02_1.0_20230130	**30-Jan-2023**	**07-Feb-2023**	25-Oct-2025	✓	**07-Feb-2023**	08-May-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_BH02_0.1_20230130, OS_BH02_1.0_20230130	**30-Jan-2023**	**----**	----	----	**02-Feb-2023**	13-Feb-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**----**	----	----	**31-Jan-2023**	29-Jul-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_BH02_0.1_20230130, OS_BH02_1.0_20230130	**30-Jan-2023**	**06-Feb-2023**	29-Jul-2023	✓	**06-Feb-2023**	29-Jul-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_BH02_0.1_20230130, OS_BH02_1.0_20230130	**30-Jan-2023**	**06-Feb-2023**	27-Feb-2023	✓	**07-Feb-2023**	27-Feb-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_BH02_0.1_20230130, OS_BH02_1.0_20230130	**30-Jan-2023**	**04-Feb-2023**	27-Feb-2023	✓	**07-Feb-2023**	11-Feb-2023	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**06-Feb-2023**	13-Feb-2023	✓	**08-Feb-2023**	20-Feb-2023	✓
EK030: Cyanide Amenable to Chlorination							
Soil Glass Jar - Unpreserved (EK030SF)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**06-Feb-2023**	13-Feb-2023	✓	**08-Feb-2023**	20-Feb-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**04-Feb-2023**	27-Feb-2023	✓	**08-Feb-2023**	27-Feb-2023	✓
EP010: Formaldehyde							
Soil Glass Jar - Unpreserved (EP010)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**03-Feb-2023**	29-Jul-2023	✓	**03-Feb-2023**	29-Jul-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	13-Feb-2023	✓	**05-Feb-2023**	14-Mar-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	06-Feb-2023	✓	**03-Feb-2023**	06-Feb-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	06-Feb-2023	✓	**03-Feb-2023**	06-Feb-2023	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	06-Feb-2023	✓	**03-Feb-2023**	06-Feb-2023	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	06-Feb-2023	✓	**03-Feb-2023**	06-Feb-2023	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	13-Feb-2023	✓	**06-Feb-2023**	14-Mar-2023	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	13-Feb-2023	✓	**06-Feb-2023**	14-Mar-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	13-Feb-2023	✓	**06-Feb-2023**	14-Mar-2023	✓
EP075C: Phthalate Esters							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	13-Feb-2023	✓	**06-Feb-2023**	14-Mar-2023	✓
EP075E: Nitroaromatics and Ketones							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	13-Feb-2023	✓	**06-Feb-2023**	14-Mar-2023	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	13-Feb-2023	✓	**06-Feb-2023**	14-Mar-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	06-Feb-2023	✓	**03-Feb-2023**	06-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	13-Feb-2023	✓	**05-Feb-2023**	14-Mar-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	06-Feb-2023	✓	**03-Feb-2023**	06-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	13-Feb-2023	✓	**05-Feb-2023**	14-Mar-2023	✓
EP095: Ethylenediamine Tetraacetic Acid (EDTA)							
Soil Glass Jar - Unpreserved (EP095)							
OS_BH02_0.1_20230130	**30-Jan-2023**	**03-Feb-2023**	13-Feb-2023	✓	**06-Feb-2023**	15-Mar-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) OS_BH02_0.1_20230130	**30-Jan-2023**	**01-Feb-2023**	29-Jul-2023	✓	**02-Feb-2023**	13-Mar-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) OS_BH02_0.1_20230130	**30-Jan-2023**	**01-Feb-2023**	29-Jul-2023	✓	**02-Feb-2023**	13-Mar-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) OS_BH02_0.1_20230130	**30-Jan-2023**	**01-Feb-2023**	29-Jul-2023	✓	**02-Feb-2023**	13-Mar-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) OS_BH02_0.1_20230130	**30-Jan-2023**	**01-Feb-2023**	29-Jul-2023	✓	**02-Feb-2023**	13-Mar-2023	✓
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)							
Soil Glass Jar - Unpreserved (EP236) OS_BH02_0.1_20230130	**30-Jan-2023**	**02-Feb-2023**	13-Feb-2023	✓	**03-Feb-2023**	14-Mar-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) OS_RIN1_230130	**30-Jan-2023**	**----**	----	----	**02-Feb-2023**	29-Jul-2023	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) OS_RIN1_230130	**30-Jan-2023**	**----**	----	----	**03-Feb-2023**	27-Feb-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
TRH - Semivolatile Fraction	EP071-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	SOIL	In house: Referenced to APHA 4500 - CN- G. The sample is leached in alkali solution and pretreated by contact with Chlorine (as hypochlorite) prior to determination of Total Cyanide. The measured parameter is the difference between Total Cyanide determined on an untreated sample and Total Cyanide determined post-chlorination. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Formaldehyde	EP010	SOIL	In house: Referenced to ASTM D 6303-98. Determined on 1:5 soil / water extracts by colourimetry using NASH reagent. The Hantszch reaction method is based on the reaction of acetylacetone with formaldehyde in the presence of excess ammonium acetate to form a coloured compound.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	SOIL	In house: Referenced to DIN EN ISO 16588. The esterified derivative of EDTA from an aliquot of a 1:5 soil:water extract is analysed by GCMS in Selected Ion Monitoring (SIM) mode. This technique is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	SOIL	In house: soils are solvent extracted. The extract is analysed by LC-Electrospray-MS-MS, Negative Mode using MRM. Quantification by internal standardisation. Results for Tributyltin expressed as Tributyltin Oxide (TBTO).
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.

Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction of solids for 2.4-D and TBTO	EP236-PR	SOIL	In house: 2g of homogenised sample is extracted with alkaline solvent. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2301269**

Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Page	: 1 of 3
Order number	: E1159	Quote number	: EM2022SINKNI0017 (ME-491-22)
C-O-C number	: 47620	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: AREA B BOREHOLE		
Sampler	: RANULI GOONETILLAKE		

Dates

Date Samples Received	: 30-Jan-2023 14:45	Issue Date	: 31-Jan-2023
Client Requested Due Date	: 08-Feb-2023	Scheduled Reporting Date	: **08-Feb-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 5.9°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale & ALS Brisbane.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM2301269-001	: 30-Jan-2023 08:16	: OS_BH02_0.1_20230130
EM2301269-002	: 30-Jan-2023 08:17	: OS_BH02_0.5_20230130
EM2301269-003	: 30-Jan-2023 08:17	: OS_BH02_1.0_20230130
EM2301269-004	: 30-Jan-2023 08:17	: OS_BH02_2.0_20230130
EM2301269-005	: 30-Jan-2023 08:18	: OS_BH02_3.0_20230130
EM2301269-006	: 30-Jan-2023 08:18	: OS_BH02_4.0_20230130
EM2301269-007	: 30-Jan-2023 08:18	: OS_BH02_5.0_20230130
EM2301269-008	: 30-Jan-2023 08:19	: OS_BH02_6.0_20230130
EM2301269-009	: 30-Jan-2023 08:19	: OS_BH02_7.0_20230130
EM2301269-010	: 30-Jan-2023 08:19	: OS_BH02_8.0_20230130

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200G Asbestos Identification in Soils -	SOIL - EG048G Total Hexavalent Chromium (Alkaline digestion)	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)
EM2301269-001	30-Jan-2023 08:16	OS_BH02_0.1_20230130		✓	✓		✓	✓	
EM2301269-002	30-Jan-2023 08:17	OS_BH02_0.5_20230130	✓						
EM2301269-003	30-Jan-2023 08:17	OS_BH02_1.0_20230130		✓		✓			✓
EM2301269-004	30-Jan-2023 08:17	OS_BH02_2.0_20230130	✓						
EM2301269-005	30-Jan-2023 08:18	OS_BH02_3.0_20230130	✓						
EM2301269-006	30-Jan-2023 08:18	OS_BH02_4.0_20230130	✓						
EM2301269-007	30-Jan-2023 08:18	OS_BH02_5.0_20230130	✓						
EM2301269-008	30-Jan-2023 08:19	OS_BH02_6.0_20230130	✓						
EM2301269-009	30-Jan-2023 08:19	OS_BH02_7.0_20230130	✓						
EM2301269-010	30-Jan-2023 08:19	OS_BH02_8.0_20230130	✓						

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA029 SPOCAS
EM2301269-003	30-Jan-2023 08:17	OS_BH02_1.0_20230130	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - W-03 15 Metals (NEPM Suite)
EM2301269-011	30-Jan-2023 11:20	OS_RIN1_230130	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

APAC Supplier Management		
- A4 - AU Tax Invoice (INV)	Email	APACBISupplierMgmt@jacobs.com
ED MANZ		
- *AU Certificate of Analysis - NATA (COA)	Email	edmanz@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	edmanz@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	edmanz@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	edmanz@jacobs.com
- Chain of Custody (CoC) (COC)	Email	edmanz@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	edmanz@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	edmanz@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	edmanz@jacobs.com
JACOBS RESULTS		
- EDI Format - ESDAT (ESDAT)	Email	jacobs.labresults@esdat.net
- Electronic SRN for ESdat (ESRN_ESDAT)	Email	jacobs.labresults@esdat.net
RANULI GOONETILLAKE		
- *AU Certificate of Analysis - NATA (COA)	Email	ranuli.goonetillake@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ranuli.goonetillake@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ranuli.goonetillake@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ranuli.goonetillake@jacobs.com
- A4 - AU Tax Invoice (INV)	Email	ranuli.goonetillake@jacobs.com
- Chain of Custody (CoC) (COC)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	ranuli.goonetillake@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	ranuli.goonetillake@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	ranuli.goonetillake@jacobs.com
STEPHEN SONNENBERG		
- A4 - AU Tax Invoice (INV)	Email	stephen.sonnenberg@jacobs.com
TEA SVILAND		
- *AU Certificate of Analysis - NATA (COA)	Email	tea.sviland@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tea.sviland@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tea.sviland@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tea.sviland@jacobs.com
- Chain of Custody (CoC) (COC)	Email	tea.sviland@jacobs.com
- EDI Format - ENMRG (ENMRG)	Email	tea.sviland@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	tea.sviland@jacobs.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	tea.sviland@jacobs.com

CHAIN OF CUSTODY

(ALS) COC#: 47620 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA B BOREHOLE

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY: B.W	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 30/1 19.45	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_BH02_0.1_20230130		30/01/2023 08:16 AM	SOIL	ALS: 3 Non ALS: 1	No			Partial 3/9		
002	OS_BH02_0.5_20230130		30/01/2023 08:17 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
003	OS_BH02_1.0_20230130		30/01/2023 08:17 AM	SOIL	ALS: 1 Non ALS: 1	No			Partial 4/9		
004	OS_BH02_2.0_20230130		30/01/2023 08:17 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
005	OS_BH02_3.0_20230130		30/01/2023 08:18 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
006	OS_BH02_4.0_20230130		30/01/2023 08:18 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
007	OS_BH02_5.0_20230130		30/01/2023 08:18 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
008	OS_BH02_6.0_20230130		30/01/2023 08:19 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
009	OS_BH02_7.0_20230130		30/01/2023 08:19 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				

Environmental Division Melbourne

Work Order Reference

EM2301269

Telephone : + 61-3-8549 9600

CHAIN OF CUSTODY

(ALS) *COC#:* 47620 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA B BOREHOLE

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@iacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_BH02_8.0_20230130		30/01/2023 08:19 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
011	OS_RIN1_230130		30/01/2023 11:20 AM	WATER	ALS: 1 Non ALS: 0	No		X			

CHAIN OF CUSTODY

(ALS) COC#: 47620 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA B BOREHOLE

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
001	OS_BH02_0.1_20230130	SOIL SOIL	SOIL	- EA200G Asbestos Identification in Soils - Presence/Absence in grab samples - EP231 (solids) PFAS - Short Suite (12 analytes) - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM) EPA 1828.2 Table 2 Full Solid Suite - excl. Anions
003	OS_BH02_1.0_20230130	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EN020PR Drying at 85 degrees, bagging and labelling (ASS) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EA029 SPOCAS

CHAIN OF CUSTODY

(ALS) *COC#:* 47620 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA B BOREHOLE

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.svilland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free Ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	OS_BH02_0.1_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062407	Orange	No	
001	OS_BH02_0.1_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062297	Orange	No	
001	OS_BH02_0.1_20230130	HDPE Soil Jar	200 mL	00621122040569	Grey	No	
002	OS_BH02_0.5_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062285	Orange	No	
003	OS_BH02_1.0_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062288	Orange	No	
004	OS_BH02_2.0_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062292	Orange	No	
005	OS_BH02_3.0_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062460	Orange	No	
006	OS_BH02_4.0_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062277	Orange	No	
007	OS_BH02_5.0_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062350	Orange	No	
008	OS_BH02_6.0_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062336	Orange	No	
009	OS_BH02_7.0_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062458	Orange	No	
010	OS_BH02_8.0_20230130	Soil Glass Jar - Unpreserved	250 mL	00260822062477	Orange	No	
011	OS_RIN1_230130	Clear Plastic Bottle - Nitric Acid; Unfiltered	60 mL	00120822068307	Red	Yes	

Total Bottle Count: ALS: 13, Non ALS: 2

CHAIN OF CUSTODY

(ALS) COC#: 47676 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY: B.W	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 30/1 1445	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA F - monday

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@iacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_BH09_8.0_20230127		27/01/2023 01:08 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-		
002	OS_BH09_7.0_20230127		27/01/2023 01:08 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-		

Environmental Division
Melbourne
Work Order Reference
EM2301270



Telephone : + 61-3-8549 9600

CHAIN OF CUSTODY

(ALS) *COC#:* 47676 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: AREA F - monday

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	OS_BH09_6.0_20230127	Soil Glass Jar - Unpreserved	250 mL	00260822062458	Orange	No	
002	OS_BH09_7.0_20230127	Soil Glass Jar - Unpreserved	250 mL	00260822062495	Orange	No	

Total Bottle Count: ALS: 2, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EM2305362**	Page	: 1 of 12
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 27-Mar-2023 16:35
Order number	: E1159	Date Analysis Commenced	: 29-Mar-2023
C-O-C number	: 50227	Issue Date	: 06-Apr-2023 15:16
Sampler	: RANULI GOONETILLAKE		
Site	: IA5000EI BH08&10		
Quote number	: ME-491-22		
No. of samples received	: 15		
No. of samples analysed	: 4		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-UT: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- EK040T: EM2305606 #1, Poor matrix spike recovery for total fluoride due to matrix effects.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
			Sampling date / time	27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	CAS Number	LOR	Unit	EM2305362-008	EM2305362-010	EM2305362-013	EM2305362-015	--------
				Result	Result	Result	Result	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**----**	**5.2**	**----**	**5.6**	**----**
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	**5.2**	**----**	**4.6**	**----**	**----**
pH OX (23B)	----	0.1	pH Unit	**4.4**	**----**	**4.6**	**----**	**----**
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	**21**	**----**	**40**	**----**	**----**
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	**47**	**----**	**56**	**----**	**----**
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	**26**	**----**	**16**	**----**	**----**
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	**0.034**	**----**	**0.064**	**----**	**----**
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	**0.075**	**----**	**0.089**	**----**	**----**
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	**0.041**	**----**	**0.025**	**----**	**----**
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	<0.020	**----**	<0.020	**----**	**----**
Peroxide Sulfur (23De)	----	0.020	% S	**0.025**	**----**	<0.020	**----**	**----**
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	**0.025**	**----**	<0.020	**----**	**----**
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	**16**	**----**	<10	**----**	**----**
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	**0.056**	**----**	<0.020	**----**	**----**
Peroxide Calcium (23Wh)	----	0.020	% Ca	**0.060**	**----**	<0.020	**----**	**----**
Acid Reacted Calcium (23X)	----	0.020	% Ca	<0.020	**----**	<0.020	**----**	**----**
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	**----**	<10	**----**	**----**
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	<0.020	**----**	<0.020	**----**	**----**
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	**0.106**	**----**	**0.125**	**----**	**----**
Peroxide Magnesium (23Tm)	----	0.020	% Mg	**0.116**	**----**	**0.125**	**----**	**----**
Acid Reacted Magnesium (23U)	----	0.020	% Mg	<0.020	**----**	<0.020	**----**	**----**
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	**----**	<10	**----**	**----**
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	<0.020	**----**	<0.020	**----**	**----**
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	**----**	**1.5**	**----**	**----**
Net Acidity (sulfur units)	----	0.02	% S	**0.06**	**----**	**0.06**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
				Sampling date / time	27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	CAS Number	LOR	Unit		EM2305362-008	EM2305362-010	EM2305362-013	EM2305362-015	--------
					Result	Result	Result	Result	----
EA029-H: Acid Base Accounting - Continued									
Net Acidity (acidity units)	----	10	mole H+ / t		36	----	40	----	----
Liming Rate	----	1	kg CaCO3/t		3	----	3	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		0.06	----	0.06	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		36	----	40	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t		3	----	3	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		----	11.6	----	10.9	----
Moisture Content	----	1.0	%		14.0	----	20.6	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	No	----	No	----
Asbestos (Trace)	1332-21-4	5	Fibres		----	No	----	No	----
Asbestos Type	1332-21-4	-	--		----	-	----	-	----
Sample weight (dry)	----	0.01	g		----	41.2	----	36.8	----
APPROVED IDENTIFIER:	----	-	--		----	M. TRAN	----	M. TRAN	----
Synthetic Mineral Fibre	----	-	--		----	No	----	No	----
Organic Fibre	----	-	--		----	Yes	----	Yes	----
EG005(ED093)T: Total Metals by ICP-AES									
Antimony	7440-36-0	5	mg/kg		----	<5	----	<5	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	----
Barium	7440-39-3	10	mg/kg		50	50	30	20	----
Beryllium	7440-41-7	1	mg/kg		<1	<1	<1	<1	----
Boron	7440-42-8	50	mg/kg		<50	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg		22	----	25	----	----
Cobalt	7440-48-4	2	mg/kg		3	----	2	----	----
Copper	7440-50-8	5	mg/kg		6	11	12	6	----
Lead	7439-92-1	5	mg/kg		13	14	14	5	----
Manganese	7439-96-5	5	mg/kg		5	----	5	----	----
Molybdenum	7439-98-7	2	mg/kg		----	<2	----	<2	----
Nickel	7440-02-0	2	mg/kg		4	4	6	<2	----
Selenium	7782-49-2	5	mg/kg		<5	<5	<5	<5	----
Silver	7440-22-4	2	mg/kg		----	<2	----	<2	----
Vanadium	7440-62-2	5	mg/kg		39	----	52	----	----
Zinc	7440-66-6	5	mg/kg		<5	9	5	8	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
				Sampling date / time	27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	CAS Number	LOR	Unit		EM2305362-008	EM2305362-010	EM2305362-013	EM2305362-015	--------
					Result	Result	Result	Result	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		----	<1	----	<1	----
EK030: Cyanide Amenable to Chlorination									
Cyanide amenable to chlorination	----	1	mg/kg		----	<1	----	<1	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		----	**130**	----	<40	----
EP010: Formaldehyde									
Formaldehyde	50-00-0	2	mg/kg		----	**3**	----	<2	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	----	<0.1	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Styrene	100-42-5	0.5	mg/kg		----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		----	<0.2	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	----	<0.5	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	1	mg/kg		----	<1	----	<1	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	<1	----	<1	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		----	<0.02	----	<0.02	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		----	<0.01	----	<0.01	----
Methylene chloride	75-09-2	0.4	mg/kg		----	<0.4	----	<0.4	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		----	<0.02	----	<0.02	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		----	<0.01	----	<0.01	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
				Sampling date / time	27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	CAS Number	LOR	Unit		EM2305362-008	EM2305362-010	EM2305362-013	EM2305362-015	--------
					Result	Result	Result	Result	----
EP074I: Volatile Halogenated Compounds - Continued									
Chloroform	67-66-3	0.02	mg/kg		----	<0.02	----	<0.02	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		----	<0.01	----	<0.01	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		----	<0.01	----	<0.01	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		----	<0.02	----	<0.02	----
Trichloroethene	79-01-6	0.02	mg/kg		----	<0.02	----	<0.02	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		----	<0.04	----	<0.04	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		----	<0.01	----	<0.01	----
Tetrachloroethene	127-18-4	0.02	mg/kg		----	<0.02	----	<0.02	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		----	<0.02	----	<0.02	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		----	<0.02	----	<0.02	----
Chlorobenzene	108-90-7	0.02	mg/kg		----	<0.02	----	<0.02	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		----	<0.02	----	<0.02	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		----	<0.02	----	<0.02	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		----	<0.01	----	<0.01	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		----	<0.01	----	<0.01	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg		----	<0.01	----	<0.01	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg		----	<0.01	----	<0.01	----
^ Sum of Trichlorobenzenes	----	0.01	mg/kg		----	<0.01	----	<0.01	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		----	<0.03	----	<0.03	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		----	<0.03	----	<0.03	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		----	<0.05	----	<0.05	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		----	<0.05	----	<0.05	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		----	<1	----	<1	----
2-Methylphenol	95-48-7	1	mg/kg		----	<1	----	<1	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	<1	----
2-Nitrophenol	88-75-5	1	mg/kg		----	<1	----	<1	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		----	<1	----	<1	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		----	<5	----	<5	----
4-Nitrophenol	100-02-7	5	mg/kg		----	<5	----	<5	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		----	<5	----	<5	----
Dinoseb	88-85-7	5	mg/kg		----	<5	----	<5	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		----	<5	----	<5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
				Sampling date / time	27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	CAS Number	LOR	Unit		EM2305362-008	EM2305362-010	EM2305362-013	EM2305362-015	--------
					Result	Result	Result	Result	----
EP075A: Phenolic Compounds (Non-halogenated) - Continued									
^ Cresols (Total)	----	1	mg/kg		----	<1	----	<1	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		----	<1	----	<1	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	<0.5	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		----	<1.0	----	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	**1.2**	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		----	<0.5	----	<0.5	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		----	<0.5	----	<0.5	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		----	<1.0	----	<1.0	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		----	<0.03	----	<0.03	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		----	<0.03	----	<0.03	----
beta-BHC	319-85-7	0.03	mg/kg		----	<0.03	----	<0.03	----
gamma-BHC	58-89-9	0.03	mg/kg		----	<0.03	----	<0.03	----
delta-BHC	319-86-8	0.03	mg/kg		----	<0.03	----	<0.03	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
				Sampling date / time	27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	CAS Number	LOR	Unit		EM2305362-008	EM2305362-010	EM2305362-013	EM2305362-015	--------
					Result	Result	Result	Result	----
EP075(I): Organochlorine Pesticides - Continued									
Heptachlor	76-44-8	0.03	mg/kg		----	<0.03	----	<0.03	----
Aldrin	309-00-2	0.03	mg/kg		----	<0.03	----	<0.03	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		----	<0.03	----	<0.03	----
cis-Chlordane	5103-71-9	0.03	mg/kg		----	<0.03	----	<0.03	----
trans-Chlordane	5103-74-2	0.03	mg/kg		----	<0.03	----	<0.03	----
Endosulfan 1	959-98-8	0.03	mg/kg		----	<0.03	----	<0.03	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	<0.05	----
Dieldrin	60-57-1	0.03	mg/kg		----	<0.03	----	<0.03	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		----	<0.03	----	<0.03	----
Endrin	72-20-8	0.03	mg/kg		----	<0.03	----	<0.03	----
Endosulfan 2	33213-65-9	0.03	mg/kg		----	<0.03	----	<0.03	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		----	<0.03	----	<0.03	----
4.4`-DDT	50-29-3	0.05	mg/kg		----	<0.05	----	<0.05	----
Methoxychlor	72-43-5	0.03	mg/kg		----	<0.03	----	<0.03	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		----	<0.03	----	<0.03	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	<0.05	----
^ Chlordane	57-74-9	0.03	mg/kg		----	<0.03	----	<0.03	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		----	<0.03	----	<0.03	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	<50	----
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	<10	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	<50	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
				Sampling date / time	27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	CAS Number	LOR	Unit		EM2305362-008	EM2305362-010	EM2305362-013	EM2305362-015	--------
					Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	<10	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)									
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg		----	<10	----	<10	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	<0.0002	----	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	<0.0002	----	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	<0.0002	----	**0.0004**	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	<0.001	----	<0.001	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	<0.0002	----	<0.0002	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	<0.0002	----	<0.0002	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	<0.0002	----	<0.0002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	<0.0002	----	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	<0.0005	----	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	<0.0005	----	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	<0.0005	----	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	<0.0005	----	<0.0005	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	<0.0002	----	**0.0004**	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	<0.0002	----	**0.0004**	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)									
2.4-D	94-75-7	0.001	mg/kg		----	<0.001	----	<0.001	----
Tributyltin oxide	56-35-9	0.01	mg/kg		----	<0.01	----	<0.01	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
				Sampling date / time	27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	CAS Number	LOR	Unit		EM2305362-008	EM2305362-010	EM2305362-013	EM2305362-015	--------
					Result	Result	Result	Result	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**116**	----	**110**	----
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	**96.1**	----	**92.1**	----
Toluene-D8	2037-26-5	0.1	%		----	**95.8**	----	**93.3**	----
4-Bromofluorobenzene	460-00-4	0.1	%		----	**104**	----	**104**	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		----	**83.7**	----	**89.5**	----
2-Chlorophenol-D4	93951-73-6	0.025	%		----	**99.9**	----	**105**	----
2.4.6-Tribromophenol	118-79-6	0.025	%		----	**91.9**	----	**96.1**	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		----	**64.4**	----	**68.2**	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		----	**80.0**	----	**83.4**	----
2-Fluorobiphenyl	321-60-8	0.025	%		----	**87.8**	----	**91.9**	----
Anthracene-d10	1719-06-8	0.025	%		----	**80.1**	----	**84.8**	----
4-Terphenyl-d14	1718-51-0	0.025	%		----	**91.5**	----	**95.7**	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	**90.4**	----	**88.8**	----
13C8-PFOA	----	0.0002	%		----	**101**	----	**83.2**	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_BH10_0.1_20230327 - 27-Mar-2023 08:28	Grey soil with organic matter.
EA200: Description	OS_BH08_0.1_20230327 - 27-Mar-2023 12:29	Grey soil with organic matter.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

Automated Guideline Comparison Report

Work Order	: **EM2305362**	Page	: 1 of 13
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE		
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Date Received	: 27-Mar-2023 16:35
Order number	: E1159	Date Analysed	: 29-Mar-2023
C-O-C number	: 50227	Date Issued	: 06-Apr-2023 15:17
No. of samples received	: 15		
No. of samples analysed	: 4	Quote number	: ME-491-22

General Comments

Only results in the 'Analytical Results' section have been compared to the guideline.

Additional information pertinent to this report will be found in the following separate attachments: Certificate of Analysis, Quality Control Report, QA/QC Compliance Assessment to Assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
Sample ID										
Sampling date/time						27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
						EM2305362-008 MU	EM2305362-010 MU	EM2305362-013 MU	EM2305362-015 MU	
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	300	----	<5 --	----	<5 --	----
Arsenic	EG005T	5	mg/kg	----	2000	----	<5 --	----	<5 --	----
Barium	EG005T	10	mg/kg	----	25000	----	**50** ± 5	----	**20** ± 2	----
Beryllium	EG005T	1	mg/kg	----	400	----	<1 --	----	<1 --	----
Boron	EG005T	50	mg/kg	----	60000	----	<50 --	----	<50 --	----
Cadmium	EG005T	1	mg/kg	----	400	----	<1 --	----	<1 --	----
Copper	EG005T	5	mg/kg	----	20000	----	**11** ± 1	----	**6** ± 0.8	----
Lead	EG005T	5	mg/kg	----	6000	----	**14** ± 2	----	**5** ± 0.9	----
Molybdenum	EG005T	2	mg/kg	----	4000	----	<2 --	----	<2 --	----
Nickel	EG005T	2	mg/kg	----	12000	----	**4** ± 0.4	----	<2 --	----
Selenium	EG005T	5	mg/kg	----	40000	----	<5 --	----	<5 --	----
Silver	EG005T	2	mg/kg	----	720	----	<2 --	----	<2 --	----
Zinc	EG005T	5	mg/kg	----	140000	----	**9** ± 2	----	**8** ± 2	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	----	<0.1 --	----	<0.1 --	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	----	<0.5 --	----	<0.5 --	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	----	<1 --	----	<1 --	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	----	**130** ± 30	----	<40 --	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	8000	----	**3**	----	<2	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	----	<0.2 --	----	<0.2 --	----
Toluene	EP074-UT	0.5	mg/kg	----	12800	----	<0.5 --	----	<0.5 --	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	4800	----	<0.5 --	----	<0.5 --	----
Styrene	EP074-UT	0.5	mg/kg	----	480	----	<0.5 --	----	<0.5 --	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	9600	----	<0.5 --	----	<0.5 --	----
EP074B: Oxygenated Compounds										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
Sample ID										----
Sampling date/time						27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
						EM2305362-008 MU	EM2305362-010 MU	EM2305362-013 MU	EM2305362-015 MU	
EP074B: Oxygenated Compounds - Continued										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	32000	----	<1	----	<1	----
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	480	----	<0.01	----	<0.01	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	64	----	<0.4	----	<0.4	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	960	----	<0.02	----	<0.02	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	960	----	<0.01	----	<0.01	----
Chloroform	EP074-UT	0.02	mg/kg	----	960	----	<0.02	----	<0.02	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	4800	----	<0.01	----	<0.01	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	48	----	<0.01	----	<0.01	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	48	----	<0.02	----	<0.02	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	80	----	<0.02	----	<0.02	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	190	----	<0.04	----	<0.04	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	1600	----	<0.01	----	<0.01	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	800	----	<0.02	----	<0.02	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	210	----	<0.02	----	<0.02	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	----	<0.02	----	<0.02	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	4800	----	<0.02	----	<0.02	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	640	----	<0.02	----	<0.02	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	24000	----	<0.02	----	<0.02	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	480	----	<0.01	----	<0.01	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	4800	----	<0.03	----	<0.03	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	3200	----	<0.03	----	<0.03	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	64000	----	<0.05	----	<0.05	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	320	----	<0.05	----	<0.05	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	32000	----	<1	----	<1	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	2200	----	<1	----	<1	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	160	----	<0.5	----	<0.5	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	**OS_BH10_1.0_20230327** 27-Mar-2023 08:45 **EM2305362-008** MU	**OS_BH10_0.1_20230327** 27-Mar-2023 08:28 **EM2305362-010** MU	**OS_BH08_1.0_20230327** 27-Mar-2023 12:26 **EM2305362-013** MU	**OS_BH08_0.1_20230327** 27-Mar-2023 12:29 **EM2305362-015** MU	---- ----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg		----	400	----	<0.5	----	<0.5	----
EP075E: Nitroaromatics and Ketones											
Nitrobenzene	EP075-EM	0.5	mg/kg		----	320	----	<0.5	----	<0.5	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg		----	21	----	<1.0	----	<1.0	----
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg		----	4.8	----	<0.03	----	<0.03	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg		----	4.8	----	<0.03	----	<0.03	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg		----	50	----	<0.05	----	<0.05	----
Chlordane	EP075-EM	0.03	mg/kg		----	16	----	<0.03	----	<0.03	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg		----	50	----	<0.03	----	<0.03	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	2600	----	<10	----	<10	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	40000	----	<50	----	<50	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg		----	10	----	<0.01	----	<0.01	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	OS_BH10_1.0_20230327 27-Mar-2023 08:45 EM2305362-008 MU	OS_BH10_0.1_20230327 27-Mar-2023 08:28 EM2305362-010 MU	OS_BH08_1.0_20230327 27-Mar-2023 12:26 EM2305362-013 MU	OS_BH08_0.1_20230327 27-Mar-2023 12:29 EM2305362-015 MU	---- ----
EG005(ED093)T: Total Metals by ICP-AES											
Antimony	EG005T	5	mg/kg		----	75	----	<5 - -	----	<5 - -	----
Arsenic	EG005T	5	mg/kg		----	500	----	<5 - -	----	<5 - -	----
Barium	EG005T	10	mg/kg		----	6250	----	**50** ± 5	----	**20** ± 2	----
Beryllium	EG005T	1	mg/kg		----	100	----	<1 - -	----	<1 - -	----
Boron	EG005T	50	mg/kg		----	15000	----	<50 - -	----	<50 - -	----
Cadmium	EG005T	1	mg/kg		----	100	----	<1 - -	----	<1 - -	----
Copper	EG005T	5	mg/kg		----	5000	----	**11** ± 1	----	**6** ± 0.8	----
Lead	EG005T	5	mg/kg		----	1500	----	**14** ± 2	----	**5** ± 0.9	----
Molybdenum	EG005T	2	mg/kg		----	1000	----	<2 - -	----	<2 - -	----
Nickel	EG005T	2	mg/kg		----	3000	----	**4** ± 0.4	----	<2 - -	----
Selenium	EG005T	5	mg/kg		----	10000	----	<5 - -	----	<5 - -	----
Silver	EG005T	2	mg/kg		----	180	----	<2 - -	----	<2 - -	----
Zinc	EG005T	5	mg/kg		----	35000	----	**9** ± 2	----	**8** ± 2	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	75	----	<0.1 - -	----	<0.1 - -	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	500	----	<0.5 - -	----	<0.5 - -	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	2500	----	<1 - -	----	<1 - -	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	10000	----	**130** ± 30	----	<40 - -	----
EP010: Formaldehyde											
Formaldehyde	EP010	2	mg/kg		----	2000	----	**3**	----	<2	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	50	----	<0.1 - -	----	<0.1 - -	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	4	----	<0.2 - -	----	<0.2 - -	----
Toluene	EP074-UT	0.5	mg/kg		----	3200	----	<0.5 - -	----	<0.5 - -	----
Ethylbenzene	EP074-UT	0.5	mg/kg		----	1200	----	<0.5 - -	----	<0.5 - -	----
Styrene	EP074-UT	0.5	mg/kg		----	120	----	<0.5 - -	----	<0.5 - -	----
Total Xylenes	EP074-UT	0.5	mg/kg		----	2400	----	<0.5 - -	----	<0.5 - -	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_BH10_1.0_20230327		OS_BH10_0.1_20230327		OS_BH08_1.0_20230327		OS_BH08_0.1_20230327		----
Sample ID														
Sampling date/time						27-Mar-2023 08:45		27-Mar-2023 08:28		27-Mar-2023 12:26		27-Mar-2023 12:29		----
						EM2305362-008	MU	EM2305362-010	MU	EM2305362-013	MU	EM2305362-015	MU	
EP074B: Oxygenated Compounds														
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	8000	----		<1		----		<1		----
EP074I: Volatile Halogenated Compounds														
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	120	----		<0.01		----		<0.01		----
Methylene chloride	EP074-UT	0.4	mg/kg	----	16	----		<0.4		----		<0.4		----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	240	----		<0.02		----		<0.02		----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	240	----		<0.01		----		<0.01		----
Chloroform	EP074-UT	0.02	mg/kg	----	240	----		<0.02		----		<0.02		----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	1200	----		<0.01		----		<0.01		----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	12	----		<0.01		----		<0.01		----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	12	----		<0.02		----		<0.02		----
Trichloroethene	EP074-UT	0.02	mg/kg	----	20	----		<0.02		----		<0.02		----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	48	----		<0.04		----		<0.04		----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	400	----		<0.01		----		<0.01		----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	200	----		<0.02		----		<0.02		----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	52	----		<0.02		----		<0.02		----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	----		<0.02		----		<0.02		----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	1200	----		<0.02		----		<0.02		----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	160	----		<0.02		----		<0.02		----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	6000	----		<0.02		----		<0.02		----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	120	----		<0.01		----		<0.01		----
EP075A: Phenolic Compounds (Halogenated)														
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	1200	----		<0.03		----		<0.03		----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	800	----		<0.03		----		<0.03		----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	16000	----		<0.05		----		<0.05		----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	80	----		<0.05		----		<0.05		----
EP075A: Phenolic Compounds (Non-halogenated)														
Cresols (Total)	EP075-EM	1	mg/kg	----	8000	----		<1		----		<1		----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	560	----		<1		----		<1		----
EP075B: Polynuclear Aromatic Hydrocarbons														
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	40	----		<0.5		----		<0.5		----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
Sample ID										
Sampling date/time						27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
						EM2305362-008 MU	EM2305362-010 MU	EM2305362-013 MU	EM2305362-015 MU	
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	100	----	<0.5	----	<0.5	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	80	----	<0.5	----	<0.5	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	5.2	----	<1.0	----	<1.0	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	----	<0.03	----	<0.03	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	1.2	----	<0.03	----	<0.03	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	50	----	<0.05	----	<0.05	----
Chlordane	EP075-EM	0.03	mg/kg	----	4	----	<0.03	----	<0.03	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	10	----	<0.03	----	<0.03	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	----	<10	----	<10	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	----	<50	----	<50	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)										
Tributyltin oxide	EP236	0.01	mg/kg	----	2.5	----	<0.01	----	<0.01	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	OS_BH10_1.0_20230327 27-Mar-2023 08:45 EM2305362-008 MU	OS_BH10_0.1_20230327 27-Mar-2023 08:28 EM2305362-010 MU	OS_BH08_1.0_20230327 27-Mar-2023 12:26 EM2305362-013 MU	OS_BH08_0.1_20230327 27-Mar-2023 12:29 EM2305362-015 MU	---- ----
EG005(ED093)T: Total Metals by ICP-AES											
Antimony	EG005T	5	mg/kg		----	75	----	<5	----	<5	----
Arsenic	EG005T	5	mg/kg		----	500	----	<5	----	<5	----
Barium	EG005T	10	mg/kg		----	6250	----	**50** ± 5	----	**20** ± 2	----
Beryllium	EG005T	1	mg/kg		----	100	----	<1	----	<1	----
Boron	EG005T	50	mg/kg		----	15000	----	<50	----	<50	----
Cadmium	EG005T	1	mg/kg		----	100	----	<1	----	<1	----
Copper	EG005T	5	mg/kg		----	5000	----	**11** ± 1	----	**6** ± 0.8	----
Lead	EG005T	5	mg/kg		----	1500	----	**14** ± 2	----	**5** ± 0.9	----
Molybdenum	EG005T	2	mg/kg		----	1000	----	<2	----	<2	----
Nickel	EG005T	2	mg/kg		----	3000	----	**4** ± 0.4	----	<2	----
Selenium	EG005T	5	mg/kg		----	10000	----	<5	----	<5	----
Silver	EG005T	2	mg/kg		----	180	----	<2	----	<2	----
Zinc	EG005T	5	mg/kg		----	35000	----	**9** ± 2	----	**8** ± 2	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	75	----	<0.1	----	<0.1	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	500	----	<0.5	----	<0.5	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	2500	----	<1	----	<1	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	10000	----	**130** ± 30	----	<40	----
EP010: Formaldehyde											
Formaldehyde	EP010	2	mg/kg		----	2000	----	**3**	----	<2	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	2	----	<0.1	----	<0.1	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	4	----	<0.2	----	<0.2	----
Toluene	EP074-UT	0.5	mg/kg		----	3200	----	<0.5	----	<0.5	----
Ethylbenzene	EP074-UT	0.5	mg/kg		----	1200	----	<0.5	----	<0.5	----
Styrene	EP074-UT	0.5	mg/kg		----	120	----	<0.5	----	<0.5	----
Total Xylenes	EP074-UT	0.5	mg/kg		----	2400	----	<0.5	----	<0.5	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
Sample ID										
Sampling date/time						27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
						EM2305362-008 MU	EM2305362-010 MU	EM2305362-013 MU	EM2305362-015 MU	
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	8000	----	<1	----	<1	----
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	120	----	<0.01	----	<0.01	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	16	----	<0.4	----	<0.4	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	240	----	<0.02	----	<0.02	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	240	----	<0.01	----	<0.01	----
Chloroform	EP074-UT	0.02	mg/kg	----	240	----	<0.02	----	<0.02	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	1200	----	<0.01	----	<0.01	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	12	----	<0.01	----	<0.01	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	12	----	<0.02	----	<0.02	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	20	----	<0.02	----	<0.02	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	48	----	<0.04	----	<0.04	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	400	----	<0.01	----	<0.01	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	200	----	<0.02	----	<0.02	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	52	----	<0.02	----	<0.02	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	----	<0.02	----	<0.02	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	1200	----	<0.02	----	<0.02	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	160	----	<0.02	----	<0.02	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	6000	----	<0.02	----	<0.02	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	120	----	<0.01	----	<0.01	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	1200	----	<0.03	----	<0.03	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	800	----	<0.03	----	<0.03	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	16000	----	<0.05	----	<0.05	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	80	----	<0.05	----	<0.05	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	8000	----	<1	----	<1	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	560	----	<1	----	<1	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	----	<0.5	----	<0.5	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

				Sample ID	Guideline	Guideline	OS_BH10_1.0_20230327	OS_BH10_0.1_20230327	OS_BH08_1.0_20230327	OS_BH08_0.1_20230327	----
				Sampling date/time			27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	EM2305362-008 MU	EM2305362-010 MU	EM2305362-013 MU	EM2305362-015 MU	
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg		----	50	----	<0.5	----	<0.5	----
EP075E: Nitroaromatics and Ketones											
Nitrobenzene	EP075-EM	0.5	mg/kg		----	80	----	<0.5	----	<0.5	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg		----	5.2	----	<1.0	----	<1.0	----
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg		----	1.2	----	<0.03	----	<0.03	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg		----	1.2	----	<0.03	----	<0.03	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg		----	50	----	<0.05	----	<0.05	----
Chlordane	EP075-EM	0.03	mg/kg		----	4	----	<0.03	----	<0.03	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg		----	10	----	<0.03	----	<0.03	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	325	----	<10	----	<10	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	5000	----	<50	----	<50	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg		----	2.5	----	<0.01	----	<0.01	----

Fill material contamination total concentration Upper Limit

Table 3: Fill material contamination total concentration upper limit: Table 3: Fill material contamination total concentration upper limit

Sub-Matrix: **SOIL**

				Sample ID		**OS_BH10_1.0_20230327**	**OS_BH10_0.1_20230327**	**OS_BH08_1.0_20230327**	**OS_BH08_0.1_20230327**	----
				Sampling date/time		27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**EM2305362-008** MU	**EM2305362-010** MU	**EM2305362-013** MU	**EM2305362-015** MU	
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	10	----	**5.2** ± 0.07	----	**5.6** ± 0.08	----
EG005(ED093)T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	----	<5 - -	----	<5 - -	----
Cadmium	EG005T	1	mg/kg	----	3	----	<1 - -	----	<1 - -	----
Copper	EG005T	5	mg/kg	----	100	----	**11** ± 1	----	**6** ± 0.8	----
Lead	EG005T	5	mg/kg	----	300	----	**14** ± 2	----	**5** ± 0.9	----
Molybdenum	EG005T	2	mg/kg	----	40	----	<2 - -	----	<2 - -	----
Nickel	EG005T	2	mg/kg	----	60	----	**4** ± 0.4	----	<2 - -	----
Selenium	EG005T	5	mg/kg	----	10	----	<5 - -	----	<5 - -	----
Silver	EG005T	2	mg/kg	----	10	----	<2 - -	----	<2 - -	----
Zinc	EG005T	5	mg/kg	----	200	----	**9** ± 2	----	**8** ± 2	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	----	<0.1 - -	----	<0.1 - -	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	----	<0.5 - -	----	<0.5 - -	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	----	<1 - -	----	<1 - -	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	----	**130** ± 30	----	<40 - -	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	----	<0.1 - -	----	<0.1 - -	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	----	<0.2 - -	----	<0.2 - -	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	----	<0.2 - -	----	<0.2 - -	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	----	<0.01 - -	----	<0.01 - -	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	60	----	<1 - -	----	<1 - -	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	----	<0.5 - -	----	<0.5 - -	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	20	----	<0.5 - -	----	<0.5 - -	----

Fill material contamination total concentration Upper Limit

Table 3: Fill material contamination total concentration upper limit: Table 3: Fill material contamination total concentration upper limit

Sub-Matrix: **SOIL**

				Sample ID	Guideline	Guideline	**OS_BH10_1.0_20230327**	**OS_BH10_0.1_20230327**	**OS_BH08_1.0_20230327**	**OS_BH08_0.1_20230327**	**----**
				Sampling date/time			27-Mar-2023 08:45	27-Mar-2023 08:28	27-Mar-2023 12:26	27-Mar-2023 12:29	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	**EM2305362-008** MU	**EM2305362-010** MU	**EM2305362-013** MU	**EM2305362-015** MU	
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	100	**----**	<10	**----**	<10	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	1000	**----**	<50	**----**	<50	**----**

QUALITY CONTROL REPORT

Work Order	: **EM2305362**	Page	: 1 of 20
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 27-Mar-2023
Order number	: E1159	Date Analysis Commenced	: 29-Mar-2023
C-O-C number	: 50227	Issue Date	: 06-Apr-2023
Sampler	: RANULI GOONETILLAKE		
Site	: IA5000EI BH08&10		
Quote number	: ME-491-22		
No. of samples received	: 15		
No. of samples analysed	: 4		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4965213)									
EM2305107-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	2	1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	90	80	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	44	44	0.0	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	15	14	7.9	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	25	24	0.0	0% - 50%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	11	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	12	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	107	98	8.9	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	52	50	3.7	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	17	16	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2305362-010	OS_BH10_0.1_20230327	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	50	50	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	15	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	3	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4965213) - continued									
EM2305362-010	OS_BH10_0.1_20230327	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	12	14.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	15	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	64	85	27.8	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	27	27	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	9	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QC Lot: 4969760)									
EM2305107-001	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	<10	0.0	No Limit
EM2305665-006	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	<10	0.0	No Limit
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QC Lot: 4969679)									
EM2305362-010	OS_BH10_0.1_20230327	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EM2305681-001	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4968490)									
EM2305362-010	OS_BH10_0.1_20230327	EA001: pH (CaCl2)	----	0.1	pH Unit	5.2	5.3	0.0	0% - 20%
EM2305621-009	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.0	8.1	0.0	0% - 20%
EA029-A: pH Measurements (QC Lot: 4975172)									
EB2309766-001	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	4.1	4.1	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	4.7	4.7	0.0	0% - 20%
EM2305362-008	OS_BH10_1.0_20230327	EA029: pH KCl (23A)	----	0.1	pH Unit	5.2	5.1	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	4.4	4.5	0.0	0% - 20%
EA029-B: Acidity Trail (QC Lot: 4975172)									
EB2309766-001	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.174	0.204	15.9	0% - 50%
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	0.171	0.178	4.2	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	109	127	15.9	0% - 20%
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	107	111	4.2	0% - 20%
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EM2305362-008	OS_BH10_1.0_20230327	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.034	0.034	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	0.075	0.066	12.6	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-B: Acidity Trail (QC Lot: 4975172) - continued									
EM2305362-008	OS_BH10_1.0_20230327	EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	0.041	0.031	26.7	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	21	21	0.0	0% - 50%
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	47	41	12.6	0% - 20%
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	26	20	26.7	0% - 50%
EA029-C: Sulfur Trail (QC Lot: 4975172)									
EB2309766-001	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EM2305362-008	OS_BH10_1.0_20230327	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	0.025	0.026	0.0	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	0.025	0.026	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	16	16	0.0	No Limit
EA029-D: Calcium Values (QC Lot: 4975172)									
EB2309766-001	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	<0.020	0.0	No Limit
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EM2305362-008	OS_BH10_1.0_20230327	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.056	0.054	3.0	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.060	0.060	0.0	No Limit
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-E: Magnesium Values (QC Lot: 4975172)									
EB2309766-001	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.154	0.150	2.4	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.155	0.163	5.0	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	11	0.0	No Limit
EM2305362-008	OS_BH10_1.0_20230327	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.106	0.106	0.0	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.116	0.118	2.3	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	<0.020	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA029-E: Magnesium Values (QC Lot: 4975172) - continued									
EM2305362-008	OS_BH10_1.0_20230327	EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	10	0.0	No Limit
EA029-H: Acid Base Accounting (QC Lot: 4975172)									
EB2309766-001	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	0.17	0.20	15.9	0% - 50%
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.17	0.20	15.9	0% - 50%
		EA029: Liming Rate	----	1	kg CaCO3/t	8	10	15.9	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	8	10	15.9	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	109	127	15.9	0% - 50%
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	109	127	15.9	0% - 50%
EM2305362-008	OS_BH10_1.0_20230327	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	0.06	0.06	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.06	0.06	0.0	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	3	3	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	3	3	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	36	38	3.0	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	36	38	3.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4961255)									
EM2305107-001	Anonymous	EA055: Moisture Content	----	0.1	%	23.1	24.3	5.3	0% - 20%
EM2305362-010	OS_BH10_0.1_20230327	EA055: Moisture Content	----	0.1	%	11.6	10.6	9.5	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4965212)									
EM2305107-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305362-010	OS_BH10_0.1_20230327	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4967826)									
EM2305107-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305253-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4967827)									
EM2305362-010	OS_BH10_0.1_20230327	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305665-006	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 4972617)									
EM2305107-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EM2305253-005	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 4972619)									
EM2305362-015	OS_BH08_0.1_20230327	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EM2305681-002	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK030: Cyanide Amenable to Chlorination (QC Lot: 4972618)									
EM2305107-001	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EM2305253-005	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK030: Cyanide Amenable to Chlorination (QC Lot: 4972620)									
EM2305362-015	OS_BH08_0.1_20230327	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EM2305681-002	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 4967822)									
EM2305107-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	150	190	23.9	No Limit
EM2305253-003	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	120	160	29.2	No Limit
EK040T: Fluoride Total (QC Lot: 4967823)									
EM2305362-015	OS_BH08_0.1_20230327	EK040T: Fluoride	16984-48-8	40	mg/kg	<40	<40	0.0	No Limit
EM2305665-009	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	120	130	14.3	No Limit
EP010: Formaldehyde (QC Lot: 4969761)									
EM2305107-001	Anonymous	EP010: Formaldehyde	50-00-0	2	mg/kg	<2	<2	0.0	No Limit
EM2305665-006	Anonymous	EP010: Formaldehyde	50-00-0	2	mg/kg	8	7	15.2	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4965210)									
EM2305107-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305581-016	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4961224)									
EM2305362-010	OS_BH10_0.1_20230327	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 4961224)									
EM2305362-010	OS_BH10_0.1_20230327	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EP074H: Naphthalene (QC Lot: 4961224)									
EM2305362-010	OS_BH10_0.1_20230327	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 4961224)									
EM2305362-010	OS_BH10_0.1_20230327	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 4961224) - continued									
EM2305362-010	OS_BH10_0.1_20230327	EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4965209)									
EM2305107-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2305581-016	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4965209)									
EM2305107-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EM2305581-016	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4965209)									
EM2305107-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2305581-016	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075C: Phthalate Esters (QC Lot: 4965209)									
EM2305107-001	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305581-016	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075E: Nitroaromatics and Ketones (QC Lot: 4965209)									
EM2305107-001	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2305581-016	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075I: Organochlorine Pesticides (QC Lot: 4965209)									
EM2305107-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2305581-016	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4961224)									
EM2305362-010	OS_BH10_0.1_20230327	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4965211)									
EM2305107-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2305581-016	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4961224)									
EM2305362-010	OS_BH10_0.1_20230327	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4965211)									
EM2305107-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2305581-016	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4959140)									
EM2305108-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4959140)									
EM2305108-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4959140)									
EM2305108-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4959140)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231P: PFAS Sums (QC Lot: 4959140) - continued									
EM2305108-002	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4965213)								
EG005T: Antimony	7440-36-0	5	mg/kg	<5	2.57 mg/kg	114	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	106	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	106	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	94.9	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	75.0	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	118	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	98.6	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	108	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	101	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	99.5	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	73.7	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	110	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.9 mg/kg	86.4	70.0	130
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	111	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	85.1	70.0	130
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4969760)								
EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	50 mg/kg	93.5	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4969679)								
EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	0.025 mg/kg	85.2	70.0	130
EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	0.229 mg/kg	95.0	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4968490)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	101	99.3	101
EA029-A: pH Measurements (QCLot: 4975172)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.4 pH Unit	99.8	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.2 pH Unit	111	70.0	130
EA029-B: Acidity Trail (QCLot: 4975172)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	113	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA029-B: Acidity Trail (QCLot: 4975172) - continued								
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	25 mole H+ / t	111	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 4975172)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.055 % S	113	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.152 % S	90.6	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 4975172)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.201 % Ca	106	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.191 % Ca	99.3	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 4975172)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.204 % Mg	91.2	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.234 % Mg	92.1	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 4975172)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4965212)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	102	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4967826)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	77.6	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4967827)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	78.5	70.0	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4972617)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	110	70.0	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4972619)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	103	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4972618)								
EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	40 mg/kg	89.0	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4972620)								
EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	40 mg/kg	86.8	70.0	130
EK040T: Fluoride Total (QCLot: 4967822)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	98.9	93.1	107
EK040T: Fluoride Total (QCLot: 4967823)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	95.8	93.1	107
EP010: Formaldehyde (QCLot: 4969761)								
EP010: Formaldehyde	50-00-0	2	mg/kg	<2	25 mg/kg	91.2	83.9	103
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4965210)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	113	67.4	136
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4961224)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	96.4	69.2	116
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	93.3	67.7	116
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	92.5	66.6	115
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	89.9	65.2	112
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	92.0	69.4	111
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	88.4	68.4	110
EP074B: Oxygenated Compounds (QCLot: 4961224)								
EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	1 mg/kg	92.7	70.0	130
EP074H: Naphthalene (QCLot: 4961224)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	93.3	72.3	114
EP074I: Volatile Halogenated Compounds (QCLot: 4961224)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	119	47.0	138
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	104	57.6	125
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	95.1	72.3	115
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	102	60.5	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP074I: Volatile Halogenated Compounds (QCLot: 4961224) - continued								
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	95.5	70.3	112
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	94.6	66.6	115
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	101	64.4	122
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	104	58.4	127
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	99.6	72.9	114
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	95.6	64.7	115
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	96.8	72.6	116
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	95.9	60.0	119
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	94.3	71.8	116
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	92.3	66.1	116
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	92.4	39.8	128
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	95.1	70.3	113
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	92.8	62.6	113
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	94.8	70.8	110
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	96.2	48.4	120
EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	0.1 mg/kg	92.2	70.0	130
EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	0.1 mg/kg	86.2	70.0	130
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4965209)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	93.7	74.5	126
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	92.5	72.7	126
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	94.3	73.3	134
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	91.5	72.4	128
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4965209)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	94.1	71.5	130
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	91.2	73.4	129
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	91.6	74.3	129
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	91.0	70.9	133
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	93.2	71.8	132
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	10 mg/kg	83.7	41.0	156
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	10 mg/kg	90.7	65.3	134
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	10 mg/kg	86.0	43.6	128
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	10 mg/kg	86.4	62.0	128
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	86.8	34.5	137
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4965209)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4965209) - continued								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	93.0	73.0	131
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	95.2	76.3	130
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	93.3	72.0	135
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	94.2	74.4	131
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	94.2	73.3	130
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	94.0	78.4	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	94.6	75.3	132
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	93.9	75.4	130
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	95.3	69.6	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	96.2	75.0	133
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	4 mg/kg	98.0	75.8	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	95.9	65.1	130
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	88.6	72.1	134
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	88.3	72.9	135
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	89.4	71.3	134
EP075C: Phthalate Esters (QCLot: 4965209)								
EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	2 mg/kg	103	70.0	130
EP075E: Nitroaromatics and Ketones (QCLot: 4965209)								
EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	2 mg/kg	93.0	70.0	130
EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	2 mg/kg	97.4	70.0	130
EP075I: Organochlorine Pesticides (QCLot: 4965209)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	94.7	71.0	129
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	94.4	74.8	126
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	95.2	75.7	130
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	92.8	70.8	130
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	94.8	76.5	134
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	92.6	75.5	131
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	92.6	76.8	130
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	93.8	73.6	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	93.6	75.0	133
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	95.5	75.3	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	95.3	69.4	134
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	97.5	71.0	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075I: Organochlorine Pesticides (QCLot: 4965209) - continued								
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	94.0	78.0	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	71.7	69.0	143
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	98.5	55.7	145
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	98.2	71.4	135
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	95.9	74.8	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	96.1	70.2	135
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	93.6	77.7	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	95.1	63.6	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4961224)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	105	61.1	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4965211)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	770 mg/kg	98.8	74.4	129
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	2860 mg/kg	92.3	81.0	123
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1540 mg/kg	93.9	81.8	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4961224)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	104	59.9	119
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4965211)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1170 mg/kg	87.5	75.4	132
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3830 mg/kg	93.5	80.8	120
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	290 mg/kg	87.0	73.3	136
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4959140)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	97.0	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	95.6	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	89.8	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4959140)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	100	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.6	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.0	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.3	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4959140)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	93.8	62.0	145

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4959140) - continued								
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	93.3	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	102	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	130	70.0	130
EP231P: PFAS Sums (QCLot: 4959140)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4965213)							
EM2305107-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	82.8	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.2	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	108	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	96.2	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	95.9	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	104	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	94.4	80.0	120
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4969760)							
EM2305252-001	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	50 mg/kg	88.0	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4969679)							
EM2305362-015	OS_BH08_0.1_20230327	EP236: 2.4-D	94-75-7	0.025 mg/kg	87.8	70.0	130
		EP236: Tributyltin oxide	56-35-9	0.229 mg/kg	99.2	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4965212)							
EM2305107-002	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	87.0	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4967826)							
EM2305107-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	75.8	58.0	114
EM2305107-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	60.3	58.0	114
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4967827)							
EM2305362-013	OS_BH08_1.0_20230327	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	68.0	58.0	114
EM2305362-013	OS_BH08_1.0_20230327	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	71.8	58.0	114

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4972617)							
EM2305107-002	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	98.2	70.0	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4972619)							
EM2305606-001	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	105	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4972618)							
EM2305107-002	Anonymous	EK030SF: Cyanide amenable to chlorination	----	40 mg/kg	89.2	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4972620)							
EM2305665-001	Anonymous	EK030SF: Cyanide amenable to chlorination	----	40 mg/kg	84.2	70.0	130
EK040T: Fluoride Total (QCLot: 4967822)							
EM2305107-002	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	71.2	70.0	130
EK040T: Fluoride Total (QCLot: 4967823)							
EM2305606-001	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	# 60.0	70.0	130
EP010: Formaldehyde (QCLot: 4969761)							
EM2305252-001	Anonymous	EP010: Formaldehyde	50-00-0	12.5 mg/kg	94.0	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4965210)							
EM2305107-003	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	129	59.6	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4961224)							
EM2305362-015	OS_BH08_0.1_20230327	EP074-UT: Benzene	71-43-2	2 mg/kg	88.4	53.7	130
		EP074-UT: Toluene	108-88-3	2 mg/kg	99.8	55.1	124
EP074I: Volatile Halogenated Compounds (QCLot: 4961224)							
EM2305362-015	OS_BH08_0.1_20230327	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	63.4	38.4	145
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	81.5	48.1	128
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	98.2	55.5	122
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4965209)							
EM2305107-002	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	3 mg/kg	86.6	44.0	143
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4965209)							
EM2305107-002	Anonymous	EP075-EM: Phenol	108-95-2	3 mg/kg	84.4	44.2	134
		EP075-EM: 2-Nitrophenol	88-75-5	3 mg/kg	76.9	34.2	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4965209)							
EM2305107-002	Anonymous	EP075-EM: Acenaphthene	83-32-9	3 mg/kg	73.3	42.6	138
		EP075-EM: Pyrene	129-00-0	3 mg/kg	88.4	37.8	152
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4961224)							
EM2305362-015	OS_BH08_0.1_20230327	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	105	42.3	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4965211)							
EM2305362-010	OS_BH10_0.1_20230327	EP071-EM: C10 - C14 Fraction	----	770 mg/kg	97.5	71.3	126

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4965211) - continued							
EM2305362-010	OS_BH10_0.1_20230327	EP071-EM: C15 - C28 Fraction	----	2860 mg/kg	91.9	75.1	123
		EP071-EM: C29 - C36 Fraction	----	1540 mg/kg	93.0	78.1	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4961224)							
EM2305362-015	OS_BH08_0.1_20230327	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	98.9	39.9	109
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4965211)							
EM2305362-010	OS_BH10_0.1_20230327	EP071-EM: >C10 - C16 Fraction	----	1170 mg/kg	86.9	71.5	130
		EP071-EM: >C16 - C34 Fraction	----	3830 mg/kg	92.9	76.9	119
		EP071-EM: >C34 - C40 Fraction	----	290 mg/kg	84.8	65.3	139
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4959140)							
EM2305362-010	OS_BH10_0.1_20230327	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	88.5	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	86.5	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	90.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4959140)							
EM2305362-010	OS_BH10_0.1_20230327	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	92.7	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	88.8	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	81.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	85.3	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	88.8	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4959140)							
EM2305362-010	OS_BH10_0.1_20230327	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	87.6	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	93.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	85.0	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	88.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2305362**	Page	: 1 of 10
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 27-Mar-2023
Site	: IA5000EI BH08&10	Issue Date	: 06-Apr-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 15
Order number	: E1159	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EK040T: Fluoride Total	EM2305606--001	Anonymous	**Fluoride**	16984-48-8	60.0 %	70.0-130%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract								
Soil Glass Jar - Unpreserved (EA001)								
OS_BH10_0.1_20230327,	OS_BH08_0.1_20230327	**27-Mar-2023**	**03-Apr-2023**	03-Apr-2023	✓	**03-Apr-2023**	03-Apr-2023	✓
EA029-A: pH Measurements								
Snap Lock Bag - frozen (EA029)								
OS_BH10_1.0_20230327,	OS_BH08_1.0_20230327	**27-Mar-2023**	**06-Apr-2023**	20-Dec-2025	✓	**06-Apr-2023**	05-Jul-2023	✓
EA029-B: Acidity Trail								
Snap Lock Bag - frozen (EA029)								
OS_BH10_1.0_20230327,	OS_BH08_1.0_20230327	**27-Mar-2023**	**06-Apr-2023**	20-Dec-2025	✓	**06-Apr-2023**	05-Jul-2023	✓
EA029-C: Sulfur Trail								
Snap Lock Bag - frozen (EA029)								
OS_BH10_1.0_20230327,	OS_BH08_1.0_20230327	**27-Mar-2023**	**06-Apr-2023**	20-Dec-2025	✓	**06-Apr-2023**	05-Jul-2023	✓
EA029-D: Calcium Values								
Snap Lock Bag - frozen (EA029)								
OS_BH10_1.0_20230327,	OS_BH08_1.0_20230327	**27-Mar-2023**	**06-Apr-2023**	20-Dec-2025	✓	**06-Apr-2023**	05-Jul-2023	✓
EA029-E: Magnesium Values								
Snap Lock Bag - frozen (EA029)								
OS_BH10_1.0_20230327,	OS_BH08_1.0_20230327	**27-Mar-2023**	**06-Apr-2023**	20-Dec-2025	✓	**06-Apr-2023**	05-Jul-2023	✓
EA029-F: Excess Acid Neutralising Capacity								
Snap Lock Bag - frozen (EA029)								
OS_BH10_1.0_20230327,	OS_BH08_1.0_20230327	**27-Mar-2023**	**06-Apr-2023**	20-Dec-2025	✓	**06-Apr-2023**	05-Jul-2023	✓
EA029-G: Retained Acidity								
Snap Lock Bag - frozen (EA029)								
OS_BH10_1.0_20230327,	OS_BH08_1.0_20230327	**27-Mar-2023**	**06-Apr-2023**	20-Dec-2025	✓	**06-Apr-2023**	05-Jul-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-H: Acid Base Accounting							
Snap Lock Bag - frozen (EA029)							
OS_BH10_1.0_20230327, OS_BH08_1.0_20230327	**27-Mar-2023**	**06-Apr-2023**	20-Dec-2025	✓	**06-Apr-2023**	05-Jul-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_BH10_1.0_20230327, OS_BH10_0.1_20230327, OS_BH08_1.0_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**----**	----	----	**29-Mar-2023**	10-Apr-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**----**	----	----	**29-Mar-2023**	23-Sep-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_BH10_1.0_20230327, OS_BH10_0.1_20230327, OS_BH08_1.0_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	23-Sep-2023	✓	**31-Mar-2023**	23-Sep-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_BH10_1.0_20230327, OS_BH10_0.1_20230327, OS_BH08_1.0_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	24-Apr-2023	✓	**31-Mar-2023**	24-Apr-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_BH10_1.0_20230327, OS_BH10_0.1_20230327, OS_BH08_1.0_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**03-Apr-2023**	24-Apr-2023	✓	**04-Apr-2023**	10-Apr-2023	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**04-Apr-2023**	10-Apr-2023	✓	**06-Apr-2023**	18-Apr-2023	✓
EK030: Cyanide Amenable to Chlorination							
Soil Glass Jar - Unpreserved (EK030SF)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**04-Apr-2023**	10-Apr-2023	✓	**06-Apr-2023**	18-Apr-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**03-Apr-2023**	24-Apr-2023	✓	**05-Apr-2023**	24-Apr-2023	✓
EP010: Formaldehyde							
Soil Glass Jar - Unpreserved (EP010)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**04-Apr-2023**	23-Sep-2023	✓	**04-Apr-2023**	23-Sep-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	10-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**29-Mar-2023**	03-Apr-2023	✓	**30-Mar-2023**	03-Apr-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**29-Mar-2023**	03-Apr-2023	✓	**30-Mar-2023**	03-Apr-2023	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**29-Mar-2023**	03-Apr-2023	✓	**30-Mar-2023**	03-Apr-2023	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**29-Mar-2023**	03-Apr-2023	✓	**30-Mar-2023**	03-Apr-2023	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	10-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	10-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	10-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP075C: Phthalate Esters							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	10-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP075E: Nitroaromatics and Ketones							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	10-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	10-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**29-Mar-2023**	03-Apr-2023	✓	**30-Mar-2023**	03-Apr-2023	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	10-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**29-Mar-2023**	03-Apr-2023	✓	**30-Mar-2023**	03-Apr-2023	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**31-Mar-2023**	10-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP095: Ethylenediamine Tetraacetic Acid (EDTA)							
Soil Glass Jar - Unpreserved (EP095)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**04-Apr-2023**	10-Apr-2023	✓	**04-Apr-2023**	14-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**29-Mar-2023**	23-Sep-2023	✓	**30-Mar-2023**	08-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**29-Mar-2023**	23-Sep-2023	✓	**30-Mar-2023**	08-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**29-Mar-2023**	23-Sep-2023	✓	**30-Mar-2023**	08-May-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**29-Mar-2023**	23-Sep-2023	✓	**30-Mar-2023**	08-May-2023	✓
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)							
Soil Glass Jar - Unpreserved (EP236)							
OS_BH10_0.1_20230327, OS_BH08_0.1_20230327	**27-Mar-2023**	**04-Apr-2023**	10-Apr-2023	✓	**06-Apr-2023**	14-May-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
TRH - Semivolatile Fraction	EP071-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	SOIL	In house: Referenced to APHA 4500 - CN- G. The sample is leached in alkali solution and pretreated by contact with Chlorine (as hypochlorite) prior to determination of Total Cyanide. The measured parameter is the difference between Total Cyanide determined on an untreated sample and Total Cyanide determined post-chlorination. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Formaldehyde	EP010	SOIL	In house: Referenced to ASTM D 6303-98. Determined on 1:5 soil / water extracts by colourimetry using NASH reagent. The Hantszch reaction method is based on the reaction of acetylacetone with formaldehyde in the presence of excess ammonium acetate to form a coloured compound.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	SOIL	In house: Referenced to DIN EN ISO 16588. The esterified derivative of EDTA from an aliquot of a 1:5 soil:water extract is analysed by GCMS in Selected Ion Monitoring (SIM) mode. This technique is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	SOIL	In house: soils are solvent extracted. The extract is analysed by LC-Electrospray-MS-MS, Negative Mode using MRM. Quantification by internal standardisation. Results for Tributyltin expressed as Tributyltin Oxide (TBTO).

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction of solids for 2.4-D and TBTO	EP236-PR	SOIL	In house: 2g of homogenised sample is extracted with alkaline solvent. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

ALSCompass SAMPLING Intelligence

ALS

Environmental Division
Melbourne
Work Order Reference
EM2305362

Telephone : +61-3-8549 9600

Custody Document for Submissions via ALS Compass App

Project: IA5000 E1 Client: Jacobs Project Manager: Ranuli

Phone: (0451131750)

ALS Compass COC Reference: 50227 # Samples: Sampler:

Phone: ( )

Turnaround Requirements: Standard Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by: Andrew	Relinquished by:	Received by:
Date / Time:	Date / Time: 27.3.23 1635	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 50227 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: IA5000EI BH08&10

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_BH10_8.0_20230327		27/03/2023 09:25 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
002	OS_BH10_7.0_20230327		27/03/2023 09:25 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
003	OS_BH10_6.0_20230327		27/03/2023 09:25 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
004	OS_BH10_5.0_20230327		27/03/2023 09:24 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
005	OS_BH10_4.0_20230327		27/03/2023 09:23 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
006	OS_BH10_3.0_20230327		27/03/2023 09:11 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
007	OS_BH10_2.0_20230327		27/03/2023 09:08 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
008	OS_BH10_1.0_20230327		27/03/2023 08:45 AM	SOIL	ALS: 1 Non ALS: 1	No		Partial 4/9		
009	OS_BH10_0.5_20230327		27/03/2023 08:40 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			

CHAIN OF CUSTODY

ALS COC#: 50227 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: IA5000EI BH08&10

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: - SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@iacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_BH10_0.1_20230327		27/03/2023 08:28 AM	SOIL	ALS: 3 Non ALS: 1	No		Partial 3/9		
011	OS_BH08_3.0_20230327		27/03/2023 02:39 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
012	OS_BH08_2.0_20230327		27/03/2023 02:39 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
013	OS_BH08_1.0_20230327		27/03/2023 12:26 PM	SOIL	ALS: 1 Non ALS: 1	No		Partial 4/9		
014	OS_BH08_0.5_20230327		27/03/2023 12:30 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
015	OS_BH08_0.1_20230327		27/03/2023 12:29 PM	SOIL	ALS: 3 Non ALS: 1	No		Partial 3/9		

CHAIN OF CUSTODY

(ALS) COC#: 50227 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: IA5000EI BH08&10

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
008	OS_BH10_1.0_20230327	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EN020PR Drying at 85 degrees, bagging and labelling (ASS) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EA029 SPOCAS
010	OS_BH10_0.1_20230327	SOIL SOIL	SOIL	- EA200G Asbestos Identification in Soils - Presence/Absence in grab samples - EP231 (solids) PFAS - Short Suite (12 analytes) - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM) EPA 1828.2 Table 2 Full Solid Suite - excl. Anions
013	OS_BH08_1.0_20230327	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EN020PR Drying at 85 degrees, bagging and labelling (ASS) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EA029 SPOCAS
015	OS_BH08_0.1_20230327	SOIL SOIL	SOIL	- EA200G Asbestos Identification in Soils - Presence/Absence in grab samples - EP231 (solids) PFAS - Short Suite (12 analytes) - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM) EPA 1828.2 Table 2 Full Solid Suite - excl. Anions

CERTIFICATE OF ANALYSIS

Work Order	: **EM2305430**	Page	: 1 of 11
Amendment	: **(Partial Report)**		
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 28-Mar-2023 17:20
Order number	: E1159	Date Analysis Commenced	: 31-Mar-2023
C-O-C number	: 50055	Issue Date	: 05-Apr-2023 17:24
Sampler	: RANULI GOONETILLAKE		
Site	: Area C/D		
Quote number	: ME-491-22		
No. of samples received	: 10		
No. of samples analysed	: 2		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Andrew Lu	VOC Section Supervisor	Melbourne Inorganics, Springvale, VIC
Andrew Lu	VOC Section Supervisor	Melbourne Organics, Springvale, VIC
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Tahlia Freeman	Instrument Operator	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

This report contains preliminary authorised results. The report may contain semi-quantitative results. Any result presented in this preliminary report may be subject to change in the final report.

- EG048G: EM2305430 #3 Poor insoluble matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-UT: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EA001: pH in soil using 0.01M CaCl extract									
pH (CaCl2)	----	0.1	pH Unit		4.6	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		7.7	----	----	----	----
Moisture Content	----	1.0	%		----	15.7	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres		No	----	----	----	----
Asbestos Type	1332-21-4	-	--		-	----	----	----	----
Sample weight (dry)	----	0.01	g		65.5	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		M. TRAN	----	----	----	----
Synthetic Mineral Fibre	----	-	--		No	----	----	----	----
Organic Fibre	----	-	--		Yes	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Antimony	7440-36-0	5	mg/kg		<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg		20	10	----	----	----
Beryllium	7440-41-7	1	mg/kg		<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg		<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		----	17	----	----	----
Cobalt	7440-48-4	2	mg/kg		----	<2	----	----	----
Copper	7440-50-8	5	mg/kg		<5	9	----	----	----
Lead	7439-92-1	5	mg/kg		10	12	----	----	----
Manganese	7439-96-5	5	mg/kg		----	5	----	----	----
Molybdenum	7439-98-7	2	mg/kg		<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg		<2	4	----	----	----
Selenium	7782-49-2	5	mg/kg		<5	<5	----	----	----
Silver	7440-22-4	2	mg/kg		<2	----	----	----	----
Vanadium	7440-62-2	5	mg/kg		----	34	----	----	----
Zinc	7440-66-6	5	mg/kg		<5	8	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest) - Continued									
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		**1**	----	----	----	----
EK030: Cyanide Amenable to Chlorination									
Cyanide amenable to chlorination	----	1	mg/kg		<1	----	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**50**	----	----	----	----
EP010: Formaldehyde									
Formaldehyde	50-00-0	2	mg/kg		<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	1	mg/kg		<1	----	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	----	----	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EP074I: Volatile Halogenated Compounds - Continued									
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	----	----	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	----	----	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg		<0.01	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg		<0.01	----	----	----	----
^ Sum of Trichlorobenzenes	----	0.01	mg/kg		<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----
^ Cresols (Total)	----	1	mg/kg		<1	----	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		<1.0	----	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EP075I: Organochlorine Pesticides - Continued									
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**120**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**120**	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA) - Continued									
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg		<10	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0003**	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0003**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0003**	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)									
2.4-D	94-75-7	0.001	mg/kg		<0.001	----	----	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg		<0.01	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**103**	----	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EP074S: VOC Surrogates (Ultra-Trace) - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		91.4	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		88.5	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		92.4	----	----	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		86.1	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		102	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		93.0	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		91.4	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		81.7	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		88.0	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%		82.4	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		93.7	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		95.8	----	----	----	----
13C8-PFOA	----	0.0002	%		78.0	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_BH04_0.1_20230328 - 28-Mar-2023 13:18	Brown soil with organic matter.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

CERTIFICATE OF ANALYSIS

Work Order	: **EM2305430**	Page	: 1 of 13
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 28-Mar-2023 17:20
Order number	: E1159	Date Analysis Commenced	: 31-Mar-2023
C-O-C number	: 50055	Issue Date	: 13-Apr-2023 16:20
Sampler	: RANULI GOONETILLAKE		
Site	: Area C/D		
Quote number	: ME-491-22		
No. of samples received	: 10		
No. of samples analysed	: 2		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Andrew Lu	VOC Section Supervisor	Melbourne Inorganics, Springvale, VIC
Andrew Lu	VOC Section Supervisor	Melbourne Organics, Springvale, VIC
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Tahlia Freeman	Instrument Operator	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EG048G: EM2305430 #3 Poor insoluble matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-UT: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime ($CaCO_3$) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
			Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit	EM2305430-001	EM2305430-003	--------	--------	--------
				Result	Result	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**4.6**	----	----	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	**5.5**	----	----	----
pH OX (23B)	----	0.1	pH Unit	----	**5.4**	----	----	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	**13**	----	----	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	**20**	----	----	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	**6**	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	**0.021**	----	----	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	**0.032**	----	----	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	<0.020	----	----	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	<0.020	----	----	----
Peroxide Sulfur (23De)	----	0.020	% S	----	<0.020	----	----	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	----	<0.020	----	----	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	----	<10	----	----	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	----	**0.022**	----	----	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	----	**0.023**	----	----	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	----	<0.020	----	----	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	----	<0.020	----	----	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	----	**0.089**	----	----	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg	----	**0.094**	----	----	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	----	<0.020	----	----	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	----	<0.020	----	----	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	**1.5**	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	**0.02**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EA029-H: Acid Base Accounting - Continued									
Net Acidity (acidity units)	----	10	mole H+ / t		----	13	----	----	----
Liming Rate	----	1	kg CaCO3/t		----	1	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		----	0.02	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		----	13	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t		----	1	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		7.7	----	----	----	----
Moisture Content	----	1.0	%		----	15.7	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres		No	----	----	----	----
Asbestos Type	1332-21-4	-	--		-	----	----	----	----
Sample weight (dry)	----	0.01	g		65.5	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		M. TRAN	----	----	----	----
Synthetic Mineral Fibre	----	-	--		No	----	----	----	----
Organic Fibre	----	-	--		Yes	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Antimony	7440-36-0	5	mg/kg		<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg		20	10	----	----	----
Beryllium	7440-41-7	1	mg/kg		<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg		<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		----	17	----	----	----
Cobalt	7440-48-4	2	mg/kg		----	<2	----	----	----
Copper	7440-50-8	5	mg/kg		<5	9	----	----	----
Lead	7439-92-1	5	mg/kg		10	12	----	----	----
Manganese	7439-96-5	5	mg/kg		----	5	----	----	----
Molybdenum	7439-98-7	2	mg/kg		<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg		<2	4	----	----	----
Selenium	7782-49-2	5	mg/kg		<5	<5	----	----	----
Silver	7440-22-4	2	mg/kg		<2	----	----	----	----
Vanadium	7440-62-2	5	mg/kg		----	34	----	----	----
Zinc	7440-66-6	5	mg/kg		<5	8	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		**1**	----	----	----	----
EK030: Cyanide Amenable to Chlorination									
Cyanide amenable to chlorination	----	1	mg/kg		<1	----	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**50**	----	----	----	----
EP010: Formaldehyde									
Formaldehyde	50-00-0	2	mg/kg		<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of monocyclic aromatic hydrocarbons**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	----	----	----	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	1	mg/kg		<1	----	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EP074I: Volatile Halogenated Compounds - Continued									
Chloroform	67-66-3	0.02	mg/kg		<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	----	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	----	----	----	----
^ **Sum of volatile chlorinated hydrocarbons**	----	0.01	mg/kg		<0.01	----	----	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg		<0.01	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg		<0.01	----	----	----	----
^ **Sum of Trichlorobenzenes**	----	0.01	mg/kg		<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EP075A: Phenolic Compounds (Non-halogenated) - Continued									
^ Cresols (Total)	----	1	mg/kg		<1	----	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		<1.0	----	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit		EM2305430-001	EM2305430-003	--------	--------	--------
					Result	Result	----	----	----
EP075I: Organochlorine Pesticides - Continued									
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
^ **Chlordane**	57-74-9	0.03	mg/kg		<0.03	----	----	----	----
^ **Sum of other organochlorine pesticides**	----	0.03	mg/kg		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**120**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**120**	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
			Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit	EM2305430-001	EM2305430-003	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)								
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0003**	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	----	----	----	----
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0003**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0003**	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)								
2.4-D	94-75-7	0.001	mg/kg	<0.001	----	----	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH04_0.1_20230328	OS_BH04_1.0_20230328	----	----	----
			Sampling date / time	28-Mar-2023 13:18	28-Mar-2023 13:19	----	----	----
Compound	CAS Number	LOR	Unit	EM2305430-001	EM2305430-003	--------	--------	--------
				Result	Result	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**103**	----	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**91.4**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	**88.5**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	**92.4**	----	----	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)								
Phenol-d6	13127-88-3	0.025	%	**86.1**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%	**102**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%	**93.0**	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)								
Nitrobenzene-D5	4165-60-0	0.025	%	**91.4**	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%	**81.7**	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%	**88.0**	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%	**82.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%	**93.7**	----	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**95.8**	----	----	----	----
13C8-PFOA	----	0.0002	%	**78.0**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_BH04_0.1_20230328 - 28-Mar-2023 13:18	Brown soil with organic matter.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

QUALITY CONTROL REPORT

Work Order	: **EM2305430**	Page	: 1 of 20
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 28-Mar-2023
Order number	: E1159	Date Analysis Commenced	: 31-Mar-2023
C-O-C number	: 50055	Issue Date	: 13-Apr-2023
Sampler	: RANULI GOONETILLAKE		
Site	: Area C/D		
Quote number	: ME-491-22		
No. of samples received	: 10		
No. of samples analysed	: 2		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Andrew Lu	VOC Section Supervisor	Melbourne Inorganics, Springvale, VIC
Andrew Lu	VOC Section Supervisor	Melbourne Organics, Springvale, VIC
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Tahlia Freeman	Instrument Operator	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4966218)									
EM2305430-001	OS_BH04_0.1_20230328	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	10	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	16	15	7.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	11	11	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2305569-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4966218) - continued									
EM2305569-001	Anonymous	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	5	5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	77	82	6.4	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	26	27	4.3	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	60	60	0.0	No Limit
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QC Lot: 4966240)									
EM2305086-001	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	<10	0.0	No Limit
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QC Lot: 4964897)									
EM2305109-003	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EM2305621-008	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4970745)									
EM2305430-001	OS_BH04_0.1_20230328	EA001: pH (CaCl2)	----	0.1	pH Unit	4.6	4.6	0.0	0% - 20%
EM2305655-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.5	7.6	0.0	0% - 20%
EA029-A: pH Measurements (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	9.5	9.5	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	7.9	7.9	0.0	0% - 20%
EB2310747-001	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	4.4	4.4	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	4.2	4.2	0.0	0% - 20%
EA029-B: Acidity Trail (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EB2310747-001	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.163	0.163	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	0.264	0.264	0.0	0% - 50%
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	0.101	0.101	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-B: Acidity Trail (QC Lot: 4985104) - continued									
EB2310747-001	Anonymous	EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	102	102	0.0	0% - 20%
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	165	165	0.0	0% - 20%
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	63	63	0.0	0% - 20%
EA029-C: Sulfur Trail (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EB2310747-001	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	0.025	0.026	6.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	0.039	0.042	7.3	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-D: Calcium Values (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.119	0.129	8.2	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.672	0.636	5.5	0% - 20%
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	0.553	0.507	8.7	0% - 20%
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	0.443	0.406	8.7	0% - 20%
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	276	253	8.7	0% - 20%
EB2310747-001	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.021	0.022	0.0	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.022	0.024	9.8	No Limit
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-E: Magnesium Values (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.026	0.023	11.3	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	0.021	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	0.027	0.023	16.7	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	17	14	16.7	No Limit
EB2310747-001	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.023	0.024	5.7	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.023	0.025	9.1	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-H: Acid Base Accounting (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EB2310747-001	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	0.17	0.17	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.17	0.17	0.0	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	8	8	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	8	8	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	107	108	0.0	0% - 50%
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	107	108	0.0	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4965231)									
EM2305430-001	OS_BH04_0.1_20230328	EA055: Moisture Content	----	0.1	%	7.7	8.1	4.7	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4966217)									
EM2305430-001	OS_BH04_0.1_20230328	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305569-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4965554)									
EM2305430-001	OS_BH04_0.1_20230328	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305621-005	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 4969478)									
EM2305086-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EM2305108-004	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK030: Cyanide Amenable to Chlorination (QC Lot: 4969479)									
EM2305086-001	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EM2305108-004	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 4966232)									
EM2305430-001	OS_BH04_0.1_20230328	EK040T: Fluoride	16984-48-8	40	mg/kg	50	<40	0.0	No Limit
EM2305621-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	120	110	12.4	No Limit
EP010: Formaldehyde (QC Lot: 4966241)									
EM2305086-001	Anonymous	EP010: Formaldehyde	50-00-0	2	mg/kg	<2	<2	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4964890)									
EM2305109-003	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305621-008	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4964876)									
EM2305430-001	OS_BH04_0.1_20230328	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4964876) - continued									
EM2305430-001	OS_BH04_0.1_20230328	EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 4964876)									
EM2305430-001	OS_BH04_0.1_20230328	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EP074H: Naphthalene (QC Lot: 4964876)									
EM2305430-001	OS_BH04_0.1_20230328	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 4964876)									
EM2305430-001	OS_BH04_0.1_20230328	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4964888) - continued									
EM2305621-008	Anonymous	EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4964888) - continued									
EM2305621-008	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075C: Phthalate Esters (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075E: Nitroaromatics and Ketones (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075I: Organochlorine Pesticides (QC Lot: 4964888) - continued									
EM2305109-003	Anonymous	EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4964876)									
EM2305430-001	OS_BH04_0.1_20230328	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4964891)									
EM2305109-003	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2305621-008	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4964876)									
EM2305430-001	OS_BH04_0.1_20230328	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4964891)									
EM2305109-003	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4964891) - continued									
EM2305109-003	Anonymous	EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2305621-008	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4965110)									
EM2305430-001	OS_BH04_0.1_20230328	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0003	0.0002	0.0	No Limit
EM2305628-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0005	0.0008	38.2	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4965110)									
EM2305430-001	OS_BH04_0.1_20230328	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2305628-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4965110)									
EM2305430-001	OS_BH04_0.1_20230328	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2305628-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231P: PFAS Sums (QC Lot: 4965110)									
EM2305430-001	OS_BH04_0.1_20230328	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0003	0.0002	40.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0003	0.0002	40.0	No Limit
EM2305628-002	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0005	0.0010	66.7	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0009	0.0012	28.6	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4966218)								
EG005T: Antimony	7440-36-0	5	mg/kg	<5	2.57 mg/kg	86.5	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	94.4	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	96.8	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	103	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	66.2	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	98.9	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	91.5	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	95.0	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	94.4	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	95.6	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	81.0	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	96.8	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.9 mg/kg	88.8	70.0	130
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	95.9	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	77.4	70.0	130
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4966240)								
EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	50 mg/kg	76.3	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4964897)								
EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	0.025 mg/kg	94.8	70.0	130
EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	0.229 mg/kg	91.0	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4970745)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	101	99.3	101
EA029-A: pH Measurements (QCLot: 4985104)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.4 pH Unit	99.0	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.2 pH Unit	115	70.0	130
EA029-B: Acidity Trail (QCLot: 4985104)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	108	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA029-B: Acidity Trail (QCLot: 4985104) - continued								
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	25 mole H+ / t	103	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 4985104)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.055 % S	111	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.152 % S	90.0	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 4985104)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.201 % Ca	105	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.191 % Ca	106	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 4985104)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.204 % Mg	98.8	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.234 % Mg	103	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 4985104)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4966217)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	79.7	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4965554)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	87.6	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4969478)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	103	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4969479)								
EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	40 mg/kg	91.7	70.0	130
EK040T: Fluoride Total (QCLot: 4966232)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	97.4	93.1	107
EP010: Formaldehyde (QCLot: 4966241)								
EP010: Formaldehyde	50-00-0	2	mg/kg	<2	25 mg/kg	95.0	83.9	103
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4964890)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	120	67.4	136
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4964876)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	92.8	69.2	116
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	91.0	67.7	116
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	89.4	66.6	115
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	87.5	65.2	112
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	89.9	69.4	111
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	86.5	68.4	110
EP074B: Oxygenated Compounds (QCLot: 4964876)								
EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	1 mg/kg	101	70.0	130
EP074H: Naphthalene (QCLot: 4964876)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	87.4	72.3	114
EP074I: Volatile Halogenated Compounds (QCLot: 4964876)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	99.3	47.0	138
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	96.6	57.6	125
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	93.9	72.3	115
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	96.8	60.5	122
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	92.5	70.3	112
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	94.2	66.6	115
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	97.0	64.4	122
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	95.6	58.4	127
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	96.2	72.9	114
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	93.8	64.7	115
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	93.8	72.6	116
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	91.6	60.0	119

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 4964876) - continued								
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	91.8	71.8	116
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	92.4	66.1	116
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	75.0	39.8	128
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	90.6	70.3	113
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	86.8	62.6	113
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	89.0	70.8	110
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	78.0	48.4	120
EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	0.1 mg/kg	78.6	70.0	130
EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	0.1 mg/kg	80.8	70.0	130
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4964888)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	79.9	74.5	126
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	80.4	72.7	126
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	86.0	73.3	134
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	81.1	72.4	128
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4964888)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	81.4	71.5	130
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	80.1	73.4	129
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	79.3	74.3	129
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	78.8	70.9	133
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	80.7	71.8	132
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	10 mg/kg	86.0	41.0	156
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	10 mg/kg	96.3	65.3	134
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	10 mg/kg	81.8	43.6	128
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	10 mg/kg	85.1	62.0	128
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	87.2	34.5	137
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4964888)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	80.2	73.0	131
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	85.5	76.3	130
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	83.4	72.0	135
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	83.9	74.4	131
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	87.3	73.3	130
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	86.6	78.4	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	92.1	75.3	132
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	91.8	75.4	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4964888) - continued								
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	95.4	69.6	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	95.3	75.0	133
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	4 mg/kg	95.3	75.8	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	95.7	65.1	130
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	95.9	72.1	134
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	95.6	72.9	135
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	96.0	71.3	134
EP075C: Phthalate Esters (QCLot: 4964888)								
EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	2 mg/kg	103	70.0	130
EP075E: Nitroaromatics and Ketones (QCLot: 4964888)								
EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	2 mg/kg	84.2	70.0	130
EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	2 mg/kg	79.6	70.0	130
EP075I: Organochlorine Pesticides (QCLot: 4964888)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	87.2	71.0	129
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	85.6	74.8	126
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	89.7	75.7	130
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	85.8	70.8	130
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	86.8	76.5	134
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	87.5	75.5	131
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	87.0	76.8	130
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	89.8	73.6	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	89.6	75.0	133
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	90.8	75.3	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	92.2	69.4	134
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	93.5	71.0	132
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	89.1	78.0	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	79.9	69.0	143
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	94.8	55.7	145
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	94.3	71.4	135
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	94.6	74.8	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	94.0	70.2	135
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	92.3	77.7	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	95.4	63.6	135

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964876)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	94.6	61.1	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964891)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	770 mg/kg	108	74.4	129
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	2860 mg/kg	98.6	81.0	123
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1540 mg/kg	110	81.8	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964876)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	92.8	59.9	119
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964891)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1170 mg/kg	88.2	75.4	132
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3830 mg/kg	104	80.8	120
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	290 mg/kg	98.7	73.3	136
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4965110)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	84.9	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	87.4	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	89.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4965110)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	95.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.3	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.3	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.6	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4965110)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	90.0	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	97.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	92.2	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	72.4	70.0	130
EP231P: PFAS Sums (QCLot: 4965110)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4966218)							
EM2305430-003	OS_BH04_1.0_20230328	EG005T: Arsenic	7440-38-2	50 mg/kg	85.1	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.2	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	91.9	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	98.9	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	97.0	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	95.8	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	94.1	80.0	120
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4966240)							
EM2305103-001	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	50 mg/kg	83.3	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4964897)							
EM2305430-001	OS_BH04_0.1_20230328	EP236: 2.4-D	94-75-7	0.025 mg/kg	84.9	70.0	130
		EP236: Tributyltin oxide	56-35-9	0.229 mg/kg	83.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4966217)							
EM2305430-003	OS_BH04_1.0_20230328	EG035T: Mercury	7439-97-6	0.5 mg/kg	93.1	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4965554)							
EM2305430-003	OS_BH04_1.0_20230328	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 56.8	58.0	114
EM2305430-003	OS_BH04_1.0_20230328	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	85.6	58.0	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4969478)							
EM2305086-002	Anonymous	EK026SF: Total Cyanide	57-12-5	40 mg/kg	99.7	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4969479)							
EM2305086-002	Anonymous	EK030SF: Cyanide amenable to chlorination	----	40 mg/kg	93.9	70.0	130
EK040T: Fluoride Total (QCLot: 4966232)							
EM2305431-001	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	87.7	70.0	130
EP010: Formaldehyde (QCLot: 4966241)							
EM2305103-001	Anonymous	EP010: Formaldehyde	50-00-0	12.5 mg/kg	74.0	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4964890)							
EM2305621-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	145	59.6	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4964876)							
EM2305431-001	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	100	53.7	130
		EP074-UT: Toluene	108-88-3	2 mg/kg	97.1	55.1	124
EP074I: Volatile Halogenated Compounds (QCLot: 4964876)							
EM2305431-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	94.3	38.4	145
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	88.4	48.1	128

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP074I: Volatile Halogenated Compounds (QCLot: 4964876) - continued							
EM2305431-001	Anonymous	EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	86.3	55.5	122
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4964888)							
EM2305430-001	OS_BH04_0.1_20230328	EP075-EM: 2-Chlorophenol	95-57-8	3 mg/kg	82.2	44.0	143
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4964888)							
EM2305430-001	OS_BH04_0.1_20230328	EP075-EM: Phenol	108-95-2	3 mg/kg	81.5	44.2	134
		EP075-EM: 2-Nitrophenol	88-75-5	3 mg/kg	77.9	34.2	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4964888)							
EM2305430-001	OS_BH04_0.1_20230328	EP075-EM: Acenaphthene	83-32-9	3 mg/kg	74.8	42.6	138
		EP075-EM: Pyrene	129-00-0	3 mg/kg	91.5	37.8	152
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964876)							
EM2305431-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	81.0	42.3	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964891)							
EM2305621-002	Anonymous	EP071-EM: C10 - C14 Fraction	----	770 mg/kg	96.8	71.3	126
		EP071-EM: C15 - C28 Fraction	----	2860 mg/kg	90.1	75.1	123
		EP071-EM: C29 - C36 Fraction	----	1540 mg/kg	102	78.1	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964876)							
EM2305431-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	76.1	39.9	109
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964891)							
EM2305621-002	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1170 mg/kg	79.3	71.5	130
		EP071-EM: >C16 - C34 Fraction	----	3830 mg/kg	96.0	76.9	119
		EP071-EM: >C34 - C40 Fraction	----	290 mg/kg	91.3	65.3	139
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4965110)							
EM2305431-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	82.1	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	71.2	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	90.5	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4965110)							
EM2305431-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	76.7	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	80.3	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	76.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	76.8	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	80.4	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4965110)							
EM2305431-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	78.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	82.2	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	83.1	65.0	137

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4965110) - continued							
EM2305431-001	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	75.6	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2305430**	Page	: 1 of 10
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 28-Mar-2023
Site	: Area C/D	Issue Date	: 13-Apr-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 10
Order number	: E1159	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG048: Hexavalent Chromium (Alkaline Digest)	EM2305430--003	OS_BH04_1.0_20230328	**Hexavalent Chromium**	18540-29-9	56.8 %	58.0-114%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**04-Apr-2023**	04-Apr-2023	✓	**04-Apr-2023**	04-Apr-2023	✓
EA029-A: pH Measurements							
Snap Lock Bag - frozen (EA029)							
OS_BH04_1.0_20230328	**28-Mar-2023**	**13-Apr-2023**	21-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-B: Acidity Trail							
Snap Lock Bag - frozen (EA029)							
OS_BH04_1.0_20230328	**28-Mar-2023**	**13-Apr-2023**	21-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-C: Sulfur Trail							
Snap Lock Bag - frozen (EA029)							
OS_BH04_1.0_20230328	**28-Mar-2023**	**13-Apr-2023**	21-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-D: Calcium Values							
Snap Lock Bag - frozen (EA029)							
OS_BH04_1.0_20230328	**28-Mar-2023**	**13-Apr-2023**	21-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-E: Magnesium Values							
Snap Lock Bag - frozen (EA029)							
OS_BH04_1.0_20230328	**28-Mar-2023**	**13-Apr-2023**	21-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-F: Excess Acid Neutralising Capacity							
Snap Lock Bag - frozen (EA029)							
OS_BH04_1.0_20230328	**28-Mar-2023**	**13-Apr-2023**	21-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-G: Retained Acidity							
Snap Lock Bag - frozen (EA029)							
OS_BH04_1.0_20230328	**28-Mar-2023**	**13-Apr-2023**	21-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-H: Acid Base Accounting							
Snap Lock Bag - frozen (EA029)							
OS_BH04_1.0_20230328	**28-Mar-2023**	**13-Apr-2023**	21-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_BH04_0.1_20230328, OS_BH04_1.0_20230328	**28-Mar-2023**	**----**	----	----	**31-Mar-2023**	11-Apr-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**----**	----	----	**31-Mar-2023**	24-Sep-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_BH04_0.1_20230328, OS_BH04_1.0_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**31-Mar-2023**	24-Sep-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_BH04_0.1_20230328, OS_BH04_1.0_20230328	**28-Mar-2023**	**31-Mar-2023**	25-Apr-2023	✓	**03-Apr-2023**	25-Apr-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_BH04_0.1_20230328, OS_BH04_1.0_20230328	**28-Mar-2023**	**31-Mar-2023**	25-Apr-2023	✓	**01-Apr-2023**	07-Apr-2023	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**03-Apr-2023**	11-Apr-2023	✓	**05-Apr-2023**	17-Apr-2023	✓
EK030: Cyanide Amenable to Chlorination							
Soil Glass Jar - Unpreserved (EK030SF)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**03-Apr-2023**	11-Apr-2023	✓	**05-Apr-2023**	17-Apr-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	25-Apr-2023	✓	**05-Apr-2023**	25-Apr-2023	✓
EP010: Formaldehyde							
Soil Glass Jar - Unpreserved (EP010)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**01-Apr-2023**	24-Sep-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075C: Phthalate Esters							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075E: Nitroaromatics and Ketones							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP095: Ethylenediamine Tetraacetic Acid (EDTA)							
Soil Glass Jar - Unpreserved (EP095)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)							
Soil Glass Jar - Unpreserved (EP236)							
OS_BH04_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**03-Apr-2023**	10-May-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
TRH - Semivolatile Fraction	EP071-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	SOIL	In house: Referenced to APHA 4500 - CN- G. The sample is leached in alkali solution and pretreated by contact with Chlorine (as hypochlorite) prior to determination of Total Cyanide. The measured parameter is the difference between Total Cyanide determined on an untreated sample and Total Cyanide determined post-chlorination. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Formaldehyde	EP010	SOIL	In house: Referenced to ASTM D 6303-98. Determined on 1:5 soil / water extracts by colourimetry using NASH reagent. The Hantszch reaction method is based on the reaction of acetylacetone with formaldehyde in the presence of excess ammonium acetate to form a coloured compound.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	SOIL	In house: Referenced to DIN EN ISO 16588. The esterified derivative of EDTA from an aliquot of a 1:5 soil:water extract is analysed by GCMS in Selected Ion Monitoring (SIM) mode. This technique is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	SOIL	In house: soils are solvent extracted. The extract is analysed by LC-Electrospray-MS-MS, Negative Mode using MRM. Quantification by internal standardisation. Results for Tributyltin expressed as Tributyltin Oxide (TBTO).

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction of solids for 2.4-D and TBTO	EP236-PR	SOIL	In house: 2g of homogenised sample is extracted with alkaline solvent. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLES RECEIVED WITHOUT COC

CLIENT:	JACOBS	CARRIER:	
PROJECT / QUOTE:	1H5000E1	CONNOTE #:	
CONTACT NAME:		AWB #:	
CONTACT NUMBER:		# OF ESKIES: 3	SECURITY SEAL: Y N N/A
SAMPLER NAME:		TYPE OF ESKIES:	
SAMPLER NUMBER:		ESKY NUMBERS:	
SAMPLES RECEIVED BY:	BL (ALS)	# OF SAMPLES:	
DATE/TIME RECEIVED:	28/03/22 17:20	CLIENT SERVICES NOTIFIED BY:	TEMPERATURE:

Environmental Division
Melbourne
Work Order Reference
EM2305430

Telephone : +61-3-8549 9600

LAB ID	SAMPLE DETAILS: SAMPLE ID	DATE	MATRIX	NUMBER OF CONTAINERS	ADDITIONAL INFORMATION / COMM
1	BH04_0.1	28/3	S	Jar	
2	BH04_5.0	"	S	Jar	
3					
4					
5					
			TOTAL		

OTHER INFORMATION:

- ☐ MICRO
- ☐ BIOSECURITY
- ☐ BROKEN CONTAINERS
- ☐ COC EMAILED
- ☐ ALS COMPASS

CORRESPONDENCE (DATE, INITIALS - DETAILS OF CORRESPONDENCE):

Ranil Weerakkody

From: Goonetillake, Ranuli <Ranuli.Goonetillake@jacobs.com>
Sent: Wednesday, 29 March 2023 7:47 AM
To: COC Melbourne
Subject: [EXTERNAL] - IA5000EI COC update

You don't often get email from ranuli.goonetillake@jacobs.com. Learn why this is important

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Morning team,

I just wanted to clarify some points with the COCs being submitted for IA5000EI and their respective sample drop offs

- Yesterday 3 eskies were dropped off for COC 50055, 50057 and 50296 (submitted this morning for five samples on hold sampled from 27/03)
- Samples OS_BH04_7.0_280323 and OS_BH04_8.0_280323 were scanned into COC 50055 however these will be delivered in with the samples being dropped off today in COC 50297 (yet to be submitted)

Let me know if you need clarification on anything!

Thanks,
Ranuli
Get Outlook for iOS

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CHAIN OF CUSTODY

(ALS) COC#: 50055 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area C/D

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free Ice / frozen Ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_BH04_0.1_20230328		28/03/2023 01:18 PM	SOIL	ALS: 3 Non ALS: 1	No		Partial 3/9		
002	OS_BH04_0.5_20230328		28/03/2023 01:18 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
003	OS_BH04_1.0_20230328		28/03/2023 01:19 PM	SOIL	ALS: 2 Non ALS: 0	No		Partial 4/9		
004	OS_BH04_2.0_20230328		28/03/2023 01:20 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
005	OS_BH04_3.0_20230328		28/03/2023 01:20 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
006	OS_BH04_4.0_20230328		28/03/2023 01:21 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
007	OS_BH04_5.0_20230328		28/03/2023 01:21 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
008	OS_BH04_6.0_20230328		28/03/2023 01:21 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
009	OS_BH04_7.0_20230328		28/03/2023 01:22 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			

CHAIN OF CUSTODY

(ALS) COC#: 50055 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area C/D

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON . HOLD	Analysis NOT REQUIRED	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_BH04_8.0_20230328		28/03/2023 01:22 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-			

CHAIN OF CUSTODY

(ALS) COC#: 50055 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area C/D

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

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EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
001	OS_BH04_0.1_20230328	SOIL SOIL	SOIL	- EA200G Asbestos Identification in Soils - Presence/Absence in grab samples - EP231 (solids) PFAS - Short Suite (12 analytes) - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM) EPA 1828.2 Table 2 Full Solid Suite - excl. Anions
003	OS_BH04_1.0_20230328	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EN020PR Drying at 85 degrees, bagging and labelling (ASS) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EA029 SPOCAS

CHAIN OF CUSTODY

ALS COC#: 50055 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area C/D

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free Ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	OS_BH04_0.1_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062246	Orange	No	
001	OS_BH04_0.1_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062291	Orange	No	
001	OS_BH04_0.1_20230328	HDPE Soil Jar	200 mL	00621122060682	Grey	No	
002	OS_BH04_0.5_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062261	Orange	No	
003	OS_BH04_1.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062180	Orange	No	
003	OS_BH04_1.0_20230328	Snap Lock Bag (frozen)	1 Medium	00131222013535	Green	No	
004	OS_BH04_2.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062158	Orange	No	
005	OS_BH04_3.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062298	Orange	No	
006	OS_BH04_4.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062258	Orange	No	
007	OS_BH04_5.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062190	Orange	No	
008	OS_BH04_6.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062324	Orange	No	
009	OS_BH04_7.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062172	Orange	No	
010	OS_BH04_8.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00260822062165	Orange	No	

Total Bottle Count: ALS: 13, Non ALS: 1

CERTIFICATE OF ANALYSIS

Work Order	: **EM2305431**	Page	: 1 of 11
Amendment	: **(Partial Report)**		
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 28-Mar-2023 17:20
Order number	: E1159	Date Analysis Commenced	: 31-Mar-2023
C-O-C number	: 50057	Issue Date	: 05-Apr-2023 17:25
Sampler	: RANULI GOONETILLAKE		
Site	: Area E		
Quote number	: ME-491-22		
No. of samples received	: 11		
No. of samples analysed	: 3		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

This report contains preliminary authorised results. The report may contain semi-quantitative results. Any result presented in this preliminary report may be subject to change in the final report.

- EG048G: EM2305430 #3 Poor insoluble matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-UT: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	RIN01_230328	----	----	----	----
				Sampling date / time	28-Mar-2023 13:04	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-011	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EA001: pH in soil using 0.01M CaCl extract									
pH (CaCl2)	----	0.1	pH Unit		5.4	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		8.5	----	----	----	----
Moisture Content	----	1.0	%		----	17.6	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres		No	----	----	----	----
Asbestos Type	1332-21-4	-	--		-	----	----	----	----
Sample weight (dry)	----	0.01	g		45.4	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		M. TRAN	----	----	----	----
Synthetic Mineral Fibre	----	-	--		No	----	----	----	----
Organic Fibre	----	-	--		Yes	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Antimony	7440-36-0	5	mg/kg		<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg		40	30	----	----	----
Beryllium	7440-41-7	1	mg/kg		<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg		<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		----	15	----	----	----
Cobalt	7440-48-4	2	mg/kg		----	3	----	----	----
Copper	7440-50-8	5	mg/kg		<5	7	----	----	----
Lead	7439-92-1	5	mg/kg		10	11	----	----	----
Manganese	7439-96-5	5	mg/kg		----	10	----	----	----
Molybdenum	7439-98-7	2	mg/kg		<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg		2	3	----	----	----
Selenium	7782-49-2	5	mg/kg		<5	<5	----	----	----
Silver	7440-22-4	2	mg/kg		<2	----	----	----	----
Vanadium	7440-62-2	5	mg/kg		----	26	----	----	----
Zinc	7440-66-6	5	mg/kg		6	<5	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest) - Continued									
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		1	----	----	----	----
EK030: Cyanide Amenable to Chlorination									
Cyanide amenable to chlorination	----	1	mg/kg		1	----	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		<40	----	----	----	----
EP010: Formaldehyde									
Formaldehyde	50-00-0	2	mg/kg		<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	1	mg/kg		<1	----	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	----	----	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EP074I: Volatile Halogenated Compounds - Continued									
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	----	----	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	----	----	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg		<0.01	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg		<0.01	----	----	----	----
^ Sum of Trichlorobenzenes	----	0.01	mg/kg		<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----
^ Cresols (Total)	----	1	mg/kg		<1	----	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		<1.0	----	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EP075l: Organochlorine Pesticides - Continued									
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		**110**	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**110**	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**120**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**120**	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA) - Continued									
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg		<10	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0003**	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0003**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0003**	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)									
2.4-D	94-75-7	0.001	mg/kg		<0.001	----	----	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg		<0.01	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**99.5**	----	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EP074S: VOC Surrogates (Ultra-Trace) - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**83.4**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		**83.1**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**86.5**	----	----	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		**84.5**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**99.7**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**91.7**	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		**81.7**	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**79.4**	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**85.6**	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%		**80.5**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**90.6**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**88.5**	----	----	----	----
13C8-PFOA	----	0.0002	%		**82.2**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_BH07_0.1_20230328 - 28-Mar-2023 07:39	Brown soil with organic matter.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

SAMPLES RECEIVED WITHOUT COC

CLIENT:	JACOBS	CARRIER:	
PROJECT / QUOTE:	IH500061	CONNOTE #:	
CONTACT NAME:		AWB #:	
CONTACT NUMBER:		# OF ESKIES: 3	SECURITY SEAL: Y N N/A
SAMPLER NAME:		TYPE OF ESKIES:	
SAMPLER NUMBER:		ESKY NUMBERS:	
SAMPLES RECEIVED BY:	BL (ALS)	# OF SAMPLES:	
DATE/TIME RECEIVED:	28/03/23 17:20	CLIENT SERVICES NOTIFIED BY:	TEMPERATURE:

Environmental Division
Melbourne
Work Order Reference
EM2305431

Telephone : +61-3-8549 9600

LAB ID	SAMPLE DETAILS: SAMPLE ID	DATE	MATRIX	NUMBER OF CONTAINERS	ADDITIONAL INFORMATION / COMM
1	BH04_0.1	28/3	S	JAV	
2	BH04_5.0	"	S	JAV	
3					
4					
5					
			TOTAL		

OTHER INFORMATION:

- ☐ MICRO
- ☐ BIOSECURITY
- ☐ BROKEN CONTAINERS
- ☐ COC EMAILED
- ☐ ALS COMPASS

CORRESPONDENCE (DATE, INITIALS - DETAILS OF CORRESPONDENCE):

Ranil Weerakkody

From: Goonetillake, Ranuli <Ranuli.Goonetillake@jacobs.com>
Sent: Wednesday, 29 March 2023 7:47 AM
To: COC Melbourne
Subject: [EXTERNAL] - IA5000EI COC update

You don't often get email from ranuli.goonetillake@jacobs.com. Learn why this is important

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Morning team,

I just wanted to clarify some points with the COCs being submitted for IA5000EI and their respective sample drop offs

- Yesterday 3 eskies were dropped off for COC 50055, 50057 and 50296 (submitted this morning for five samples on hold sampled from 27/03)
- Samples OS_BH04_7.0_280323 and OS_BH04_8.0_280323 were scanned into COC 50055 however these will be delivered in with the samples being dropped off today in COC 50297 (yet to be submitted)

Let me know if you need clarification on anything!

Thanks,
Ranuli
Get Outlook for iOS

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CHAIN OF CUSTODY

(ALS) COC#: 50057 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_BH07_0.1_20230328		28/03/2023 07:39 AM	SOIL	ALS: 3 Non ALS: 1	No			Partial 3/9		
002	OS_BH07_0.5_20230328		28/03/2023 07:39 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
003	OS_BH07_1.0_20230328		22/03/2023 03:24 PM	SOIL	ALS: 2 Non ALS: 0	No			Partial 4/9		
004	OS_BH07_2.0_20230328		28/03/2023 07:43 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
005	OS_BH07_3.0_20230328		28/03/2023 07:43 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
006	OS_BH07_4.0_20230328		28/03/2023 07:43 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
007	OS_BH07_5.0_20230328		28/03/2023 07:44 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
008	OS_BH07_6.0_20230328		28/03/2023 07:44 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
009	OS_BH07_7.0_20230328		28/03/2023 07:44 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				

CHAIN OF CUSTODY

(ALS) COC#: 50057 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_BH07_8.0_20230328		28/03/2023 07:44 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
011	RIN01_230328		28/03/2023 01:04 PM	WATER	ALS: 1 Non ALS: 0	No		X			

CHAIN OF CUSTODY

(ALS) COC#: 50057 ALS Laboratory: EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
001	OS_BH07_0.1_20230328	SOIL SOIL	SOIL	- EA200G Asbestos Identification in Soils - Presence/Absence in grab samples - EP231 (solids) PFAS - Short Suite (12 analytes) - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM) EPA 1828.2 Table 2 Full Solid Suite - excl. Anions
003	OS_BH07_1.0_20230328	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EN020PR Drying at 85 degrees, bagging and labelling (ASS) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EA029 SPOCAS

CHAIN OF CUSTODY

(ALS) COC#: 50057 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	OS_BH07_0.1_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007280	Orange	No	
001	OS_BH07_0.1_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007284	Orange	No	
001	OS_BH07_0.1_20230328	HDPE Soil Jar	200 mL	00621122030742	Grey	No	
002	OS_BH07_0.5_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007226	Orange	No	
003	OS_BH07_1.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007292	Orange	No	
003	OS_BH07_1.0_20230328	Snap Lock Bag (frozen)	1 Medium	00131222013536	Green	No	
004	OS_BH07_2.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007204	Orange	No	
005	OS_BH07_3.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007289	Orange	No	
006	OS_BH07_4.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007285	Orange	No	
007	OS_BH07_5.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007229	Orange	No	
008	OS_BH07_6.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007205	Orange	No	
009	OS_BH07_7.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007351	Orange	No	
010	OS_BH07_8.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007369	Orange	No	
011	RIN01_230328	Clear Plastic Bottle - Nitric Acid; Unfiltered	60 mL	00120522034595	Red	No	

Total Bottle Count: ALS: 14, Non ALS: 1

CERTIFICATE OF ANALYSIS

Work Order	: **EM2305501**	Page	: 1 of 11
Amendment	: **(Partial Report)**		
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 29-Mar-2023 15:10
Order number	: E1159	Date Analysis Commenced	: 31-Mar-2023
C-O-C number	: 50297	Issue Date	: 05-Apr-2023 17:25
Sampler	: RANULI GOONETILLAKE		
Site	: BH05		
Quote number	: ME-491-22		
No. of samples received	: 11		
No. of samples analysed	: 3		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

This report contains preliminary authorised results. The report may contain semi-quantitative results. Any result presented in this preliminary report may be subject to change in the final report.

- EG048G: EM2305430 #3 Poor insoluble matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-UT: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	RIN01_230329	----	----	----	----
				Sampling date / time	29-Mar-2023 08:02	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-011	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
			Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit	EM2305501-008	EM2305501-010	--------	--------	--------
				Result	Result	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	4.9	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	8.4	----	----	----
Moisture Content	----	1.0	%	14.4	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	----	No	----	----	----
Asbestos Type	1332-21-4	-	--	----	-	----	----	----
Sample weight (dry)	----	0.01	g	----	57.0	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	M. TRAN	----	----	----
Synthetic Mineral Fibre	----	-	--	----	Yes	----	----	----
Organic Fibre	----	-	--	----	Yes	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Antimony	7440-36-0	5	mg/kg	----	<5	----	----	----
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg	<10	30	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	15	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	3	----	----	----	----
Copper	7440-50-8	5	mg/kg	7	6	----	----	----
Lead	7439-92-1	5	mg/kg	11	7	----	----	----
Manganese	7439-96-5	5	mg/kg	8	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	----	<2	----	----	----
Nickel	7440-02-0	2	mg/kg	4	<2	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	----
Silver	7440-22-4	2	mg/kg	----	<2	----	----	----
Vanadium	7440-62-2	5	mg/kg	27	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	10	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest) - Continued									
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		----	**1**	----	----	----
EK030: Cyanide Amenable to Chlorination									
Cyanide amenable to chlorination	----	1	mg/kg		----	**1**	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		----	**40**	----	----	----
EP010: Formaldehyde									
Formaldehyde	50-00-0	2	mg/kg		----	<2	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	----	----
Styrene	100-42-5	0.5	mg/kg		----	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	----	----
^ **Sum of monocyclic aromatic hydrocarbons**	----	0.2	mg/kg		----	<0.2	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		----	<0.5	----	----	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	1	mg/kg		----	<1	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	<1	----	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		----	<0.02	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		----	<0.01	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg		----	<0.4	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		----	<0.02	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		----	<0.01	----	----	----
Chloroform	67-66-3	0.02	mg/kg		----	<0.02	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		----	<0.01	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		----	<0.01	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EP074I: Volatile Halogenated Compounds - Continued									
1.2-Dichloroethane	107-06-2	0.02	mg/kg		----	<0.02	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		----	<0.02	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		----	<0.04	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		----	<0.01	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		----	<0.02	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		----	<0.02	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		----	<0.02	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		----	<0.02	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		----	<0.02	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		----	<0.02	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		----	<0.01	----	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		----	<0.01	----	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg		----	<0.01	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg		----	<0.01	----	----	----
^ Sum of Trichlorobenzenes	----	0.01	mg/kg		----	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		----	<0.03	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		----	<0.03	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		----	<0.05	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		----	<0.05	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		----	<1	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		----	<1	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		----	<1	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		----	<1	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		----	<5	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		----	<5	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		----	<5	----	----	----
Dinoseb	88-85-7	5	mg/kg		----	<5	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		----	<5	----	----	----
^ Cresols (Total)	----	1	mg/kg		----	<1	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		----	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		----	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		----	<0.5	----	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		----	<1.0	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		----	<0.03	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		----	<0.03	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		----	<0.03	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		----	<0.03	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		----	<0.03	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		----	<0.03	----	----	----
Aldrin	309-00-2	0.03	mg/kg		----	<0.03	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		----	<0.03	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EP075l: Organochlorine Pesticides - Continued									
cis-Chlordane	5103-71-9	0.03	mg/kg		----	<0.03	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		----	<0.03	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		----	<0.03	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		----	<0.03	----	----	----
Endrin	72-20-8	0.03	mg/kg		----	<0.03	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		----	<0.03	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		----	<0.03	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		----	<0.03	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		----	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	----	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	**100**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	**100**	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA) - Continued									
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg		----	<10	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	**0.0003**	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	**0.0003**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	**0.0003**	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)									
2.4-D	94-75-7	0.001	mg/kg		----	<0.001	----	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg		----	<0.01	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**92.9**	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EP074S: VOC Surrogates (Ultra-Trace) - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	**93.8**	----	----	----
Toluene-D8	2037-26-5	0.1	%		----	**93.7**	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		----	**97.4**	----	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		----	**80.5**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		----	**95.2**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		----	**87.2**	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		----	**76.5**	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		----	**75.4**	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		----	**81.6**	----	----	----
Anthracene-d10	1719-06-8	0.025	%		----	**77.1**	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		----	**85.8**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	**91.0**	----	----	----
13C8-PFOA	----	0.0002	%		----	**81.2**	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_BH05_0.1_20230329 - 29-Mar-2023 07:47	Grey soil with organic matter and synthetic mineral fibres.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

CERTIFICATE OF ANALYSIS

Work Order	: **EM2305501**	Page	: 1 of 13
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 29-Mar-2023 15:10
Order number	: E1159	Date Analysis Commenced	: 31-Mar-2023
C-O-C number	: 50297	Issue Date	: 13-Apr-2023 16:27
Sampler	: RANULI GOONETILLAKE		
Site	: BH05		
Quote number	: ME-491-22		
No. of samples received	: 11		
No. of samples analysed	: 3		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EG048G: EM2305430 #3 Poor insoluble matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-UT: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	RIN01_230329	----	----	----	----
				Sampling date / time	29-Mar-2023 08:02	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-011	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
			Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit	EM2305501-008	EM2305501-010	--------	--------	--------
				Result	Result	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**----**	**4.9**	----	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	**6.4**	----	----	----	----
pH OX (23B)	----	0.1	pH Unit	**5.9**	----	----	----	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	**5**	----	----	----	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	**15**	----	----	----	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	**10**	----	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	<0.020	----	----	----	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	**0.024**	----	----	----	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	<0.020	----	----	----	----
Peroxide Sulfur (23De)	----	0.020	% S	<0.020	----	----	----	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	<0.020	----	----	----	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	**0.059**	----	----	----	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	**0.060**	----	----	----	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	<0.020	----	----	----	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	**0.125**	----	----	----	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg	**0.125**	----	----	----	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	<0.020	----	----	----	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	----	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EA029-H: Acid Base Accounting - Continued									
Net Acidity (acidity units)	----	10	mole H+ / t		<10	----	----	----	----
Liming Rate	----	1	kg CaCO3/t		<1	----	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		<0.02	----	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		<10	----	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t		<1	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		----	8.4	----	----	----
Moisture Content	----	1.0	%		14.4	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	No	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres		----	No	----	----	----
Asbestos Type	1332-21-4	-	--		----	-	----	----	----
Sample weight (dry)	----	0.01	g		----	57.0	----	----	----
APPROVED IDENTIFIER:	----	-	--		----	M. TRAN	----	----	----
Synthetic Mineral Fibre	----	-	--		----	Yes	----	----	----
Organic Fibre	----	-	--		----	Yes	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Antimony	7440-36-0	5	mg/kg		----	<5	----	----	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg		<10	30	----	----	----
Beryllium	7440-41-7	1	mg/kg		<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg		<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		15	----	----	----	----
Cobalt	7440-48-4	2	mg/kg		3	----	----	----	----
Copper	7440-50-8	5	mg/kg		7	6	----	----	----
Lead	7439-92-1	5	mg/kg		11	7	----	----	----
Manganese	7439-96-5	5	mg/kg		8	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg		----	<2	----	----	----
Nickel	7440-02-0	2	mg/kg		4	<2	----	----	----
Selenium	7782-49-2	5	mg/kg		<5	<5	----	----	----
Silver	7440-22-4	2	mg/kg		----	<2	----	----	----
Vanadium	7440-62-2	5	mg/kg		27	----	----	----	----
Zinc	7440-66-6	5	mg/kg		<5	10	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
			Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit	EM2305501-008	EM2305501-010	--------	--------	--------
				Result	Result	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	----	1	----	----	----
EK030: Cyanide Amenable to Chlorination								
Cyanide amenable to chlorination	----	1	mg/kg	----	1	----	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	----	40	----	----	----
EP010: Formaldehyde								
Formaldehyde	50-00-0	2	mg/kg	----	<2	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	----	----
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	----	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg	----	<0.5	----	----	----
EP074B: Oxygenated Compounds								
2-Butanone (MEK)	78-93-3	1	mg/kg	----	<1	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	----	<1	----	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	----	<0.02	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	----	<0.01	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg	----	<0.4	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	----	<0.02	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	----	<0.01	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EP074I: Volatile Halogenated Compounds - Continued									
Chloroform	67-66-3	0.02	mg/kg		----	<0.02	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		----	<0.01	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		----	<0.01	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		----	<0.02	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		----	<0.02	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		----	<0.04	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		----	<0.01	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		----	<0.02	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		----	<0.02	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		----	<0.02	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		----	<0.02	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		----	<0.02	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		----	<0.02	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		----	<0.01	----	----	----
^ **Sum of volatile chlorinated hydrocarbons**	----	0.01	mg/kg		----	<0.01	----	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg		----	<0.01	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg		----	<0.01	----	----	----
^ **Sum of Trichlorobenzenes**	----	0.01	mg/kg		----	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		----	<0.03	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		----	<0.03	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		----	<0.05	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		----	<0.05	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		----	<1	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		----	<1	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		----	<1	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		----	<1	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		----	<5	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		----	<5	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		----	<5	----	----	----
Dinoseb	88-85-7	5	mg/kg		----	<5	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		----	<5	----	----	----

Analytical Results

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				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EP075A: Phenolic Compounds (Non-halogenated) - Continued									
^ Cresols (Total)	----	1	mg/kg		----	<1	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		----	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		----	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		----	<0.5	----	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		----	<1.0	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		----	<0.03	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		----	<0.03	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		----	<0.03	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		----	<0.03	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		----	<0.03	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EP075I: Organochlorine Pesticides - Continued									
Heptachlor	76-44-8	0.03	mg/kg		----	<0.03	----	----	----
Aldrin	309-00-2	0.03	mg/kg		----	<0.03	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		----	<0.03	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		----	<0.03	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		----	<0.03	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		----	<0.03	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		----	<0.03	----	----	----
Endrin	72-20-8	0.03	mg/kg		----	<0.03	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		----	<0.03	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.03	mg/kg		----	<0.03	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	----	----
^ **Chlordane**	57-74-9	0.03	mg/kg		----	<0.03	----	----	----
^ **Sum of other organochlorine pesticides**	----	0.03	mg/kg		----	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	----	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	**100**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	**100**	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH05_1.0_20230329	OS_BH05_0.1_20230329	----	----	----
			Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit	EM2305501-008	EM2305501-010	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)								
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	----	<10	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	**0.0003**	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	<0.0005	----	----	----
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	**0.0003**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	**0.0003**	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)								
2.4-D	94-75-7	0.001	mg/kg	----	<0.001	----	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg	----	<0.01	----	----	----

Analytical Results

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				Sampling date / time	29-Mar-2023 07:48	29-Mar-2023 07:47	----	----	----
Compound	CAS Number	LOR	Unit		EM2305501-008	EM2305501-010	--------	--------	--------
					Result	Result	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**92.9**	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	**93.8**	----	----	----
Toluene-D8	2037-26-5	0.1	%		----	**93.7**	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		----	**97.4**	----	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		----	**80.5**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		----	**95.2**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		----	**87.2**	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		----	**76.5**	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		----	**75.4**	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		----	**81.6**	----	----	----
Anthracene-d10	1719-06-8	0.025	%		----	**77.1**	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		----	**85.8**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	**91.0**	----	----	----
13C8-PFOA	----	0.0002	%		----	**81.2**	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_BH05_0.1_20230329 - 29-Mar-2023 07:47	Grey soil with organic matter and synthetic mineral fibres.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

QUALITY CONTROL REPORT

Work Order	: **EM2305501**	Page	: 1 of 21
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 29-Mar-2023
Order number	: E1159	Date Analysis Commenced	: 31-Mar-2023
C-O-C number	: 50297	Issue Date	: 13-Apr-2023
Sampler	: RANULI GOONETILLAKE		
Site	: BH05		
Quote number	: ME-491-22		
No. of samples received	: 11		
No. of samples analysed	: 3		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4966218)									
EM2305430-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	10	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	16	15	7.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	11	11	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2305569-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4966218) - continued									
EM2305569-001	Anonymous	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	5	5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	77	82	6.4	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	26	27	4.3	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	60	60	0.0	No Limit
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QC Lot: 4966240)									
EM2305086-001	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	<10	0.0	No Limit
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QC Lot: 4964897)									
EM2305109-003	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EM2305621-008	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4970745)									
EM2305430-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	4.6	4.6	0.0	0% - 20%
EM2305655-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.5	7.6	0.0	0% - 20%
EA029-A: pH Measurements (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	9.5	9.5	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	7.9	7.9	0.0	0% - 20%
EB2310747-001	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	4.4	4.4	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	4.2	4.2	0.0	0% - 20%
EA029-B: Acidity Trail (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EB2310747-001	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.163	0.163	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	0.264	0.264	0.0	0% - 50%
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	0.101	0.101	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA029-B: Acidity Trail (QC Lot: 4985104) - continued									
EB2310747-001	Anonymous	EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	102	102	0.0	0% - 20%
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	165	165	0.0	0% - 20%
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	63	63	0.0	0% - 20%
EA029-C: Sulfur Trail (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EB2310747-001	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	0.025	0.026	6.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	0.039	0.042	7.3	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-D: Calcium Values (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.119	0.129	8.2	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.672	0.636	5.5	0% - 20%
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	0.553	0.507	8.7	0% - 20%
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	0.443	0.406	8.7	0% - 20%
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	276	253	8.7	0% - 20%
EB2310747-001	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.021	0.022	0.0	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.022	0.024	9.8	No Limit
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-E: Magnesium Values (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.026	0.023	11.3	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	0.021	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	0.027	0.023	16.7	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	17	14	16.7	No Limit
EB2310747-001	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.023	0.024	5.7	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.023	0.025	9.1	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-H: Acid Base Accounting (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EB2310747-001	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	0.17	0.17	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.17	0.17	0.0	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	8	8	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	8	8	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	107	108	0.0	0% - 50%
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	107	108	0.0	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4965231)									
EM2305430-001	Anonymous	EA055: Moisture Content	----	0.1	%	7.7	8.1	4.7	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4966217)									
EM2305430-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305569-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4965554)									
EM2305430-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305621-005	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 4969481)									
EM2305599-013	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EM2305599-003	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK030: Cyanide Amenable to Chlorination (QC Lot: 4969479)									
EM2305086-001	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EM2305108-004	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 4966232)									
EM2305430-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	50	<40	0.0	No Limit
EM2305621-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	120	110	12.4	No Limit
EP010: Formaldehyde (QC Lot: 4966241)									
EM2305086-001	Anonymous	EP010: Formaldehyde	50-00-0	2	mg/kg	<2	<2	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4964890)									
EM2305109-003	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305621-008	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4964876) - continued									
EM2305430-001	Anonymous	EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EP074H: Naphthalene (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4964888) - continued									
EM2305621-008	Anonymous	EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4964888) - continued									
EM2305621-008	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075C: Phthalate Esters (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075E: Nitroaromatics and Ketones (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075I: Organochlorine Pesticides (QC Lot: 4964888) - continued									
EM2305109-003	Anonymous	EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4964891)									
EM2305109-003	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2305621-008	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4964891)									
EM2305109-003	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4964891) - continued									
EM2305109-003	Anonymous	EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2305621-008	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4965110)									
EM2305430-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0003	0.0002	0.0	No Limit
EM2305628-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0005	0.0008	38.2	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4965110)									
EM2305430-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2305628-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4965110)									
EM2305430-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2305628-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231P: PFAS Sums (QC Lot: 4965110)									
EM2305430-001	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0003	0.0002	40.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0003	0.0002	40.0	No Limit
EM2305628-002	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0005	0.0010	66.7	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0009	0.0012	28.6	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 4967725)									
EM2305448-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.032	0.038	14.8	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.005	0.004	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.020	0.020	0.0	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.059	0.059	0.0	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.031	0.031	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.11	0.11	0.0	No Limit
EM2305466-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.004	0.005	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	6.08	6.20	2.0	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4974366)									
EM2303418-019	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.1 µg/L	<0.0001	0.0	No Limit
EM2305488-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4966218)								
EG005T: Antimony	7440-36-0	5	mg/kg	<5	2.57 mg/kg	86.5	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	94.4	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	96.8	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	103	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	66.2	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	98.9	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	91.5	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	95.0	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	94.4	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	95.6	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	81.0	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	96.8	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.9 mg/kg	88.8	70.0	130
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	95.9	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	77.4	70.0	130
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4966240)								
EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	50 mg/kg	76.3	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4964897)								
EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	0.025 mg/kg	94.8	70.0	130
EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	0.229 mg/kg	91.0	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4970745)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	101	99.3	101
EA029-A: pH Measurements (QCLot: 4985104)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.4 pH Unit	99.0	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.2 pH Unit	115	70.0	130
EA029-B: Acidity Trail (QCLot: 4985104)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	108	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA029-B: Acidity Trail (QCLot: 4985104) - continued								
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	25 mole H+ / t	103	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 4985104)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.055 % S	111	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.152 % S	90.0	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 4985104)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.201 % Ca	105	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.191 % Ca	106	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 4985104)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.204 % Mg	98.8	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.234 % Mg	103	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 4985104)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4966217)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	79.7	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4965554)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	87.6	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4969481)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	97.4	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4969479)								
EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	40 mg/kg	91.7	70.0	130
EK040T: Fluoride Total (QCLot: 4966232)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	97.4	93.1	107
EP010: Formaldehyde (QCLot: 4966241)								
EP010: Formaldehyde	50-00-0	2	mg/kg	<2	25 mg/kg	95.0	83.9	103
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4964890)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	120	67.4	136
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4964876)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	92.8	69.2	116
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	91.0	67.7	116
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	89.4	66.6	115
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	87.5	65.2	112
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	89.9	69.4	111
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	86.5	68.4	110
EP074B: Oxygenated Compounds (QCLot: 4964876)								
EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	1 mg/kg	101	70.0	130
EP074H: Naphthalene (QCLot: 4964876)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	87.4	72.3	114
EP074I: Volatile Halogenated Compounds (QCLot: 4964876)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	99.3	47.0	138
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	96.6	57.6	125
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	93.9	72.3	115
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	96.8	60.5	122
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	92.5	70.3	112
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	94.2	66.6	115
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	97.0	64.4	122
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	95.6	58.4	127
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	96.2	72.9	114
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	93.8	64.7	115
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	93.8	72.6	116
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	91.6	60.0	119

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 4964876) - continued								
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	91.8	71.8	116
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	92.4	66.1	116
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	75.0	39.8	128
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	90.6	70.3	113
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	86.8	62.6	113
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	89.0	70.8	110
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	78.0	48.4	120
EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	0.1 mg/kg	78.6	70.0	130
EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	0.1 mg/kg	80.8	70.0	130
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4964888)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	79.9	74.5	126
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	80.4	72.7	126
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	86.0	73.3	134
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	81.1	72.4	128
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4964888)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	81.4	71.5	130
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	80.1	73.4	129
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	79.3	74.3	129
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	78.8	70.9	133
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	80.7	71.8	132
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	10 mg/kg	86.0	41.0	156
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	10 mg/kg	96.3	65.3	134
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	10 mg/kg	81.8	43.6	128
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	10 mg/kg	85.1	62.0	128
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	87.2	34.5	137
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4964888)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	80.2	73.0	131
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	85.5	76.3	130
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	83.4	72.0	135
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	83.9	74.4	131
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	87.3	73.3	130
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	86.6	78.4	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	92.1	75.3	132
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	91.8	75.4	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4964888) - continued								
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	95.4	69.6	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	95.3	75.0	133
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	4 mg/kg	95.3	75.8	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	95.7	65.1	130
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	95.9	72.1	134
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	95.6	72.9	135
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	96.0	71.3	134
EP075C: Phthalate Esters (QCLot: 4964888)								
EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	2 mg/kg	103	70.0	130
EP075E: Nitroaromatics and Ketones (QCLot: 4964888)								
EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	2 mg/kg	84.2	70.0	130
EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	2 mg/kg	79.6	70.0	130
EP075I: Organochlorine Pesticides (QCLot: 4964888)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	87.2	71.0	129
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	85.6	74.8	126
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	89.7	75.7	130
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	85.8	70.8	130
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	86.8	76.5	134
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	87.5	75.5	131
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	87.0	76.8	130
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	89.8	73.6	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	89.6	75.0	133
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	90.8	75.3	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	92.2	69.4	134
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	93.5	71.0	132
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	89.1	78.0	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	79.9	69.0	143
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	94.8	55.7	145
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	94.3	71.4	135
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	94.6	74.8	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	94.0	70.2	135
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	92.3	77.7	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	95.4	63.6	135

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964876)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	94.6	61.1	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964891)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	770 mg/kg	108	74.4	129
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	2860 mg/kg	98.6	81.0	123
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1540 mg/kg	110	81.8	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964876)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	92.8	59.9	119
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964891)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1170 mg/kg	88.2	75.4	132
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3830 mg/kg	104	80.8	120
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	290 mg/kg	98.7	73.3	136
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4965110)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	84.9	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	87.4	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	89.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4965110)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	95.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.3	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.3	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.6	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4965110)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	90.0	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	97.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	92.2	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	72.4	70.0	130
EP231P: PFAS Sums (QCLot: 4965110)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 4967725)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	89.2	115
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	100	86.0	115
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	103	87.2	117
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	86.4	115
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	86.9	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	87.7	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	86.9	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	88.3	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	103	88.7	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	87.9	113
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	107	84.8	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	107	87.1	114
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	102	86.7	117
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	111	89.3	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4974366)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	82.3	73.4	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4966218)							
EM2305430-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	85.1	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.2	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	91.9	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	98.9	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	97.0	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	95.8	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	94.1	80.0	120
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4966240)							
EM2305103-001	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	50 mg/kg	83.3	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4964897)							
EM2305430-001	Anonymous	EP236: 2.4-D	94-75-7	0.025 mg/kg	84.9	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4964897) - continued							
EM2305430-001	Anonymous	EP236: Tributyltin oxide	56-35-9	0.229 mg/kg	83.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4966217)							
EM2305430-003	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	93.1	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4965554)							
EM2305430-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 56.8	58.0	114
EM2305430-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	85.6	58.0	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4969481)							
EM2305484-008	Anonymous	EK026SF: Total Cyanide	57-12-5	40 mg/kg	103	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4969479)							
EM2305086-002	Anonymous	EK030SF: Cyanide amenable to chlorination	----	40 mg/kg	93.9	70.0	130
EK040T: Fluoride Total (QCLot: 4966232)							
EM2305431-001	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	87.7	70.0	130
EP010: Formaldehyde (QCLot: 4966241)							
EM2305103-001	Anonymous	EP010: Formaldehyde	50-00-0	12.5 mg/kg	74.0	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4964890)							
EM2305621-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	145	59.6	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4964876)							
EM2305431-001	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	100	53.7	130
		EP074-UT: Toluene	108-88-3	2 mg/kg	97.1	55.1	124
EP074I: Volatile Halogenated Compounds (QCLot: 4964876)							
EM2305431-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	94.3	38.4	145
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	88.4	48.1	128
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	86.3	55.5	122
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4964888)							
EM2305430-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	3 mg/kg	82.2	44.0	143
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4964888)							
EM2305430-001	Anonymous	EP075-EM: Phenol	108-95-2	3 mg/kg	81.5	44.2	134
		EP075-EM: 2-Nitrophenol	88-75-5	3 mg/kg	77.9	34.2	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4964888)							
EM2305430-001	Anonymous	EP075-EM: Acenaphthene	83-32-9	3 mg/kg	74.8	42.6	138
		EP075-EM: Pyrene	129-00-0	3 mg/kg	91.5	37.8	152
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964876)							
EM2305431-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	81.0	42.3	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964891)							

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964891) - continued							
EM2305621-002	Anonymous	EP071-EM: C10 - C14 Fraction	----	770 mg/kg	96.8	71.3	126
		EP071-EM: C15 - C28 Fraction	----	2860 mg/kg	90.1	75.1	123
		EP071-EM: C29 - C36 Fraction	----	1540 mg/kg	102	78.1	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964876)							
EM2305431-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	76.1	39.9	109
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964891)							
EM2305621-002	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1170 mg/kg	79.3	71.5	130
		EP071-EM: >C16 - C34 Fraction	----	3830 mg/kg	96.0	76.9	119
		EP071-EM: >C34 - C40 Fraction	----	290 mg/kg	91.3	65.3	139
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4965110)							
EM2305431-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	82.1	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	71.2	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	90.5	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4965110)							
EM2305431-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	76.7	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	80.3	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	76.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	76.8	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	80.4	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4965110)							
EM2305431-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	78.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	82.2	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	83.1	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	75.6	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 4967725)							
EM2305448-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	93.5	82.0	123
		EG020A-T: Beryllium	7440-41-7	1 mg/L	95.4	79.0	126
		EG020A-T: Barium	7440-39-3	1 mg/L	93.2	80.0	120
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	96.3	81.8	123
		EG020A-T: Chromium	7440-47-3	1 mg/L	99.0	78.9	119
		EG020A-T: Cobalt	7440-48-4	1 mg/L	98.5	80.7	121
		EG020A-T: Copper	7440-50-8	1 mg/L	99.3	80.4	118
		EG020A-T: Lead	7439-92-1	1 mg/L	99.4	80.5	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	96.0	73.0	123

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 4967725) - continued							
EM2305448-001	Anonymous	EG020A-T: Nickel	7440-02-0	1 mg/L	95.2	80.0	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	101	81.0	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.6	74.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4974366)							
EM2305252-011	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	93.7	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2305501**	Page	: 1 of 11
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 29-Mar-2023
Site	: BH05	Issue Date	: 13-Apr-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 11
Order number	: E1159	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG048: Hexavalent Chromium (Alkaline Digest)	EM2305430--003	Anonymous	**Hexavalent Chromium**	18540-29-9	56.8 %	58.0-114%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**04-Apr-2023**	05-Apr-2023	✓	**04-Apr-2023**	04-Apr-2023	✓
EA029-A: pH Measurements							
Snap Lock Bag - frozen (EA029)							
OS_BH05_1.0_20230329	**29-Mar-2023**	**13-Apr-2023**	22-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-B: Acidity Trail							
Snap Lock Bag - frozen (EA029)							
OS_BH05_1.0_20230329	**29-Mar-2023**	**13-Apr-2023**	22-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-C: Sulfur Trail							
Snap Lock Bag - frozen (EA029)							
OS_BH05_1.0_20230329	**29-Mar-2023**	**13-Apr-2023**	22-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-D: Calcium Values							
Snap Lock Bag - frozen (EA029)							
OS_BH05_1.0_20230329	**29-Mar-2023**	**13-Apr-2023**	22-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-E: Magnesium Values							
Snap Lock Bag - frozen (EA029)							
OS_BH05_1.0_20230329	**29-Mar-2023**	**13-Apr-2023**	22-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-F: Excess Acid Neutralising Capacity							
Snap Lock Bag - frozen (EA029)							
OS_BH05_1.0_20230329	**29-Mar-2023**	**13-Apr-2023**	22-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-G: Retained Acidity							
Snap Lock Bag - frozen (EA029)							
OS_BH05_1.0_20230329	**29-Mar-2023**	**13-Apr-2023**	22-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-H: Acid Base Accounting							
Snap Lock Bag - frozen (EA029)							
OS_BH05_1.0_20230329	**29-Mar-2023**	**13-Apr-2023**	22-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_BH05_1.0_20230329, OS_BH05_0.1_20230329	**29-Mar-2023**	**----**	----	----	**31-Mar-2023**	12-Apr-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**----**	----	----	**31-Mar-2023**	25-Sep-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_BH05_1.0_20230329, OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	25-Sep-2023	✓	**31-Mar-2023**	25-Sep-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_BH05_1.0_20230329, OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	26-Apr-2023	✓	**03-Apr-2023**	26-Apr-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_BH05_1.0_20230329, OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	26-Apr-2023	✓	**01-Apr-2023**	07-Apr-2023	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**03-Apr-2023**	12-Apr-2023	✓	**05-Apr-2023**	17-Apr-2023	✓
EK030: Cyanide Amenable to Chlorination							
Soil Glass Jar - Unpreserved (EK030SF)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**03-Apr-2023**	12-Apr-2023	✓	**05-Apr-2023**	17-Apr-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	26-Apr-2023	✓	**05-Apr-2023**	26-Apr-2023	✓
EP010: Formaldehyde							
Soil Glass Jar - Unpreserved (EP010)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	25-Sep-2023	✓	**01-Apr-2023**	25-Sep-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	12-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	05-Apr-2023	✓	**31-Mar-2023**	05-Apr-2023	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	05-Apr-2023	✓	**31-Mar-2023**	05-Apr-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	05-Apr-2023	✓	**31-Mar-2023**	05-Apr-2023	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	05-Apr-2023	✓	**31-Mar-2023**	05-Apr-2023	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	12-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	12-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	12-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075C: Phthalate Esters							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	12-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075E: Nitroaromatics and Ketones							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	12-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	12-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	05-Apr-2023	✓	**31-Mar-2023**	05-Apr-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	05-Apr-2023	✓	**31-Mar-2023**	05-Apr-2023	✓
EP095: Ethylenediamine Tetraacetic Acid (EDTA)							
Soil Glass Jar - Unpreserved (EP095)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	12-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	25-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	25-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	25-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	25-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)							
Soil Glass Jar - Unpreserved (EP236)							
OS_BH05_0.1_20230329	**29-Mar-2023**	**31-Mar-2023**	12-Apr-2023	✓	**03-Apr-2023**	10-May-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
RIN01_230329	**29-Mar-2023**	**01-Apr-2023**	25-Sep-2023	✓	**01-Apr-2023**	25-Sep-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
RIN01_230329	**29-Mar-2023**	**----**	----	----	**05-Apr-2023**	26-Apr-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
TRH - Semivolatile Fraction	EP071-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	SOIL	In house: Referenced to APHA 4500 - CN- G. The sample is leached in alkali solution and pretreated by contact with Chlorine (as hypochlorite) prior to determination of Total Cyanide. The measured parameter is the difference between Total Cyanide determined on an untreated sample and Total Cyanide determined post-chlorination. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Formaldehyde	EP010	SOIL	In house: Referenced to ASTM D 6303-98. Determined on 1:5 soil / water extracts by colourimetry using NASH reagent. The Hantszch reaction method is based on the reaction of acetylacetone with formaldehyde in the presence of excess ammonium acetate to form a coloured compound.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	SOIL	In house: Referenced to DIN EN ISO 16588. The esterified derivative of EDTA from an aliquot of a 1:5 soil:water extract is analysed by GCMS in Selected Ion Monitoring (SIM) mode. This technique is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	SOIL	In house: soils are solvent extracted. The extract is analysed by LC-Electrospray-MS-MS, Negative Mode using MRM. Quantification by internal standardisation. Results for Tributyltin expressed as Tributyltin Oxide (TBTO).
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.

Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction of solids for 2.4-D and TBTO	EP236-PR	SOIL	In house: 2g of homogenised sample is extracted with alkaline solvent. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

CHAIN OF CUSTODY

ALS COC#: 50297 *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: BH05

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@iacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 29/3 15:10

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_BH05_8.0_20230329		29/03/2023 07:53 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
002	OS_BH05_7.0_20230329		29/03/2023 07:52 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
003	OS_BH05_6.0_20230329		29/03/2023 07:50 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
004	OS_BH05_5.0_20230329		29/03/2023 07:50 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
005	OS_BH05_4.0_20230329		29/03/2023 07:49 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
006	OS_BH05_3.0_20230329		29/03/2023 07:49 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
007	OS_BH05_2.0_20230329		29/03/2023 07:49 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
008	OS_BH05_1.0_20230329		29/03/2023 07:48 AM	SOIL	ALS: 2 Non ALS: 0	No			Partial 4/9		
009	OS_BH05_0.5_20230329		29/03/2023 07:47 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				

Environmental Division
Melbourne
Work Order Reference
EM2305501

Telephone : +61-3-8549 9600

CHAIN OF CUSTODY

(ALS) COC#: 50297 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: BH05

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_BH05_0.1_20230329		29/03/2023 07:47 AM	SOIL	ALS: 3 Non ALS: 1	No			Partial 3/9		
011	RIN01_230329		29/03/2023 08:02 AM	WATER	ALS: 1 Non ALS: 0	No		X			

CHAIN OF CUSTODY

ALS COC#: 50297 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: BH05

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tca.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
008	OS_BH05_1.0_20230329	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EN020PR Drying at 85 degrees, bagging and labelling (ASS) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EA029 SPOCAS
010	OS_BH05_0.1_20230329	SOIL SOIL	SOIL	- EA200G Asbestos Identification in Soils - Presence/Absence in grab samples - EP231 (solids) PFAS - Short Suite (12 analytes) - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM) EPA 1828.2 Table 2 Full Solid Suite - excl. Anions

CHAIN OF CUSTODY

(ALS) COC#: 50297 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: BH05

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	OS_BH05_8.0_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062167	Orange	No	
002	OS_BH05_7.0_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062170	Orange	No	
003	OS_BH05_6.0_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062368	Orange	No	
004	OS_BH05_5.0_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062358	Orange	No	
005	OS_BH05_4.0_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062386	Orange	No	
006	OS_BH05_3.0_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062344	Orange	No	
007	OS_BH05_2.0_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062423	Orange	No	
008	OS_BH05_1.0_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062472	Orange	No	
008	OS_BH05_1.0_20230329	Snap Lock Bag - frozen	1 Medium	00131222013534	Green	No	
009	OS_BH05_0.5_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062553	Orange	No	
010	OS_BH05_0.1_20230329	HDPE Soil Jar	200 mL	00620719046228	Grey	No	
010	OS_BH05_0.1_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062529	Orange	No	
010	OS_BH05_0.1_20230329	Soil Glass Jar - Unpreserved	250 mL	00260822062457	Orange	No	
011	RIN01_230329	Clear Plastic Bottle - Nitric Acid; Unfiltered	60 mL	00120522034596	Red	No	

Total Bottle Count: ALS: 14, Non ALS: 1

CERTIFICATE OF ANALYSIS

Work Order	: **EM2305897**	Page	: 1 of 10
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 31-Mar-2023 11:20
Order number	: E1159	Date Analysis Commenced	: 05-Apr-2023
C-O-C number	: 50292	Issue Date	: 13-Apr-2023 12:33
Sampler	: RANULI GOONETILLAKE		
Site	: Area C/D new		
Quote number	: ME-491-22		
No. of samples received	: 21		
No. of samples analysed	: 11		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	RIN01_230330	----	----	----	----
				Sampling date / time	30-Mar-2023 16:34	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2305897-021	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP09_0.1_20230330	OS_TP09_0.5_20230330	OS_TP09_1.0_20230330	OS_TP10_0.1_20230330	OS_TP10_1.0_20230330
			Sampling date / time	30-Mar-2023 13:09	30-Mar-2023 13:09	30-Mar-2023 13:10	30-Mar-2023 11:48	30-Mar-2023 11:48
Compound	CAS Number	LOR	Unit	EM2305897-001	EM2305897-002	EM2305897-003	EM2305897-006	EM2305897-008
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.3	18.1	15.2	7.2	15.6
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	10	<10	<10	20	<10
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	4	9	16	4	18
Cobalt	7440-48-4	2	mg/kg	<2	<2	2	<2	2
Copper	7440-50-8	5	mg/kg	<5	<5	7	<5	7
Lead	7439-92-1	5	mg/kg	7	7	11	8	11
Manganese	7439-96-5	5	mg/kg	12	<5	7	12	6
Nickel	7440-02-0	2	mg/kg	<2	2	4	<2	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	18	27	26	12	28
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP09_0.1_20230330	OS_TP09_0.5_20230330	OS_TP09_1.0_20230330	OS_TP10_0.1_20230330	OS_TP10_1.0_20230330
				Sampling date / time	30-Mar-2023 13:09	30-Mar-2023 13:09	30-Mar-2023 13:10	30-Mar-2023 11:48	30-Mar-2023 11:48
Compound	CAS Number	LOR	Unit		EM2305897-001	EM2305897-002	EM2305897-003	EM2305897-006	EM2305897-008
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	<0.05	----
EP068S: Organochlorine Pesticide Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP09_0.1_20230330	OS_TP09_0.5_20230330	OS_TP09_1.0_20230330	OS_TP10_0.1_20230330	OS_TP10_1.0_20230330
				Sampling date / time	30-Mar-2023 13:09	30-Mar-2023 13:09	30-Mar-2023 13:10	30-Mar-2023 11:48	30-Mar-2023 11:48
Compound	CAS Number	LOR	Unit		EM2305897-001	EM2305897-002	EM2305897-003	EM2305897-006	EM2305897-008
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate - Continued									
Dibromo-DDE	21655-73-2	0.05	%		**101**	**----**	**----**	**101**	**----**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**97.2**	**----**	**----**	**95.2**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP11_0.1_20230330	OS_TP11_0.5_20230330	OS_TP11_1.0_20230330	OS_TP12_0.1_20230330	OS_TP12_1.0_20230330
			Sampling date / time	30-Mar-2023 14:41	30-Mar-2023 14:41	30-Mar-2023 14:42	30-Mar-2023 15:29	30-Mar-2023 15:30
Compound	CAS Number	LOR	Unit	EM2305897-011	EM2305897-012	EM2305897-013	EM2305897-016	EM2305897-018
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.7	16.1	14.9	6.4	17.2
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	20	10	60	30	10
Beryllium	7440-41-7	1	mg/kg	<1	1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	4	27	13	5	20
Cobalt	7440-48-4	2	mg/kg	<2	5	8	<2	2
Copper	7440-50-8	5	mg/kg	<5	15	8	5	13
Lead	7439-92-1	5	mg/kg	5	18	8	9	14
Manganese	7439-96-5	5	mg/kg	34	15	29	36	5
Nickel	7440-02-0	2	mg/kg	<2	10	4	2	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	7	54	26	10	43
Zinc	7440-66-6	5	mg/kg	9	6	<5	7	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP11_0.1_20230330	OS_TP11_0.5_20230330	OS_TP11_1.0_20230330	OS_TP12_0.1_20230330	OS_TP12_1.0_20230330
				Sampling date / time	30-Mar-2023 14:41	30-Mar-2023 14:41	30-Mar-2023 14:42	30-Mar-2023 15:29	30-Mar-2023 15:30
Compound	CAS Number	LOR	Unit		EM2305897-011	EM2305897-012	EM2305897-013	EM2305897-016	EM2305897-018
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP11_0.1_20230330	OS_TP11_0.5_20230330	OS_TP11_1.0_20230330	OS_TP12_0.1_20230330	OS_TP12_1.0_20230330
				Sampling date / time	30-Mar-2023 14:41	30-Mar-2023 14:41	30-Mar-2023 14:42	30-Mar-2023 15:29	30-Mar-2023 15:30
Compound	CAS Number	LOR	Unit		EM2305897-011	EM2305897-012	EM2305897-013	EM2305897-016	EM2305897-018
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate - Continued									
Dibromo-DDE	21655-73-2	0.05	%		**99.5**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**103**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139

QUALITY CONTROL REPORT

Work Order	: **EM2305897**	Page	: 1 of 11
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 31-Mar-2023
Order number	: E1159	Date Analysis Commenced	: 05-Apr-2023
C-O-C number	: 50292	Issue Date	: 13-Apr-2023
Sampler	: RANULI GOONETILLAKE		
Site	: Area C/D new		
Quote number	: ME-491-22		
No. of samples received	: 21		
No. of samples analysed	: 11		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4977004)									
EM2305224-001	Anonymous	EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	10	10	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	76	76	0.0	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	199	197	0.8	0% - 20%
EM2305224-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	21	19	6.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	24	25	7.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	12	14.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	38	42	9.6	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2305744-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	80	50	39.4	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	20	32.3	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	9	10	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	27	30	11.2	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	9	55.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	17.9	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	139	115	19.3	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4977004) - continued									
EM2305744-002	Anonymous	EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	20	23	15.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	25	24	4.8	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4977006)									
EM2305897-003	OS_TP09_1.0_20230330	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	19	20.5	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	2	3	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	5	23.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	8	14.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	12	12.2	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	7	10	29.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	26	36	30.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2305898-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	22	22	0.0	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	13	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	13	8.3	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	9	10	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	55	50	9.2	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4977197)									
EM2305224-001	Anonymous	EA055: Moisture Content	----	0.1	%	6.6	6.9	4.5	No Limit
EM2305897-011	OS_TP11_0.1_20230330	EA055: Moisture Content	----	0.1	%	5.7	6.6	14.7	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4977005)									
EM2305224-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305744-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4977007)									
EM2305897-003	OS_TP09_1.0_20230330	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305898-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4978650)									
EM2305897-001	OS_TP09_0.1_20230330	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305897-018	OS_TP12_1.0_20230330	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4978574)									
EM2305897-001	OS_TP09_0.1_20230330	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4978574)									
EM2305897-001	OS_TP09_0.1_20230330	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4978574) - continued									
EM2305897-001	OS_TP09_0.1_20230330	EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 4976028)									
EM2305897-021	RIN01_230330	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EM2305903-007	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4976055)									
EM2305666-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4976055) - continued									
EM2305903-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4977004)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	105	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	96.4	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	96.4	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	65.9	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	106	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	92.2	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	105	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	110	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	96.3	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	102	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	99.2	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	80.4	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4977006)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	101	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	92.9	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	86.4	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	63.5	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	102	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	89.0	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	100	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	98.4	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	92.2	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	98.5	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	94.4	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	76.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4977005)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4977005) - continued								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	82.8	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4977007)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	73.2	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4978650)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	75.7	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4978574)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	70.0	124
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.8	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.8	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	87.6	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	87.4	55.5	132
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4978574)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	39.4	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.6	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	68.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4978574) - continued								
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	86.9	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	83.9	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.3	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	71.7	43.1	131

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 4976028)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	89.2	115
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	99.4	86.0	115
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.3	87.2	117
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	86.4	115
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	86.9	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.8	87.7	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	86.9	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	88.3	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	100	88.7	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	87.9	113
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	104	84.8	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	108	87.1	114
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.0	86.7	117
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	100	89.3	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4976055)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	82.2	73.4	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4977004)							
EM2305224-002	Anonymous	EG005T: Chromium	7440-47-3	50 mg/kg	109	79.0	121
		EG005T: Nickel	7440-02-0	50 mg/kg	90.6	78.0	120
EM2305224-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.6	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.9	79.7	116
		EG005T: Copper	7440-50-8	250 mg/kg	96.0	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	95.2	80.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	90.2	80.0	120
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4977006)							
EM2305897-006	OS_TP10_0.1_20230330	EG005T: Arsenic	7440-38-2	50 mg/kg	98.6	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	100	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	101	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	103	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	102	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	101	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	100	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4977005)							
EM2305224-002	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	92.1	76.0	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4977007)							
EM2305897-006	OS_TP10_0.1_20230330	EG035T: Mercury	7439-97-6	0.5 mg/kg	87.2	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4978650)							
EM2305897-002	OS_TP09_0.5_20230330	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	65.1	58.0	114
EM2305897-002	OS_TP09_0.5_20230330	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	82.0	58.0	114
EP068A: Organochlorine Pesticides (OC) (QCLot: 4978574)							
EM2305897-006	OS_TP10_0.1_20230330	EP068: gamma-BHC	58-89-9	0.5 mg/kg	91.4	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	90.6	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	92.0	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	92.0	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	96.2	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	74.2	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4978574)							
EM2305897-006	OS_TP10_0.1_20230330	EP068: Diazinon	333-41-5	0.5 mg/kg	91.2	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	95.3	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	87.4	55.0	133

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4978574) - continued							
EM2305897-006	OS_TP10_0.1_20230330	EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	86.6	55.1	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	76.8	43.8	128

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 4976028)							
EM2305897-021	RIN01_230330	EG020A-T: Arsenic	7440-38-2	1 mg/L	84.4	82.0	123
		EG020A-T: Beryllium	7440-41-7	1 mg/L	94.2	79.0	126
		EG020A-T: Barium	7440-39-3	1 mg/L	84.5	80.0	120
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	88.7	81.8	123
		EG020A-T: Chromium	7440-47-3	1 mg/L	96.4	78.9	119
		EG020A-T: Cobalt	7440-48-4	1 mg/L	92.2	80.7	121
		EG020A-T: Copper	7440-50-8	1 mg/L	89.8	80.4	118
		EG020A-T: Lead	7439-92-1	1 mg/L	96.0	80.5	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	88.0	73.0	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	87.4	80.0	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	95.0	81.0	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	84.9	74.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4976055)							
EM2305666-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	82.4	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2305897**	Page	: 1 of 6
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 31-Mar-2023
Site	: Area C/D new	Issue Date	: 13-Apr-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 21
Order number	: E1159	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
OS_TP09_0.1_20230330,	OS_TP09_0.5_20230330,	**30-Mar-2023**	**----**	----	----	**06-Apr-2023**	13-Apr-2023	✓
OS_TP09_1.0_20230330,	OS_TP10_0.1_20230330,							
OS_TP10_1.0_20230330,	OS_TP11_0.1_20230330,							
OS_TP11_0.5_20230330,	OS_TP11_1.0_20230330,							
OS_TP12_0.1_20230330,	OS_TP12_1.0_20230330							
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
OS_TP09_0.1_20230330,	OS_TP09_0.5_20230330,	**30-Mar-2023**	**06-Apr-2023**	26-Sep-2023	✓	**06-Apr-2023**	26-Sep-2023	✓
OS_TP09_1.0_20230330,	OS_TP10_0.1_20230330,							
OS_TP10_1.0_20230330,	OS_TP11_0.1_20230330,							
OS_TP11_0.5_20230330,	OS_TP11_1.0_20230330,							
OS_TP12_0.1_20230330,	OS_TP12_1.0_20230330							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
OS_TP09_0.1_20230330,	OS_TP09_0.5_20230330,	**30-Mar-2023**	**06-Apr-2023**	27-Apr-2023	✓	**06-Apr-2023**	27-Apr-2023	✓
OS_TP09_1.0_20230330,	OS_TP10_0.1_20230330,							
OS_TP10_1.0_20230330,	OS_TP11_0.1_20230330,							
OS_TP11_0.5_20230330,	OS_TP11_1.0_20230330,							
OS_TP12_0.1_20230330,	OS_TP12_1.0_20230330							
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)								
OS_TP09_0.1_20230330,	OS_TP09_0.5_20230330,	**30-Mar-2023**	**06-Apr-2023**	27-Apr-2023	✓	**11-Apr-2023**	13-Apr-2023	✓
OS_TP09_1.0_20230330,	OS_TP10_0.1_20230330,							
OS_TP10_1.0_20230330,	OS_TP11_0.1_20230330,							
OS_TP11_0.5_20230330,	OS_TP11_1.0_20230330,							
OS_TP12_0.1_20230330,	OS_TP12_1.0_20230330							
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
OS_TP09_0.1_20230330,	OS_TP10_0.1_20230330,	**30-Mar-2023**	**10-Apr-2023**	13-Apr-2023	✓	**13-Apr-2023**	20-May-2023	✓
OS_TP11_0.1_20230330								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
OS_TP09_0.1_20230330, OS_TP10_0.1_20230330, OS_TP11_0.1_20230330	**30-Mar-2023**	**10-Apr-2023**	13-Apr-2023	✓	**13-Apr-2023**	20-May-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
RIN01_230330	**30-Mar-2023**	**05-Apr-2023**	26-Sep-2023	✓	**05-Apr-2023**	26-Sep-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
RIN01_230330	**30-Mar-2023**	**----**	----	----	**06-Apr-2023**	27-Apr-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	39	10.26	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	5	40	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	40	7.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

ALSCompass SAMPLING Intelligence

ALS

Environmental Division
Melbourne
Work Order Reference
EM2305897

Telephone : + 61-3-8549 9600

Custody Document for Submissions via ALS Compass App

Project: IA5000E1 Client: Jacobs Project Manager:

Phone: ( )

ALS Compass COC Reference: 50292 # Samples: Sampler:

Phone: ( )

Turnaround Requirements: Standard Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time:	Date / Time:	Date / Time: 3/3. 11:20

CHAIN OF CUSTODY

COC#: **50292** *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area C/D new

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_TP09_0.1_20230330		30/03/2023 01:09 PM	SOIL	ALS: 2 Non ALS: 0	No			Partial 3/9		
002	OS_TP09_0.5_20230330		30/03/2023 01:09 PM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
003	OS_TP09_1.0_20230330		30/03/2023 01:10 PM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
004	OS_TP09_2.0_20230330		30/03/2023 01:10 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
005	OS_TP09_3.0_20230330		30/03/2023 01:10 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
006	OS_TP10_0.1_20230330		30/03/2023 11:48 AM	SOIL	ALS: 2 Non ALS: 0	No			Partial 3/9		
007	OS_TP10_0.5_20230330		30/03/2023 11:48 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
008	OS_TP10_1.0_20230330		30/03/2023 11:48 AM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
009	OS_TP10_2.0_20230330		30/03/2023 11:47 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				

CHAIN OF CUSTODY

ALS COC#: 50292 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area C/D new

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetilake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetilake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetilake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetilake@jacobs.com, stephen.sonnenberg@jacobs.com

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_TP10_3.0_20230330		30/03/2023 11:47 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
011	OS_TP11_0.1_20230330		30/03/2023 02:41 PM	SOIL	ALS: 2 Non ALS: 0	No			Partial 3/9		
012	OS_TP11_0.5_20230330		30/03/2023 02:41 PM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
013	OS_TP11_1.0_20230330		30/03/2023 02:42 PM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
014	OS_TP11_2.0_20230330		30/03/2023 02:42 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
015	OS_TP11_3.0_20230330		30/03/2023 02:42 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
016	OS_TP12_0.1_20230330		30/03/2023 03:29 PM	SOIL	ALS: 2 Non ALS: 0	No			Partial 2/9		
017	OS_TP12_0.5_20230330		30/03/2023 03:30 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
018	OS_TP12_1.0_20230330		30/03/2023 03:30 PM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		

CHAIN OF CUSTODY

COC#: **50292** *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area C/D new

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

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TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
019	OS_TP12_2.0_20230330		30/03/2023 03:31 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
020	OS_TP12_3.0_20230330		30/03/2023 03:31 PM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
021	RIN01_230330		30/03/2023 04:34 PM	WATER	ALS: 1 Non ALS: 0	No		X			

CHAIN OF CUSTODY

ALS COC#: **50292** *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area C/D new

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

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RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
001	OS_TP09_0.1_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - S-12 OC/OP Pesticides - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
002	OS_TP09_0.5_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
003	OS_TP09_1.0_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
006	OS_TP10_0.1_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - S-12 OC/OP Pesticides - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
008	OS_TP10_1.0_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
011	OS_TP11_0.1_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - S-12 OC/OP Pesticides - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
012	OS_TP11_0.5_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
013	OS_TP11_1.0_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
016	OS_TP12_0.1_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
018	OS_TP12_1.0_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser

CHAIN OF CUSTODY

ALS COC#: **50292** *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area C/D new

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

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EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	OS_TP09_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098919	Orange	No	
001	OS_TP09_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098911	Orange	No	
002	OS_TP09_0.5_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098914	Orange	No	
003	OS_TP09_1.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822051673	Orange	No	
004	OS_TP09_2.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822051692	Orange	No	
005	OS_TP09_3.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122006990	Orange	No	
006	OS_TP10_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098910	Orange	No	
006	OS_TP10_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098877	Orange	No	
007	OS_TP10_0.5_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098900	Orange	No	
008	OS_TP10_1.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098906	Orange	No	
009	OS_TP10_2.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098772	Orange	No	
010	OS_TP10_3.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098901	Orange	No	
011	OS_TP11_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098848	Orange	No	
011	OS_TP11_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098843	Orange	No	
012	OS_TP11_0.5_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098858	Orange	No	
013	OS_TP11_1.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098865	Orange	No	
014	OS_TP11_2.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098846	Orange	No	
015	OS_TP11_3.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098862	Orange	No	
016	OS_TP12_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098857	Orange	No	
016	OS_TP12_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098849	Orange	No	
017	OS_TP12_0.5_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098859	Orange	No	
018	OS_TP12_1.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122098976	Orange	No	
019	OS_TP12_2.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822062164	Orange	No	
020	OS_TP12_3.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00261122099019	Orange	No	
021	RIN01_230330	Clear Plastic Bottle - Nitric Acid; Unfiltered	60 mL	00120522034566	Red	No	

CHAIN OF CUSTODY

COC#: **50292** *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area C/D new

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

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EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		C	
Other comments:			

Total Bottle Count: ALS: 25, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EM2305898**	Page	: 1 of 6
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 31-Mar-2023 11:20
Order number	: E1159	Date Analysis Commenced	: 06-Apr-2023
C-O-C number	: 50293	Issue Date	: 13-Apr-2023 13:57
Sampler	: RANULI GOONETILLAKE		
Site	: Area E Testpits		
Quote number	: ME-491-22		
No. of samples received	: 10		
No. of samples analysed	: 4		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP13_0.1_20230330	OS_TP13_0.5_20230330	OS_TP14_0.1_20230330	OS_TP14_1.0_20230330	----
			Sampling date / time	30-Mar-2023 09:58	30-Mar-2023 09:58	30-Mar-2023 08:09	30-Mar-2023 08:09	----
Compound	CAS Number	LOR	Unit	EM2305898-001	EM2305898-002	EM2305898-006	EM2305898-008	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**7.3**	**12.4**	**8.7**	**23.2**	**----**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	**----**
Barium	7440-39-3	10	mg/kg	**20**	**20**	**60**	**40**	**----**
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	**1**	**----**
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	**----**
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	**----**
Chromium	7440-47-3	2	mg/kg	**5**	**22**	**9**	**39**	**----**
Cobalt	7440-48-4	2	mg/kg	<2	**4**	<2	**4**	**----**
Copper	7440-50-8	5	mg/kg	<5	**13**	**5**	**9**	**----**
Lead	7439-92-1	5	mg/kg	**6**	**14**	**12**	**15**	**----**
Manganese	7439-96-5	5	mg/kg	**30**	**9**	**190**	<5	**----**
Nickel	7440-02-0	2	mg/kg	<2	**7**	**3**	**9**	**----**
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	**----**
Vanadium	7440-62-2	5	mg/kg	**12**	**55**	**25**	**66**	**----**
Zinc	7440-66-6	5	mg/kg	<5	<5	**13**	**5**	**----**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	**----**
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**----**
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
beta-BHC	319-85-7	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
delta-BHC	319-86-8	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
Heptachlor	76-44-8	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
Aldrin	309-00-2	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**
Dieldrin	60-57-1	0.05	mg/kg	<0.05	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP13_0.1_20230330	OS_TP13_0.5_20230330	OS_TP14_0.1_20230330	OS_TP14_1.0_20230330	----
				Sampling date / time	30-Mar-2023 09:58	30-Mar-2023 09:58	30-Mar-2023 08:09	30-Mar-2023 08:09	----
Compound	CAS Number	LOR	Unit		EM2305898-001	EM2305898-002	EM2305898-006	EM2305898-008	--------
					Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP13_0.1_20230330	OS_TP13_0.5_20230330	OS_TP14_0.1_20230330	OS_TP14_1.0_20230330	----
				Sampling date / time	30-Mar-2023 09:58	30-Mar-2023 09:58	30-Mar-2023 08:09	30-Mar-2023 08:09	----
Compound	CAS Number	LOR	Unit		EM2305898-001	EM2305898-002	EM2305898-006	EM2305898-008	--------
					Result	Result	Result	Result	----
EP068S: Organochlorine Pesticide Surrogate - Continued									
Dibromo-DDE	21655-73-2	0.05	%		**104**	**----**	**----**	**----**	**----**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**81.9**	**----**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139

QUALITY CONTROL REPORT

Work Order	: **EM2305898**	Page	: 1 of 8
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 31-Mar-2023
Order number	: E1159	Date Analysis Commenced	: 06-Apr-2023
C-O-C number	: 50293	Issue Date	: 13-Apr-2023
Sampler	: RANULI GOONETILLAKE		
Site	: Area E Testpits		
Quote number	: ME-491-22		
No. of samples received	: 10		
No. of samples analysed	: 4		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4977006)									
EM2305897-003	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	19	20.5	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	2	3	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	5	23.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	8	14.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	12	12.2	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	7	10	29.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	26	36	30.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2305898-002	OS_TP13_0.5_20230330	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	22	22	0.0	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	13	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	13	8.3	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	9	10	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4977006) - continued									
EM2305898-002	OS_TP13_0.5_20230330	EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	55	50	9.2	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4977197)									
EM2305224-001	Anonymous	EA055: Moisture Content	----	0.1	%	6.6	6.9	4.5	No Limit
EM2305897-011	Anonymous	EA055: Moisture Content	----	0.1	%	5.7	6.6	14.7	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4977007)									
EM2305897-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305898-002	OS_TP13_0.5_20230330	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4978651)									
EM2305743-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305952-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4978579)									
EM2305972-045	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM2305743-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4978579) - continued									
EM2305743-001	Anonymous	EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4978579)									
EM2305972-045	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM2305743-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4978579) - continued									
EM2305743-001	Anonymous	EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4977006)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	101	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	92.9	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	86.4	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	63.5	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	102	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	89.0	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	100	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	98.4	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	92.2	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	98.5	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	94.4	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	76.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4977007)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	73.2	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4978651)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	74.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4978579)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	70.0	124
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	111	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.7	72.1	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 4978579) - continued								
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.9	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	106	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	85.8	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	86.2	55.5	132
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4978579)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	78.0	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.9	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	68.0	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	87.9	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.0	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	87.6	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	112	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	104	43.1	131

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4977006)							
EM2305897-006	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.6	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	100	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	101	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	103	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	102	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	101	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	100	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4977007)							
EM2305897-006	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	87.2	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4978651)							
EM2305743-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	60.5	58.0	114
EM2305743-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	67.0	58.0	114
EP068A: Organochlorine Pesticides (OC) (QCLot: 4978579)							
EM2305743-002	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	115	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	92.3	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	94.9	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	92.6	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	98.8	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	79.5	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4978579)							
EM2305743-002	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	93.6	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	92.6	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	93.0	55.0	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	69.8	55.1	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	75.1	43.8	128

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2305898**	Page	: 1 of 4
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 31-Mar-2023
Site	: Area E Testpits	Issue Date	: 13-Apr-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 10
Order number	: E1159	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_TP13_0.1_202303030, OS_TP13_0.5_20230330, OS_TP14_0.1_20230330, OS_TP14_1.0_20230330	**30-Mar-2023**	**----**	----	----	**06-Apr-2023**	13-Apr-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_TP13_0.1_202303030, OS_TP13_0.5_20230330, OS_TP14_0.1_20230330, OS_TP14_1.0_20230330	**30-Mar-2023**	**06-Apr-2023**	26-Sep-2023	✓	**06-Apr-2023**	26-Sep-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_TP13_0.1_202303030, OS_TP13_0.5_20230330, OS_TP14_0.1_20230330, OS_TP14_1.0_20230330	**30-Mar-2023**	**06-Apr-2023**	27-Apr-2023	✓	**06-Apr-2023**	27-Apr-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_TP13_0.1_202303030, OS_TP13_0.5_20230330, OS_TP14_0.1_20230330, OS_TP14_1.0_20230330	**30-Mar-2023**	**06-Apr-2023**	27-Apr-2023	✓	**11-Apr-2023**	13-Apr-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
OS_TP13_0.1_202303030	**30-Mar-2023**	**07-Apr-2023**	13-Apr-2023	✓	**13-Apr-2023**	17-May-2023	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
OS_TP13_0.1_202303030	**30-Mar-2023**	**07-Apr-2023**	13-Apr-2023	✓	**13-Apr-2023**	17-May-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALSCompass
SAMPLING Intelligence

ALS

Environmental Division
Melbourne
Work Order Reference
EM2305898

Telephone : + 61-3-8549 9600

Custody Document for Submissions via ALS Compass App

Project: IA5000 A1 Client: Jacobs Project Manager:
Phone: ( )

ALS Compass COC Reference: 50293 # Samples: Sampler:
Phone: ( )

Turnaround Requirements: Standard Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time:	Date / Time:	Date / Time: 31/3 11-40

CHAIN OF CUSTODY

ALS COC#: **50293** *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E Testpits

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_TP13_0.1_20230330		30/03/2023 09:58 AM	SOIL	ALS: 2 Non ALS: 0	No		Partial 3/9		
002	OS_TP13_0.5_20230330		30/03/2023 09:58 AM	SOIL	ALS: 1 Non ALS: 0	No		Partial 2/9		
003	OS_TP13_1.0_20230330		30/03/2023 09:59 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
004	OS_TP13_2.0_20230330		30/03/2023 09:59 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
005	OS_TP13_3.0_20230330		30/03/2023 10:00 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
006	OS_TP14_0.1_20230330		30/03/2023 08:09 AM	SOIL	ALS: 2 Non ALS: 0	No		Partial 2/9		
007	OS_TP14_0.5_20230330		30/03/2023 08:09 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			
008	OS_TP14_1.0_20230330		30/03/2023 08:09 AM	SOIL	ALS: 1 Non ALS: 0	No		Partial 2/9		
009	OS_TP14_2.0_20230330		30/03/2023 08:10 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			

CHAIN OF CUSTODY

COC#: **50293** *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E Testpits

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_TP14_3.0_20230330		30/03/2023 08:10 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-			

CHAIN OF CUSTODY

ALS COC#: **50293** *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E Testpits

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetilake

PRIMARY SAMPLER: Ranuli Goonetilake

CONTACT PH:

QUOTE NO: ME-491-22

SAMPLER MOBILE: / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetilake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetilake@jacobs.com, stephen.sonnenberg@jacobs.com

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: C

Other comments:

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
001	OS_TP13_0.1_202303030	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - S-12 OC/OP Pesticides - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
002	OS_TP13_0.5_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
006	OS_TP14_0.1_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser
008	OS_TP14_1.0_20230330	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser

CHAIN OF CUSTODY

COC#: **50293** *ALS Laboratory:* EM Melbourne

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E Testpits

ORDER NO: E1159

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@iacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	OS_TP13_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822051760	Orange	No	
001	OS_TP13_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822051687	Orange	No	
002	OS_TP13_0.5_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822051696	Orange	No	
003	OS_TP13_1.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822051712	Orange	No	
004	OS_TP13_2.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822051706	Orange	No	
005	OS_TP13_3.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822051745	Orange	No	
006	OS_TP14_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822062486	Orange	No	
006	OS_TP14_0.1_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822062338	Orange	No	
007	OS_TP14_0.5_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822062327	Orange	No	
008	OS_TP14_1.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822062339	Orange	No	
009	OS_TP14_2.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822062490	Orange	No	
010	OS_TP14_3.0_20230330	Soil Glass Jar - Unpreserved	250 mL	00260822062331	Orange	No	

Total Bottle Count: ALS: 12, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EM2305431**	Page	: 1 of 13
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 28-Mar-2023 17:20
Order number	: E1159	Date Analysis Commenced	: 31-Mar-2023
C-O-C number	: 50057	Issue Date	: 13-Apr-2023 16:20
Sampler	: RANULI GOONETILLAKE		
Site	: Area E		
Quote number	: ME-491-22		
No. of samples received	: 11		
No. of samples analysed	: 3		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EG048G: EM2305430 #3 Poor insoluble matrix spike recovery for Hexavalent Chromium due to sample matrix. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-UT: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	RIN01_230328	----	----	----	----
				Sampling date / time	28-Mar-2023 13:04	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-011	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
			Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit	EM2305431-001	EM2305431-003	--------	--------	--------
				Result	Result	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**5.4**	----	----	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	**4.9**	----	----	----
pH OX (23B)	----	0.1	pH Unit	----	**5.1**	----	----	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	**23**	----	----	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	**41**	----	----	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	**18**	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	**0.037**	----	----	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	**0.066**	----	----	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	**0.029**	----	----	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	<0.020	----	----	----
Peroxide Sulfur (23De)	----	0.020	% S	----	<0.020	----	----	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	----	<0.020	----	----	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	----	<10	----	----	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	----	**0.044**	----	----	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	----	**0.044**	----	----	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	----	<0.020	----	----	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	----	<0.020	----	----	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	----	**0.101**	----	----	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg	----	**0.102**	----	----	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	----	<0.020	----	----	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	----	<0.020	----	----	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	**1.5**	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	**0.04**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EA029-H: Acid Base Accounting - Continued									
Net Acidity (acidity units)	----	10	mole H+ / t		----	23	----	----	----
Liming Rate	----	1	kg CaCO3/t		----	2	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		----	0.04	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		----	23	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t		----	2	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		8.5	----	----	----	----
Moisture Content	----	1.0	%		----	17.6	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres		No	----	----	----	----
Asbestos Type	1332-21-4	-	--		-	----	----	----	----
Sample weight (dry)	----	0.01	g		45.4	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		M. TRAN	----	----	----	----
Synthetic Mineral Fibre	----	-	--		No	----	----	----	----
Organic Fibre	----	-	--		Yes	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Antimony	7440-36-0	5	mg/kg		<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg		40	30	----	----	----
Beryllium	7440-41-7	1	mg/kg		<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg		<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		----	15	----	----	----
Cobalt	7440-48-4	2	mg/kg		----	3	----	----	----
Copper	7440-50-8	5	mg/kg		<5	7	----	----	----
Lead	7439-92-1	5	mg/kg		10	11	----	----	----
Manganese	7439-96-5	5	mg/kg		----	10	----	----	----
Molybdenum	7439-98-7	2	mg/kg		<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg		2	3	----	----	----
Selenium	7782-49-2	5	mg/kg		<5	<5	----	----	----
Silver	7440-22-4	2	mg/kg		<2	----	----	----	----
Vanadium	7440-62-2	5	mg/kg		----	26	----	----	----
Zinc	7440-66-6	5	mg/kg		6	<5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		**1**	----	----	----	----
EK030: Cyanide Amenable to Chlorination									
Cyanide amenable to chlorination	----	1	mg/kg		**1**	----	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		<40	----	----	----	----
EP010: Formaldehyde									
Formaldehyde	50-00-0	2	mg/kg		<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of monocyclic aromatic hydrocarbons**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	----	----	----	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	1	mg/kg		<1	----	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EP074I: Volatile Halogenated Compounds - Continued									
Chloroform	67-66-3	0.02	mg/kg		<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	----	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	----	----	----	----
^ **Sum of volatile chlorinated hydrocarbons**	----	0.01	mg/kg		<0.01	----	----	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg		<0.01	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg		<0.01	----	----	----	----
^ **Sum of Trichlorobenzenes**	----	0.01	mg/kg		<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EP075A: Phenolic Compounds (Non-halogenated) - Continued									
^ Cresols (Total)	----	1	mg/kg		<1	----	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		<1.0	----	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EP075I: Organochlorine Pesticides - Continued									
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
^ **Chlordane**	57-74-9	0.03	mg/kg		<0.03	----	----	----	----
^ **Sum of other organochlorine pesticides**	----	0.03	mg/kg		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		**110**	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		**110**	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**120**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**120**	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)									
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg		<10	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0003**	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0003**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0003**	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)									
2.4-D	94-75-7	0.001	mg/kg		<0.001	----	----	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_BH07_0.1_20230328	OS_BH07_1.0_20230328	----	----	----
				Sampling date / time	28-Mar-2023 07:39	22-Mar-2023 15:24	----	----	----
Compound	CAS Number	LOR	Unit		EM2305431-001	EM2305431-003	--------	--------	--------
					Result	Result	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**99.5**	----	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**83.4**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		**83.1**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**86.5**	----	----	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		**84.5**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**99.7**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**91.7**	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		**81.7**	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**79.4**	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**85.6**	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%		**80.5**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**90.6**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**88.5**	----	----	----	----
13C8-PFOA	----	0.0002	%		**82.2**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_BH07_0.1_20230328 - 28-Mar-2023 07:39	Brown soil with organic matter.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-B: Acidity Trail

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

QUALITY CONTROL REPORT

Work Order	: **EM2305431**	Page	: 1 of 21
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: PO BOX 312 FLINDERS LANE MELBOURNE VIC AUSTRALIA 8009	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 28-Mar-2023
Order number	: E1159	Date Analysis Commenced	: 31-Mar-2023
C-O-C number	: 50057	Issue Date	: 13-Apr-2023
Sampler	: RANULI GOONETILLAKE		
Site	: Area E		
Quote number	: ME-491-22		
No. of samples received	: 11		
No. of samples analysed	: 3		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4966218)									
EM2305430-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	10	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	16	15	7.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	11	11	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2305569-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4966218) - continued									
EM2305569-001	Anonymous	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	5	5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	77	82	6.4	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	26	27	4.3	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	60	60	0.0	No Limit
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QC Lot: 4966240)									
EM2305086-001	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	<10	0.0	No Limit
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QC Lot: 4964897)									
EM2305109-003	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EM2305621-008	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4970745)									
EM2305430-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	4.6	4.6	0.0	0% - 20%
EM2305655-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.5	7.6	0.0	0% - 20%
EA029-A: pH Measurements (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	9.5	9.5	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	7.9	7.9	0.0	0% - 20%
EB2310747-001	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	4.4	4.4	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	4.2	4.2	0.0	0% - 20%
EA029-B: Acidity Trail (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EB2310747-001	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.163	0.163	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	0.264	0.264	0.0	0% - 50%
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	0.101	0.101	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-B: Acidity Trail (QC Lot: 4985104) - continued									
EB2310747-001	Anonymous	EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	102	102	0.0	0% - 20%
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	165	165	0.0	0% - 20%
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	63	63	0.0	0% - 20%
EA029-C: Sulfur Trail (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EB2310747-001	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	0.025	0.026	6.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	0.039	0.042	7.3	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-D: Calcium Values (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.119	0.129	8.2	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.672	0.636	5.5	0% - 20%
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	0.553	0.507	8.7	0% - 20%
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	0.443	0.406	8.7	0% - 20%
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	276	253	8.7	0% - 20%
EB2310747-001	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.021	0.022	0.0	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.022	0.024	9.8	No Limit
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-E: Magnesium Values (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.026	0.023	11.3	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	0.021	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	0.027	0.023	16.7	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	17	14	16.7	No Limit
EB2310747-001	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.023	0.024	5.7	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.023	0.025	9.1	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-H: Acid Base Accounting (QC Lot: 4985104)									
EB2310229-001	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EB2310747-001	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	0.17	0.17	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.17	0.17	0.0	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	8	8	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	8	8	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	107	108	0.0	0% - 50%
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	107	108	0.0	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4965231)									
EM2305430-001	Anonymous	EA055: Moisture Content	----	0.1	%	7.7	8.1	4.7	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4966217)									
EM2305430-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305569-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4965554)									
EM2305430-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305621-005	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 4969478)									
EM2305086-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EM2305108-004	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK030: Cyanide Amenable to Chlorination (QC Lot: 4969479)									
EM2305086-001	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EM2305108-004	Anonymous	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 4966232)									
EM2305430-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	50	<40	0.0	No Limit
EM2305621-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	120	110	12.4	No Limit
EP010: Formaldehyde (QC Lot: 4966241)									
EM2305086-001	Anonymous	EP010: Formaldehyde	50-00-0	2	mg/kg	<2	<2	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4964890)									
EM2305109-003	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2305621-008	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4964876) - continued									
EM2305430-001	Anonymous	EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EP074H: Naphthalene (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4964888) - continued									
EM2305621-008	Anonymous	EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4964888) - continued									
EM2305621-008	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075C: Phthalate Esters (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075E: Nitroaromatics and Ketones (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 4964888)									
EM2305109-003	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075I: Organochlorine Pesticides (QC Lot: 4964888) - continued									
EM2305109-003	Anonymous	EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2305621-008	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4964891)									
EM2305109-003	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2305621-008	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4964876)									
EM2305430-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4964891)									
EM2305109-003	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4964891) - continued									
EM2305109-003	Anonymous	EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2305621-008	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4965110)									
EM2305430-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0003	0.0002	0.0	No Limit
EM2305628-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0005	0.0008	38.2	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4965110)									
EM2305430-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2305628-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4965110)									
EM2305430-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2305628-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231P: PFAS Sums (QC Lot: 4965110)									
EM2305430-001	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0003	0.0002	40.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0003	0.0002	40.0	No Limit
EM2305628-002	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0005	0.0010	66.7	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0009	0.0012	28.6	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 4967724)									
EM2305183-016	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EM2305375-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.022	0.024	6.9	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.057	0.056	0.0	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.048	0.047	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4974366)									
EM2303418-019	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.1 µg/L	<0.0001	0.0	No Limit
EM2305488-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4966218)								
EG005T: Antimony	7440-36-0	5	mg/kg	<5	2.57 mg/kg	86.5	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	94.4	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	96.8	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	103	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	66.2	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	98.9	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	91.5	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	95.0	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	94.4	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	95.6	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	81.0	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	96.8	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.9 mg/kg	88.8	70.0	130
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	95.9	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	77.4	70.0	130
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4966240)								
EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	50 mg/kg	76.3	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4964897)								
EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	0.025 mg/kg	94.8	70.0	130
EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	0.229 mg/kg	91.0	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4970745)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	101	99.3	101
EA029-A: pH Measurements (QCLot: 4985104)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.4 pH Unit	99.0	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.2 pH Unit	115	70.0	130
EA029-B: Acidity Trail (QCLot: 4985104)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	108	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA029-B: Acidity Trail (QCLot: 4985104) - continued								
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	25 mole H+ / t	103	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 4985104)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.055 % S	111	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.152 % S	90.0	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 4985104)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.201 % Ca	105	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.191 % Ca	106	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 4985104)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.204 % Mg	98.8	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.234 % Mg	103	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 4985104)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4966217)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	79.7	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4965554)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	87.6	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4969478)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	103	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4969479)								
EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	40 mg/kg	91.7	70.0	130
EK040T: Fluoride Total (QCLot: 4966232)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	97.4	93.1	107
EP010: Formaldehyde (QCLot: 4966241)								
EP010: Formaldehyde	50-00-0	2	mg/kg	<2	25 mg/kg	95.0	83.9	103
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4964890)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	120	67.4	136
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4964876)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	92.8	69.2	116
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	91.0	67.7	116
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	89.4	66.6	115
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	87.5	65.2	112
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	89.9	69.4	111
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	86.5	68.4	110
EP074B: Oxygenated Compounds (QCLot: 4964876)								
EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	1 mg/kg	101	70.0	130
EP074H: Naphthalene (QCLot: 4964876)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	87.4	72.3	114
EP074I: Volatile Halogenated Compounds (QCLot: 4964876)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	99.3	47.0	138
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	96.6	57.6	125
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	93.9	72.3	115
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	96.8	60.5	122
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	92.5	70.3	112
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	94.2	66.6	115
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	97.0	64.4	122
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	95.6	58.4	127
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	96.2	72.9	114
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	93.8	64.7	115
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	93.8	72.6	116
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	91.6	60.0	119

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 4964876) - continued								
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	91.8	71.8	116
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	92.4	66.1	116
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	75.0	39.8	128
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	90.6	70.3	113
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	86.8	62.6	113
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	89.0	70.8	110
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	78.0	48.4	120
EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	0.1 mg/kg	78.6	70.0	130
EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	0.1 mg/kg	80.8	70.0	130
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4964888)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	79.9	74.5	126
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	80.4	72.7	126
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	86.0	73.3	134
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	81.1	72.4	128
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4964888)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	81.4	71.5	130
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	80.1	73.4	129
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	79.3	74.3	129
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	78.8	70.9	133
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	80.7	71.8	132
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	10 mg/kg	86.0	41.0	156
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	10 mg/kg	96.3	65.3	134
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	10 mg/kg	81.8	43.6	128
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	10 mg/kg	85.1	62.0	128
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	87.2	34.5	137
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4964888)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	80.2	73.0	131
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	85.5	76.3	130
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	83.4	72.0	135
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	83.9	74.4	131
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	87.3	73.3	130
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	86.6	78.4	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	92.1	75.3	132
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	91.8	75.4	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4964888) - continued								
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	95.4	69.6	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	95.3	75.0	133
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	4 mg/kg	95.3	75.8	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	95.7	65.1	130
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	95.9	72.1	134
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	95.6	72.9	135
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	96.0	71.3	134
EP075C: Phthalate Esters (QCLot: 4964888)								
EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	2 mg/kg	103	70.0	130
EP075E: Nitroaromatics and Ketones (QCLot: 4964888)								
EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	2 mg/kg	84.2	70.0	130
EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	2 mg/kg	79.6	70.0	130
EP075I: Organochlorine Pesticides (QCLot: 4964888)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	87.2	71.0	129
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	85.6	74.8	126
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	89.7	75.7	130
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	85.8	70.8	130
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	86.8	76.5	134
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	87.5	75.5	131
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	87.0	76.8	130
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	89.8	73.6	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	89.6	75.0	133
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	90.8	75.3	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	92.2	69.4	134
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	93.5	71.0	132
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	89.1	78.0	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	79.9	69.0	143
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	94.8	55.7	145
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	94.3	71.4	135
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	94.6	74.8	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	94.0	70.2	135
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	92.3	77.7	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	95.4	63.6	135

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964876)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	94.6	61.1	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964891)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	770 mg/kg	108	74.4	129
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	2860 mg/kg	98.6	81.0	123
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1540 mg/kg	110	81.8	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964876)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	92.8	59.9	119
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964891)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1170 mg/kg	88.2	75.4	132
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3830 mg/kg	104	80.8	120
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	290 mg/kg	98.7	73.3	136
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4965110)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	84.9	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	87.4	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	89.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4965110)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	95.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.3	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.3	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.6	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4965110)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	90.0	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	97.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	92.2	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	72.4	70.0	130
EP231P: PFAS Sums (QCLot: 4965110)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 4967724)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.7	89.2	115
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	93.2	86.0	115
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	97.6	87.2	117
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.8	86.4	115
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.7	86.9	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.2	87.7	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.9	86.9	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.5	88.3	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.7	88.7	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.8	87.9	113
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	100	84.8	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	97.6	87.1	114
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	86.7	117
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	104	89.3	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4974366)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	82.3	73.4	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4966218)							
EM2305430-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	85.1	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.2	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	91.9	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	98.9	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	97.0	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	95.8	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	94.1	80.0	120
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4966240)							
EM2305103-001	Anonymous	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	50 mg/kg	83.3	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4964897)							
EM2305430-001	Anonymous	EP236: 2.4-D	94-75-7	0.025 mg/kg	84.9	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4964897) - continued							
EM2305430-001	Anonymous	EP236: Tributyltin oxide	56-35-9	0.229 mg/kg	83.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4966217)							
EM2305430-003	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	93.1	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4965554)							
EM2305430-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	# 56.8	58.0	114
EM2305430-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	85.6	58.0	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4969478)							
EM2305086-002	Anonymous	EK026SF: Total Cyanide	57-12-5	40 mg/kg	99.7	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4969479)							
EM2305086-002	Anonymous	EK030SF: Cyanide amenable to chlorination	----	40 mg/kg	93.9	70.0	130
EK040T: Fluoride Total (QCLot: 4966232)							
EM2305431-001	OS_BH07_0.1_20230328	EK040T: Fluoride	16984-48-8	400 mg/kg	87.7	70.0	130
EP010: Formaldehyde (QCLot: 4966241)							
EM2305103-001	Anonymous	EP010: Formaldehyde	50-00-0	12.5 mg/kg	74.0	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4964890)							
EM2305621-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	145	59.6	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4964876)							
EM2305431-001	OS_BH07_0.1_20230328	EP074-UT: Benzene	71-43-2	2 mg/kg	100	53.7	130
		EP074-UT: Toluene	108-88-3	2 mg/kg	97.1	55.1	124
EP074I: Volatile Halogenated Compounds (QCLot: 4964876)							
EM2305431-001	OS_BH07_0.1_20230328	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	94.3	38.4	145
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	88.4	48.1	128
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	86.3	55.5	122
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4964888)							
EM2305430-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	3 mg/kg	82.2	44.0	143
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4964888)							
EM2305430-001	Anonymous	EP075-EM: Phenol	108-95-2	3 mg/kg	81.5	44.2	134
		EP075-EM: 2-Nitrophenol	88-75-5	3 mg/kg	77.9	34.2	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4964888)							
EM2305430-001	Anonymous	EP075-EM: Acenaphthene	83-32-9	3 mg/kg	74.8	42.6	138
		EP075-EM: Pyrene	129-00-0	3 mg/kg	91.5	37.8	152
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964876)							
EM2305431-001	OS_BH07_0.1_20230328	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	81.0	42.3	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964891)							

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4964891) - continued							
EM2305621-002	Anonymous	EP071-EM: C10 - C14 Fraction	----	770 mg/kg	96.8	71.3	126
		EP071-EM: C15 - C28 Fraction	----	2860 mg/kg	90.1	75.1	123
		EP071-EM: C29 - C36 Fraction	----	1540 mg/kg	102	78.1	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964876)							
EM2305431-001	OS_BH07_0.1_20230328	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	76.1	39.9	109
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4964891)							
EM2305621-002	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1170 mg/kg	79.3	71.5	130
		EP071-EM: >C16 - C34 Fraction	----	3830 mg/kg	96.0	76.9	119
		EP071-EM: >C34 - C40 Fraction	----	290 mg/kg	91.3	65.3	139
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4965110)							
EM2305431-001	OS_BH07_0.1_20230328	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	82.1	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	71.2	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	90.5	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4965110)							
EM2305431-001	OS_BH07_0.1_20230328	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	76.7	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	80.3	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	76.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	76.8	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	80.4	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4965110)							
EM2305431-001	OS_BH07_0.1_20230328	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	78.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	82.2	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	83.1	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	75.6	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 4967724)							
EM2305183-016	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.1	82.0	123
		EG020A-T: Beryllium	7440-41-7	1 mg/L	90.5	79.0	126
		EG020A-T: Barium	7440-39-3	1 mg/L	90.0	80.0	120
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	92.8	81.8	123
		EG020A-T: Chromium	7440-47-3	1 mg/L	97.8	78.9	119
		EG020A-T: Cobalt	7440-48-4	1 mg/L	95.5	80.7	121
		EG020A-T: Copper	7440-50-8	1 mg/L	95.0	80.4	118
		EG020A-T: Lead	7439-92-1	1 mg/L	98.5	80.5	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	95.0	73.0	123

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 4967724) - continued							
EM2305183-016	Anonymous	EG020A-T: Nickel	7440-02-0	1 mg/L	91.7	80.0	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	98.3	81.0	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	91.3	74.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4974366)							
EM2305252-011	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	93.7	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2305431**	Page	: 1 of 11
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 28-Mar-2023
Site	: Area E	Issue Date	: 13-Apr-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 11
Order number	: E1159	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG048: Hexavalent Chromium (Alkaline Digest)	EM2305430--003	Anonymous	**Hexavalent Chromium**	18540-29-9	56.8 %	58.0-114%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001) OS_BH07_0.1_20230328	**28-Mar-2023**	**04-Apr-2023**	04-Apr-2023	✓	**04-Apr-2023**	04-Apr-2023	✓
EA029-A: pH Measurements							
Snap Lock Bag - frozen (EA029) OS_BH07_1.0_20230328	**22-Mar-2023**	**13-Apr-2023**	15-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-B: Acidity Trail							
Snap Lock Bag - frozen (EA029) OS_BH07_1.0_20230328	**22-Mar-2023**	**13-Apr-2023**	15-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-C: Sulfur Trail							
Snap Lock Bag - frozen (EA029) OS_BH07_1.0_20230328	**22-Mar-2023**	**13-Apr-2023**	15-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-D: Calcium Values							
Snap Lock Bag - frozen (EA029) OS_BH07_1.0_20230328	**22-Mar-2023**	**13-Apr-2023**	15-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-E: Magnesium Values							
Snap Lock Bag - frozen (EA029) OS_BH07_1.0_20230328	**22-Mar-2023**	**13-Apr-2023**	15-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-F: Excess Acid Neutralising Capacity							
Snap Lock Bag - frozen (EA029) OS_BH07_1.0_20230328	**22-Mar-2023**	**13-Apr-2023**	15-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA029-G: Retained Acidity							
Snap Lock Bag - frozen (EA029) OS_BH07_1.0_20230328	**22-Mar-2023**	**13-Apr-2023**	15-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-H: Acid Base Accounting							
Snap Lock Bag - frozen (EA029)							
OS_BH07_1.0_20230328	**22-Mar-2023**	**13-Apr-2023**	15-Dec-2025	✓	**13-Apr-2023**	12-Jul-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_BH07_1.0_20230328	**22-Mar-2023**	**----**	----	----	**31-Mar-2023**	05-Apr-2023	✓
Soil Glass Jar - Unpreserved (EA055)							
OS_BH07_0.1_20230328	**28-Mar-2023**	**----**	----	----	**31-Mar-2023**	11-Apr-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
OS_BH07_0.1_20230328	**28-Mar-2023**	**----**	----	----	**31-Mar-2023**	24-Sep-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_BH07_1.0_20230328	**22-Mar-2023**	**31-Mar-2023**	18-Sep-2023	✓	**31-Mar-2023**	18-Sep-2023	✓
Soil Glass Jar - Unpreserved (EG005T)							
OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**31-Mar-2023**	24-Sep-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_BH07_1.0_20230328	**22-Mar-2023**	**31-Mar-2023**	19-Apr-2023	✓	**03-Apr-2023**	19-Apr-2023	✓
Soil Glass Jar - Unpreserved (EG035T)							
OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	25-Apr-2023	✓	**03-Apr-2023**	25-Apr-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_BH07_1.0_20230328	**22-Mar-2023**	**31-Mar-2023**	19-Apr-2023	✓	**01-Apr-2023**	07-Apr-2023	✓
Soil Glass Jar - Unpreserved (EG048G)							
OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	25-Apr-2023	✓	**01-Apr-2023**	07-Apr-2023	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
OS_BH07_0.1_20230328	**28-Mar-2023**	**03-Apr-2023**	11-Apr-2023	✓	**05-Apr-2023**	17-Apr-2023	✓
EK030: Cyanide Amenable to Chlorination							
Soil Glass Jar - Unpreserved (EK030SF)							
OS_BH07_0.1_20230328	**28-Mar-2023**	**03-Apr-2023**	11-Apr-2023	✓	**05-Apr-2023**	17-Apr-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	25-Apr-2023	✓	**05-Apr-2023**	25-Apr-2023	✓
EP010: Formaldehyde							
Soil Glass Jar - Unpreserved (EP010)							
OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**01-Apr-2023**	24-Sep-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075C: Phthalate Esters							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075E: Nitroaromatics and Ketones							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**31-Mar-2023**	10-May-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	04-Apr-2023	✓	**31-Mar-2023**	04-Apr-2023	✓
EP095: Ethylenediamine Tetraacetic Acid (EDTA)							
Soil Glass Jar - Unpreserved (EP095) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**01-Apr-2023**	10-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	24-Sep-2023	✓	**03-Apr-2023**	10-May-2023	✓
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)							
Soil Glass Jar - Unpreserved (EP236) OS_BH07_0.1_20230328	**28-Mar-2023**	**31-Mar-2023**	11-Apr-2023	✓	**03-Apr-2023**	10-May-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RIN01_230328	**28-Mar-2023**	**01-Apr-2023**	24-Sep-2023	✓	**01-Apr-2023**	24-Sep-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RIN01_230328	**28-Mar-2023**	**----**	----	----	**05-Apr-2023**	25-Apr-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
TRH - Semivolatile Fraction	EP071-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	SOIL	In house: Referenced to APHA 4500 - CN- G. The sample is leached in alkali solution and pretreated by contact with Chlorine (as hypochlorite) prior to determination of Total Cyanide. The measured parameter is the difference between Total Cyanide determined on an untreated sample and Total Cyanide determined post-chlorination. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Formaldehyde	EP010	SOIL	In house: Referenced to ASTM D 6303-98. Determined on 1:5 soil / water extracts by colourimetry using NASH reagent. The Hantszch reaction method is based on the reaction of acetylacetone with formaldehyde in the presence of excess ammonium acetate to form a coloured compound.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	SOIL	In house: Referenced to DIN EN ISO 16588. The esterified derivative of EDTA from an aliquot of a 1:5 soil:water extract is analysed by GCMS in Selected Ion Monitoring (SIM) mode. This technique is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	SOIL	In house: soils are solvent extracted. The extract is analysed by LC-Electrospray-MS-MS, Negative Mode using MRM. Quantification by internal standardisation. Results for Tributyltin expressed as Tributyltin Oxide (TBTO).
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.

Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction of solids for 2.4-D and TBTO	EP236-PR	SOIL	In house: 2g of homogenised sample is extracted with alkaline solvent. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

SAMPLES RECEIVED WITHOUT COC

CLIENT:	JACOBS	CARRIER:	
PROJECT / QUOTE:	IH500061	CONNOTE #:	
CONTACT NAME:		AWB #:	
CONTACT NUMBER:		# OF ESKIES: 3	SECURITY SEAL: Y N N/A
SAMPLER NAME:		TYPE OF ESKIES:	
SAMPLER NUMBER:		ESKY NUMBERS:	
SAMPLES RECEIVED BY:	BL (ALS)	# OF SAMPLES:	
DATE/TIME RECEIVED:	28/03/23 17:20	CLIENT SERVICES NOTIFIED BY:	TEMPERATURE:

Environmental Division
Melbourne
Work Order Reference
EM2305431

Telephone : +61-3-8549 9600

LAB ID	SAMPLE DETAILS: SAMPLE ID	DATE	MATRIX	NUMBER OF CONTAINERS	ADDITIONAL INFORMATION / COMM
1	BH04_0.1	28/3	S	JAV	
2	BH04_5.0	"	S	JAV	
3					
4					
5					
			TOTAL		

OTHER INFORMATION:

- ☐ MICRO
- ☐ BIOSECURITY
- ☐ BROKEN CONTAINERS
- ☐ COC EMAILED
- ☐ ALS COMPASS

CORRESPONDENCE (DATE, INITIALS - DETAILS OF CORRESPONDENCE):

Ranil Weerakkody

From: Goonetillake, Ranuli <Ranuli.Goonetillake@jacobs.com>
Sent: Wednesday, 29 March 2023 7:47 AM
To: COC Melbourne
Subject: [EXTERNAL] - IA5000EI COC update

You don't often get email from ranuli.goonetillake@jacobs.com. Learn why this is important

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Morning team,

I just wanted to clarify some points with the COCs being submitted for IA5000EI and their respective sample drop offs

- Yesterday 3 eskies were dropped off for COC 50055, 50057 and 50296 (submitted this morning for five samples on hold sampled from 27/03)
- Samples OS_BH04_7.0_280323 and OS_BH04_8.0_280323 were scanned into COC 50055 however these will be delivered in with the samples being dropped off today in COC 50297 (yet to be submitted)

Let me know if you need clarification on anything!

Thanks,
Ranuli
Get Outlook for iOS

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CHAIN OF CUSTODY

(ALS) COC#: 50057 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_BH07_0.1_20230328		28/03/2023 07:39 AM	SOIL	ALS: 3 Non ALS: 1	No			Partial 3/9		
002	OS_BH07_0.5_20230328		28/03/2023 07:39 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
003	OS_BH07_1.0_20230328		22/03/2023 03:24 PM	SOIL	ALS: 2 Non ALS: 0	No			Partial 4/9		
004	OS_BH07_2.0_20230328		28/03/2023 07:43 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
005	OS_BH07_3.0_20230328		28/03/2023 07:43 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
006	OS_BH07_4.0_20230328		28/03/2023 07:43 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
007	OS_BH07_5.0_20230328		28/03/2023 07:44 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
008	OS_BH07_6.0_20230328		28/03/2023 07:44 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
009	OS_BH07_7.0_20230328		28/03/2023 07:44 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				

CHAIN OF CUSTODY

(ALS) COC#: 50057 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_BH07_8.0_20230328		28/03/2023 07:44 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
011	RIN01_230328		28/03/2023 01:04 PM	WATER	ALS: 1 Non ALS: 0	No		X			

CHAIN OF CUSTODY

(ALS) COC#: 50057 ALS Laboratory: EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
001	OS_BH07_0.1_20230328	SOIL SOIL	SOIL	- EA200G Asbestos Identification in Soils - Presence/Absence in grab samples - EP231 (solids) PFAS - Short Suite (12 analytes) - P-30/1 EPA 1828.2 Table 2 Solid Suite (EM) EPA 1828.2 Table 2 Full Solid Suite - excl. Anions
003	OS_BH07_1.0_20230328	SOIL SOIL	SOIL	- S-03 15 Metals (NEPM 2013 Suite - incl. Digestion) - EN020PR Drying at 85 degrees, bagging and labelling (ASS) - EG048G Total Hexavalent Chromium (Alkaline digestion) by Discrete Analyser - EA029 SPOCAS

CHAIN OF CUSTODY

(ALS) COC#: 50057 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: Area E

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	OS_BH07_0.1_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007280	Orange	No	
001	OS_BH07_0.1_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007284	Orange	No	
001	OS_BH07_0.1_20230328	HDPE Soil Jar	200 mL	00621122030742	Grey	No	
002	OS_BH07_0.5_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007226	Orange	No	
003	OS_BH07_1.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007292	Orange	No	
003	OS_BH07_1.0_20230328	Snap Lock Bag (frozen)	1 Medium	00131222013536	Green	No	
004	OS_BH07_2.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007204	Orange	No	
005	OS_BH07_3.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007289	Orange	No	
006	OS_BH07_4.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007285	Orange	No	
007	OS_BH07_5.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007229	Orange	No	
008	OS_BH07_6.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007205	Orange	No	
009	OS_BH07_7.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007351	Orange	No	
010	OS_BH07_8.0_20230328	Soil Glass Jar - Unpreserved	250 mL	00261122007369	Orange	No	
011	RIN01_230328	Clear Plastic Bottle - Nitric Acid; Unfiltered	60 mL	00120522034595	Red	No	

Total Bottle Count: ALS: 14, Non ALS: 1

CERTIFICATE OF ANALYSIS

Work Order	: **EM2306013**	Page	: 1 of 16
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: Level 13, 452 Flinders Street MELBOURNE 3000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 04-Apr-2023 16:00
Order number	: E1159	Date Analysis Commenced	: 06-Apr-2023
C-O-C number	: 47397	Issue Date	: 17-Apr-2023 17:09
Sampler	: RANULI GOONETILLAKE		
Site	: IA5000EI_MASTER_COC		
Quote number	: ME-491-22		
No. of samples received	: 21		
No. of samples analysed	: 11		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP074-UT: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP236: Tributyl tin is reported as Tributyl tin oxide under the conservative assumption that all of the measured Tributyl tin is present as Tributyl tin oxide.
- EK040T: EM2305709-050 Poor matrix spike recovery for Total Fluorides due to sample matrix. Confirmed by re-extraction and re-analysis.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime ($CaCO_3$) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	RIN01_230404	----	----	----	----
				Sampling date / time	04-Apr-2023 12:37	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2306013-021	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP20_0.1_20230404	OS_TP20_0.5_20230404	OS_TP20_1.0_20230404	OS_TP21_0.1_20230404	OS_TP21_1.0_20230404
			Sampling date / time	04-Apr-2023 09:46	04-Apr-2023 09:48	04-Apr-2023 09:48	04-Apr-2023 11:10	04-Apr-2023 11:09
Compound	CAS Number	LOR	Unit	EM2306013-001	EM2306013-002	EM2306013-003	EM2306013-006	EM2306013-008
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	4.6	9.0	17.7	16.0	15.6
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	20	20	110	30	40
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	8	10	6	21
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	10	13
Lead	7439-92-1	5	mg/kg	8	8	10	10	16
Manganese	7439-96-5	5	mg/kg	86	5	6	66	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	2	2	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	15	20	27	18	55
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	8	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	----	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP20_0.1_20230404	OS_TP20_0.5_20230404	OS_TP20_1.0_20230404	OS_TP21_0.1_20230404	OS_TP21_1.0_20230404
				Sampling date / time	04-Apr-2023 09:46	04-Apr-2023 09:48	04-Apr-2023 09:48	04-Apr-2023 11:10	04-Apr-2023 11:09
Compound	CAS Number	LOR	Unit		EM2306013-001	EM2306013-002	EM2306013-003	EM2306013-006	EM2306013-008
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		----	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	----	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		----	----	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		----	----	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		----	----	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg		----	----	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	<0.05	----
EP068S: Organochlorine Pesticide Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP20_0.1_20230404	OS_TP20_0.5_20230404	OS_TP20_1.0_20230404	OS_TP21_0.1_20230404	OS_TP21_1.0_20230404
				Sampling date / time	04-Apr-2023 09:46	04-Apr-2023 09:48	04-Apr-2023 09:48	04-Apr-2023 11:10	04-Apr-2023 11:09
Compound	CAS Number	LOR	Unit		EM2306013-001	EM2306013-002	EM2306013-003	EM2306013-006	EM2306013-008
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate - Continued									
Dibromo-DDE	21655-73-2	0.05	%		**----**	**----**	**----**	**94.5**	**----**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**----**	**----**	**----**	**110**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
			Sampling date / time	04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
Compound	CAS Number	LOR	Unit	EM2306013-011	EM2306013-012	EM2306013-013	EM2306013-016	EM2306013-017
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**5.4**	----	----	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	----	**6.1**	----	----
pH OX (23B)	----	0.1	pH Unit	----	----	**5.7**	----	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	----	**17**	----	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	----	**20**	----	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	----	**2**	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	----	**0.027**	----	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	----	**0.031**	----	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	----	<0.020	----	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	----	<0.020	----	----
Peroxide Sulfur (23De)	----	0.020	% S	----	----	<0.020	----	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	----	----	<0.020	----	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	----	----	<10	----	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	----	----	**0.043**	----	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	----	----	**0.043**	----	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	----	----	<0.020	----	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	----	----	<10	----	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	----	----	<0.020	----	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	----	----	**0.150**	----	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg	----	----	**0.151**	----	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	----	----	<0.020	----	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	----	----	<10	----	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	----	----	<0.020	----	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	----	**1.5**	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	----	**0.03**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
				Sampling date / time	04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
Compound	CAS Number	LOR	Unit		EM2306013-011	EM2306013-012	EM2306013-013	EM2306013-016	EM2306013-017
					Result	Result	Result	Result	Result
EA029-H: Acid Base Accounting - Continued									
Net Acidity (acidity units)	----	10	mole H+ / t		----	----	17	----	----
Liming Rate	----	1	kg CaCO3/t		----	----	1	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		----	----	0.03	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		----	----	17	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t		----	----	1	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		8.3	----	----	----	----
Moisture Content	----	1.0	%		----	15.3	16.7	12.6	11.5
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres		No	----	----	----	----
Asbestos Type	1332-21-4	-	--		-	----	----	----	----
Sample weight (dry)	----	0.01	g		53.8	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		M. TRAN	----	----	----	----
Synthetic Mineral Fibre	----	-	--		No	----	----	----	----
Organic Fibre	----	-	--		Yes	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Antimony	7440-36-0	5	mg/kg		<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg		30	250	<10	40	30
Beryllium	7440-41-7	1	mg/kg		<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg		<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		----	20	20	10	14
Cobalt	7440-48-4	2	mg/kg		----	3	3	2	<2
Copper	7440-50-8	5	mg/kg		10	10	8	12	7
Lead	7439-92-1	5	mg/kg		10	11	12	14	10
Manganese	7439-96-5	5	mg/kg		----	7	10	102	<5
Molybdenum	7439-98-7	2	mg/kg		<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg		2	5	5	3	2
Selenium	7782-49-2	5	mg/kg		<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg		<2	----	----	----	----
Vanadium	7440-62-2	5	mg/kg		----	35	41	22	37
Zinc	7440-66-6	5	mg/kg		9	<5	<5	12	<5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
				Sampling date / time	04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
Compound	CAS Number	LOR	Unit		EM2306013-011	EM2306013-012	EM2306013-013	EM2306013-016	EM2306013-017
					Result	Result	Result	Result	Result
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		<1	----	----	----	----
EK030: Cyanide Amenable to Chlorination									
Cyanide amenable to chlorination	----	1	mg/kg		<1	----	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**110**	----	----	----	----
EP010: Formaldehyde									
Formaldehyde	50-00-0	2	mg/kg		<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of monocyclic aromatic hydrocarbons**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	----	----	----	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	1	mg/kg		<1	----	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
				Sampling date / time	04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
Compound	CAS Number	LOR	Unit		EM2306013-011	EM2306013-012	EM2306013-013	EM2306013-016	EM2306013-017
					Result	Result	Result	Result	Result
EP074I: Volatile Halogenated Compounds - Continued									
Chloroform	67-66-3	0.02	mg/kg		<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	----	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	----	----	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	----	----	----	----
1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg		<0.01	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg		<0.01	----	----	----	----
^ Sum of Trichlorobenzenes	----	0.01	mg/kg		<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
				Sampling date / time	04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
Compound	CAS Number	LOR	Unit		EM2306013-011	EM2306013-012	EM2306013-013	EM2306013-016	EM2306013-017
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Non-halogenated) - Continued									
^ Cresols (Total)	----	1	mg/kg		<1	----	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg		<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		<1.0	----	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
				Sampling date / time	04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
Compound	CAS Number	LOR	Unit		EM2306013-011	EM2306013-012	EM2306013-013	EM2306013-016	EM2306013-017
					Result	Result	Result	Result	Result
EP075(I): Organochlorine Pesticides - Continued									
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
				Sampling date / time	04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
Compound	CAS Number	LOR	Unit		EM2306013-011	EM2306013-012	EM2306013-013	EM2306013-016	EM2306013-017
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
EP095: Ethylenediamine Tetraacetic Acid (EDTA)									
Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg		<10	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)									
2.4-D	94-75-7	0.001	mg/kg		<0.001	----	----	----	----
Tributyltin oxide	56-35-9	0.01	mg/kg		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
				Sampling date / time	04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
Compound	CAS Number	LOR	Unit		EM2306013-011	EM2306013-012	EM2306013-013	EM2306013-016	EM2306013-017
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**120**	----	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**85.3**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		**81.3**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**90.4**	----	----	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		**90.1**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**105**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**97.1**	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		**70.4**	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**85.1**	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**94.0**	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%		**85.0**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**101**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**90.8**	----	----	----	----
13C8-PFOA	----	0.0002	%		**85.5**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	OS_TP22_0.1_20230404 - 04-Apr-2023 07:35	Grey soil with organic matter.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

Automated Guideline Comparison Report

Work Order	: **EM2306013**	Page	: 1 of 20
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE		
Address	: Level 13, 452 Flinders Street MELBOURNE 3000	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ranuli.goonetillake@jacobs.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: IA5000EI	Date Received	: 04-Apr-2023 16:00
Order number	: E1159	Date Analysed	: 06-Apr-2023
C-O-C number	: 47397	Date Issued	: 17-Apr-2023 17:01
No. of samples received	: 21		
No. of samples analysed	: 11	Quote number	: ME-491-22

General Comments

Only results in the 'Analytical Results' section have been compared to the guideline.

Additional information pertinent to this report will be found in the following separate attachments: Certificate of Analysis, Quality Control Report, QA/QC Compliance Assessment to Assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP20_0.1_20230404	OS_TP20_0.5_20230404	OS_TP20_1.0_20230404	OS_TP21_0.1_20230404	OS_TP21_1.0_20230404
Sampling date/time						04-Apr-2023 09:46	04-Apr-2023 09:48	04-Apr-2023 09:48	04-Apr-2023 11:10	04-Apr-2023 11:09
Sample ID						EM2306013-001 MU	EM2306013-002 MU	EM2306013-003 MU	EM2306013-006 MU	EM2306013-008 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	----	----	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	----	----	----	----	----	----
Barium	EG005T	10	mg/kg	----	----	----	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	----	----	----	----	----	----
Boron	EG005T	50	mg/kg	----	----	----	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	----	----	----	----	----	----
Copper	EG005T	5	mg/kg	----	----	----	----	----	----	----
Lead	EG005T	5	mg/kg	----	----	----	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	----	----	----	----	----	----
Nickel	EG005T	2	mg/kg	----	----	----	----	----	----	----
Selenium	EG005T	5	mg/kg	----	----	----	----	----	----	----
Silver	EG005T	2	mg/kg	----	----	----	----	----	----	----
Zinc	EG005T	5	mg/kg	----	----	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	----	----	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	----	----	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	----	----	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	----	----	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	----	----	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	----	----	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	----	----	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP20_0.1_20230404	OS_TP20_0.5_20230404	OS_TP20_1.0_20230404	OS_TP21_0.1_20230404	OS_TP21_1.0_20230404
Sample ID										
Sampling date/time						04-Apr-2023 09:46	04-Apr-2023 09:48	04-Apr-2023 09:48	04-Apr-2023 11:10	04-Apr-2023 11:09
						EM2306013-001 MU	EM2306013-002 MU	EM2306013-003 MU	EM2306013-006 MU	EM2306013-008 MU
EP074I: Volatile Halogenated Compounds										
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	----	----	----	----	----	----
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	----	----	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	----	----	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	----	----	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	----	----	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	----	----	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----
EP075E: Nitroaromatics and Ketones										
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	----	----	----	----	----	----
Nitrobenzene	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP20_0.1_20230404	OS_TP20_0.5_20230404	OS_TP20_1.0_20230404	OS_TP21_0.1_20230404	OS_TP21_1.0_20230404
Sample ID										
Sampling date/time						04-Apr-2023 09:46	04-Apr-2023 09:48	04-Apr-2023 09:48	04-Apr-2023 11:10	04-Apr-2023 11:09
						EM2306013-001 MU	EM2306013-002 MU	EM2306013-003 MU	EM2306013-006 MU	EM2306013-008 MU
EP075l: Organochlorine Pesticides										
Chlordane	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
Heptachlor	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	----	----	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	----	----	----	----	----	----
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	----	----	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)										
Tributyltin oxide	EP236	0.01	mg/kg	----	----	----	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP20_0.1_20230404	OS_TP20_0.5_20230404	OS_TP20_1.0_20230404	OS_TP21_0.1_20230404	OS_TP21_1.0_20230404
Sample ID										
Sampling date/time						04-Apr-2023 09:46	04-Apr-2023 09:48	04-Apr-2023 09:48	04-Apr-2023 11:10	04-Apr-2023 11:09
						EM2306013-001 MU	EM2306013-002 MU	EM2306013-003 MU	EM2306013-006 MU	EM2306013-008 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	----	----	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	----	----	----	----	----	----
Barium	EG005T	10	mg/kg	----	----	----	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	----	----	----	----	----	----
Boron	EG005T	50	mg/kg	----	----	----	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	----	----	----	----	----	----
Copper	EG005T	5	mg/kg	----	----	----	----	----	----	----
Lead	EG005T	5	mg/kg	----	----	----	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	----	----	----	----	----	----
Nickel	EG005T	2	mg/kg	----	----	----	----	----	----	----
Selenium	EG005T	5	mg/kg	----	----	----	----	----	----	----
Silver	EG005T	2	mg/kg	----	----	----	----	----	----	----
Zinc	EG005T	5	mg/kg	----	----	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	----	----	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	----	----	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	----	----	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	----	----	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	----	----	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	----	----	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	----	----	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	----	----	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP20_0.1_20230404 Sampling date/time: 04-Apr-2023 09:46 EM2306013-001 MU	OS_TP20_0.5_20230404 Sampling date/time: 04-Apr-2023 09:48 EM2306013-002 MU	OS_TP20_1.0_20230404 Sampling date/time: 04-Apr-2023 09:48 EM2306013-003 MU	OS_TP21_0.1_20230404 Sampling date/time: 04-Apr-2023 11:10 EM2306013-006 MU	OS_TP21_1.0_20230404 Sampling date/time: 04-Apr-2023 11:09 EM2306013-008 MU
EP074I: Volatile Halogenated Compounds										
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	----	----	----	----	----	----
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	----	----	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	----	----	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	----	----	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	----	----	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	----	----	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----
EP075E: Nitroaromatics and Ketones										
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	----	----	----	----	----	----
Nitrobenzene	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP20_0.1_20230404	OS_TP20_0.5_20230404	OS_TP20_1.0_20230404	OS_TP21_0.1_20230404	OS_TP21_1.0_20230404
Sample ID										
Sampling date/time						04-Apr-2023 09:46	04-Apr-2023 09:48	04-Apr-2023 09:48	04-Apr-2023 11:10	04-Apr-2023 11:09
						EM2306013-001 MU	EM2306013-002 MU	EM2306013-003 MU	EM2306013-006 MU	EM2306013-008 MU
EP075I: Organochlorine Pesticides										
Chlordane	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
Heptachlor	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	----	----	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	----	----	----	----	----	----
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	----	----	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)										
Tributyltin oxide	EP236	0.01	mg/kg	----	----	----	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP20_0.1_20230404	OS_TP20_0.5_20230404	OS_TP20_1.0_20230404	OS_TP21_0.1_20230404	OS_TP21_1.0_20230404
Sample ID										
Sampling date/time						04-Apr-2023 09:46	04-Apr-2023 09:48	04-Apr-2023 09:48	04-Apr-2023 11:10	04-Apr-2023 11:09
						EM2306013-001 MU	EM2306013-002 MU	EM2306013-003 MU	EM2306013-006 MU	EM2306013-008 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	----	----	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	----	----	----	----	----	----
Barium	EG005T	10	mg/kg	----	----	----	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	----	----	----	----	----	----
Boron	EG005T	50	mg/kg	----	----	----	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	----	----	----	----	----	----
Copper	EG005T	5	mg/kg	----	----	----	----	----	----	----
Lead	EG005T	5	mg/kg	----	----	----	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	----	----	----	----	----	----
Nickel	EG005T	2	mg/kg	----	----	----	----	----	----	----
Selenium	EG005T	5	mg/kg	----	----	----	----	----	----	----
Silver	EG005T	2	mg/kg	----	----	----	----	----	----	----
Zinc	EG005T	5	mg/kg	----	----	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	----	----	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	----	----	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	----	----	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	----	----	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	----	----	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	----	----	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	----	----	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	----	----	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	----	----	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP20_0.1_20230404 04-Apr-2023 09:46 EM2306013-001 MU	OS_TP20_0.5_20230404 04-Apr-2023 09:48 EM2306013-002 MU	OS_TP20_1.0_20230404 04-Apr-2023 09:48 EM2306013-003 MU	OS_TP21_0.1_20230404 04-Apr-2023 11:10 EM2306013-006 MU	OS_TP21_1.0_20230404 04-Apr-2023 11:09 EM2306013-008 MU
Sample ID										
Sampling date/time										
EP074I: Volatile Halogenated Compounds										
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	----	----	----	----	----	----
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	----	----	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	----	----	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	----	----	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	----	----	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	----	----	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	----	----	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	----	----	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	----	----	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----
EP075E: Nitroaromatics and Ketones										
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	----	----	----	----	----	----
Nitrobenzene	EP075-EM	0.5	mg/kg	----	----	----	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**OS_TP20_0.1_20230404** 04-Apr-2023 09:46 **EM2306013-001** MU	**OS_TP20_0.5_20230404** 04-Apr-2023 09:48 **EM2306013-002** MU	**OS_TP20_1.0_20230404** 04-Apr-2023 09:48 **EM2306013-003** MU	**OS_TP21_0.1_20230404** 04-Apr-2023 11:10 **EM2306013-006** MU	**OS_TP21_1.0_20230404** 04-Apr-2023 11:09 **EM2306013-008** MU
EP075I: Organochlorine Pesticides										
Chlordane	EP075-EM	0.03	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Heptachlor	EP075-EM	0.03	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)										
Tributyltin oxide	EP236	0.01	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP22_0.1_20230404 Sample ID 04-Apr-2023 07:35 EM2306013-011 MU	OS_TP22_0.5_20230404 04-Apr-2023 07:38 EM2306013-012 MU	OS_TP22_1.0_20230404 04-Apr-2023 07:38 EM2306013-013 MU	OS_TP23_0.1_20230404 04-Apr-2023 08:23 EM2306013-016 MU	OS_TP23_0.5_20230404 04-Apr-2023 08:24 EM2306013-017 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	300	<5 --	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	2000	<5 --	----	----	----	----
Barium	EG005T	10	mg/kg	----	25000	**30** ± 3	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	400	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	60000	<50 --	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1 --	----	----	----	----
Copper	EG005T	5	mg/kg	----	20000	**10** ± 1	----	----	----	----
Lead	EG005T	5	mg/kg	----	6000	**10** ± 1	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2 --	----	----	----	----
Nickel	EG005T	2	mg/kg	----	12000	**2** ± 0.3	----	----	----	----
Selenium	EG005T	5	mg/kg	----	40000	<5 --	----	----	----	----
Silver	EG005T	2	mg/kg	----	720	<2 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	140000	**9** ± 2	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1 --	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5 --	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1 --	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**110** ± 30	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	8000	<2	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2 --	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	12800	<0.5 --	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	4800	<0.5 --	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	480	<0.5 --	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	9600	<0.5 --	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	32000	<1	----	----	----	----
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	480	<0.01 --	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
Sample ID										
Sampling date/time						04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
						EM2306013-011 MU	EM2306013-012 MU	EM2306013-013 MU	EM2306013-016 MU	EM2306013-017 MU
EP074I: Volatile Halogenated Compounds - Continued										
Methylene chloride	EP074-UT	0.4	mg/kg	----	64	<0.4 --	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	960	<0.02 --	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	960	<0.01 --	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	960	<0.02 --	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	4800	<0.01 --	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	48	<0.01 --	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	48	<0.02 --	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	80	<0.02 --	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	190	<0.04 --	----	----	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	1600	<0.01 --	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	800	<0.02 --	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	210	<0.02 --	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02 --	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	4800	<0.02 --	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	640	<0.02 --	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	24000	<0.02 --	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	480	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	4800	<0.03 --	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	3200	<0.03 --	----	----	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	64000	<0.05 --	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	320	<0.05 --	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	32000	<1	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	2200	<1 --	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	160	<0.5 --	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	400	<0.5 --	----	----	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	320	<0.5	----	----	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	21	<1.0	----	----	----	----
EP075I: Organochlorine Pesticides										

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category B: Total Concentration: Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	OS_TP22_0.1_20230404 04-Apr-2023 07:35	OS_TP22_0.5_20230404 04-Apr-2023 07:38	OS_TP22_1.0_20230404 04-Apr-2023 07:38	OS_TP23_0.1_20230404 04-Apr-2023 08:23	OS_TP23_0.5_20230404 04-Apr-2023 08:24
							EM2306013-011 MU	EM2306013-012 MU	EM2306013-013 MU	EM2306013-016 MU	EM2306013-017 MU
EP075l: Organochlorine Pesticides - Continued											
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8		<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	4.8		<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	50		<0.05	----	----	----	----
Chlordane	EP075-EM	0.03	mg/kg	----	16		<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	50		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600		<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000		<50	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)											
Tributyltin oxide	EP236	0.01	mg/kg	----	10		<0.01	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP22_0.1_20230404 04-Apr-2023 07:35 EM2306013-011 MU	OS_TP22_0.5_20230404 04-Apr-2023 07:38 EM2306013-012 MU	OS_TP22_1.0_20230404 04-Apr-2023 07:38 EM2306013-013 MU	OS_TP23_0.1_20230404 04-Apr-2023 08:23 EM2306013-016 MU	OS_TP23_0.5_20230404 04-Apr-2023 08:24 EM2306013-017 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	75	<5 --	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	500	<5 --	----	----	----	----
Barium	EG005T	10	mg/kg	----	6250	**30** ± 3	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	100	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	15000	<50 --	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1 --	----	----	----	----
Copper	EG005T	5	mg/kg	----	5000	**10** ± 1	----	----	----	----
Lead	EG005T	5	mg/kg	----	1500	**10** ± 1	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2 --	----	----	----	----
Nickel	EG005T	2	mg/kg	----	3000	**2** ± 0.3	----	----	----	----
Selenium	EG005T	5	mg/kg	----	10000	<5 --	----	----	----	----
Silver	EG005T	2	mg/kg	----	180	<2 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	35000	**9** ± 2	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1 --	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5 --	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1 --	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**110** ± 30	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	2000	<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	50	<0.1 --	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2 --	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	3200	<0.5 --	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	1200	<0.5 --	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	120	<0.5 --	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	2400	<0.5 --	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	8000	<1	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP22_0.1_20230404 04-Apr-2023 07:35 EM2306013-011 MU	OS_TP22_0.5_20230404 04-Apr-2023 07:38 EM2306013-012 MU	OS_TP22_1.0_20230404 04-Apr-2023 07:38 EM2306013-013 MU	OS_TP23_0.1_20230404 04-Apr-2023 08:23 EM2306013-016 MU	OS_TP23_0.5_20230404 04-Apr-2023 08:24 EM2306013-017 MU
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	16	<0.4	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	240	<0.01	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	1200	<0.01	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	12	<0.01	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	12	<0.02	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	20	<0.02	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	48	<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	400	<0.01	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	200	<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	52	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	1200	<0.02	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	160	<0.02	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	6000	<0.02	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	1200	<0.03	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	800	<0.03	----	----	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	16000	<0.05	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	80	<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	8000	<1	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	560	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	40	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	100	<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	80	<0.5	----	----	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	5.2	<1.0	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category C: Total Concentration: Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
Sampling date/time						04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
Sample ID						EM2306013-011 MU	EM2306013-012 MU	EM2306013-013 MU	EM2306013-016 MU	EM2306013-017 MU
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	1.2	<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	50	<0.05	----	----	----	----
Chlordane	EP075-EM	0.03	mg/kg	----	4	<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	10	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)										
Tributyltin oxide	EP236	0.01	mg/kg	----	2.5	<0.01	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP22_0.1_20230404 04-Apr-2023 07:35 EM2306013-011 MU	OS_TP22_0.5_20230404 04-Apr-2023 07:38 EM2306013-012 MU	OS_TP22_1.0_20230404 04-Apr-2023 07:38 EM2306013-013 MU	OS_TP23_0.1_20230404 04-Apr-2023 08:23 EM2306013-016 MU	OS_TP23_0.5_20230404 04-Apr-2023 08:24 EM2306013-017 MU
EG005(ED093)T: Total Metals by ICP-AES										
Antimony	EG005T	5	mg/kg	----	75	<5 --	----	----	----	----
Arsenic	EG005T	5	mg/kg	----	500	<5 --	----	----	----	----
Barium	EG005T	10	mg/kg	----	6250	**30** ± 3	----	----	----	----
Beryllium	EG005T	1	mg/kg	----	100	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	15000	<50 --	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1 --	----	----	----	----
Copper	EG005T	5	mg/kg	----	5000	**10** ± 1	----	----	----	----
Lead	EG005T	5	mg/kg	----	1500	**10** ± 1	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2 --	----	----	----	----
Nickel	EG005T	2	mg/kg	----	3000	**2** ± 0.3	----	----	----	----
Selenium	EG005T	5	mg/kg	----	10000	<5 --	----	----	----	----
Silver	EG005T	2	mg/kg	----	180	<2 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	35000	**9** ± 2	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1 --	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5 --	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1 --	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**110** ± 30	----	----	----	----
EP010: Formaldehyde										
Formaldehyde	EP010	2	mg/kg	----	2000	<2	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1 --	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2 --	----	----	----	----
Toluene	EP074-UT	0.5	mg/kg	----	3200	<0.5 --	----	----	----	----
Ethylbenzene	EP074-UT	0.5	mg/kg	----	1200	<0.5 --	----	----	----	----
Styrene	EP074-UT	0.5	mg/kg	----	120	<0.5 --	----	----	----	----
Total Xylenes	EP074-UT	0.5	mg/kg	----	2400	<0.5 --	----	----	----	----
EP074B: Oxygenated Compounds										
2-Butanone (MEK)	EP074-UT	1	mg/kg	----	8000	<1	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	OS_TP22_0.1_20230404 04-Apr-2023 07:35 EM2306013-011 MU	OS_TP22_0.5_20230404 04-Apr-2023 07:38 EM2306013-012 MU	OS_TP22_1.0_20230404 04-Apr-2023 07:38 EM2306013-013 MU	OS_TP23_0.1_20230404 04-Apr-2023 08:23 EM2306013-016 MU	OS_TP23_0.5_20230404 04-Apr-2023 08:24 EM2306013-017 MU
EP074I: Volatile Halogenated Compounds										
1.1-Dichloroethene	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
Methylene chloride	EP074-UT	0.4	mg/kg	----	16	<0.4	----	----	----	----
trans-1.2-Dichloroethene	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
cis-1.2-Dichloroethene	EP074-UT	0.01	mg/kg	----	240	<0.01	----	----	----	----
Chloroform	EP074-UT	0.02	mg/kg	----	240	<0.02	----	----	----	----
1.1.1-Trichloroethane	EP074-UT	0.01	mg/kg	----	1200	<0.01	----	----	----	----
Carbon Tetrachloride	EP074-UT	0.01	mg/kg	----	12	<0.01	----	----	----	----
1.2-Dichloroethane	EP074-UT	0.02	mg/kg	----	12	<0.02	----	----	----	----
Trichloroethene	EP074-UT	0.02	mg/kg	----	20	<0.02	----	----	----	----
1.1.2-Trichloroethane	EP074-UT	0.04	mg/kg	----	48	<0.04	----	----	----	----
1.1.1.2-Tetrachloroethane	EP074-UT	0.01	mg/kg	----	400	<0.01	----	----	----	----
Tetrachloroethene	EP074-UT	0.02	mg/kg	----	200	<0.02	----	----	----	----
1.1.2.2-Tetrachloroethane	EP074-UT	0.02	mg/kg	----	52	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	----	----	----	----
Chlorobenzene	EP074-UT	0.02	mg/kg	----	1200	<0.02	----	----	----	----
1.4-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	160	<0.02	----	----	----	----
1.2-Dichlorobenzene	EP074-UT	0.02	mg/kg	----	6000	<0.02	----	----	----	----
Sum of Trichlorobenzenes	EP074-UT	0.01	mg/kg	----	120	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
2-Chlorophenol	EP075-EM	0.03	mg/kg	----	1200	<0.03	----	----	----	----
2.4-Dichlorophenol	EP075-EM	0.03	mg/kg	----	800	<0.03	----	----	----	----
2.4.5-Trichlorophenol	EP075-EM	0.05	mg/kg	----	16000	<0.05	----	----	----	----
2.4.6-Trichlorophenol	EP075-EM	0.05	mg/kg	----	80	<0.05	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Cresols (Total)	EP075-EM	1	mg/kg	----	8000	<1	----	----	----	----
Sum of Phenols (non-halogenated)	EP075-EM	1	mg/kg	----	560	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM	0.5	mg/kg	----	50	<0.5	----	----	----	----
EP075E: Nitroaromatics and Ketones										
Nitrobenzene	EP075-EM	0.5	mg/kg	----	80	<0.5	----	----	----	----
2.4-Dinitrotoluene	EP075-EM	1.0	mg/kg	----	5.2	<1.0	----	----	----	----

Waste disposal total contamination concentrations

Table 2: Waste Disposal contamination concentrations: Category D/Industrial Waste: Total Concentration: Category D/Industrial Waste

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	OS_TP22_0.1_20230404	OS_TP22_0.5_20230404	OS_TP22_1.0_20230404	OS_TP23_0.1_20230404	OS_TP23_0.5_20230404
Sample ID										
Sampling date/time						04-Apr-2023 07:35	04-Apr-2023 07:38	04-Apr-2023 07:38	04-Apr-2023 08:23	04-Apr-2023 08:24
						EM2306013-011 MU	EM2306013-012 MU	EM2306013-013 MU	EM2306013-016 MU	EM2306013-017 MU
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM	0.03	mg/kg	----	1.2	<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM	0.05	mg/kg	----	50	<0.05	----	----	----	----
Chlordane	EP075-EM	0.03	mg/kg	----	4	<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM	0.03	mg/kg	----	10	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	325	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	5000	<50	----	----	----	----
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)										
Tributyltin oxide	EP236	0.01	mg/kg	----	2.5	<0.01	----	----	----	----

QUALITY CONTROL REPORT

Work Order	: **EM2306013**	Page	: 1 of 21
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Contact	: Peter Ravlic
Address	: Level 13, 452 Flinders Street MELBOURNE 3000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 04-Apr-2023
Order number	: E1159	Date Analysis Commenced	: 06-Apr-2023
C-O-C number	: 47397	Issue Date	: 17-Apr-2023
Sampler	: RANULI GOONETILLAKE		
Site	: IA5000EI_MASTER_COC		
Quote number	: ME-491-22		
No. of samples received	: 21		
No. of samples analysed	: 11		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4978730)									
EM2305922-060	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	180	180	0.0	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	7	6	14.5	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	5	5	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	15	17	14.1	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	9	10	14.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	23	22	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	12	11	8.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	12	12	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2306013-001	OS_TP20_0.1_20230404	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4978730) - continued									
EM2306013-001	OS_TP20_0.1_20230404	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Antimony	7440-36-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	7	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	86	81	7.0	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	15	12	21.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QC Lot: 4988764)									
EM2306013-011	OS_TP22_0.1_20230404	EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	<10	0.0	No Limit
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QC Lot: 4977866)									
EM2305726-001	Anonymous	EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4981301)									
EM2305866-002	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.0	6.0	0.0	0% - 20%
EM2306013-011	OS_TP22_0.1_20230404	EA001: pH (CaCl2)	----	0.1	pH Unit	5.4	5.4	0.0	0% - 20%
EA029-A: pH Measurements (QC Lot: 4990978)									
EB2310380-001	Anonymous	EA029: pH KCl (23A)	----	0.1	pH Unit	9.1	9.1	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	7.6	7.5	1.3	0% - 20%
EA029-B: Acidity Trail (QC Lot: 4990978)									
EB2310380-001	Anonymous	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EA029-C: Sulfur Trail (QC Lot: 4990978)									
EB2310380-001	Anonymous	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	0.124	0.138	11.3	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	0.113	0.128	12.8	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	70	80	12.8	No Limit
EA029-D: Calcium Values (QC Lot: 4990978)									
EB2310380-001	Anonymous	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.190	0.176	7.5	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.532	0.582	9.1	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA029-D: Calcium Values (QC Lot: 4990978) - continued									
EB2310380-001	Anonymous	EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	0.341	0.406	17.3	0% - 20%
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	0.273	0.325	17.3	0% - 50%
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	170	202	17.3	0% - 20%
EA029-E: Magnesium Values (QC Lot: 4990978)									
EB2310380-001	Anonymous	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-H: Acid Base Accounting (QC Lot: 4990978)									
EB2310380-001	Anonymous	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.11	0.13	12.8	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	5	6	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	70	80	12.8	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4977208)									
EM2305867-009	Anonymous	EA055: Moisture Content	----	0.1	%	9.9	9.7	1.6	No Limit
EM2306013-002	OS_TP20_0.5_20230404	EA055: Moisture Content	----	0.1	%	9.0	9.6	6.2	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4978731)									
EM2305922-060	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2306013-001	OS_TP20_0.1_20230404	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4983105)									
EM2305709-052	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2305866-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 4986001)									
EM2305709-005	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	2	2	0.0	No Limit
EM2306013-011	OS_TP22_0.1_20230404	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK030: Cyanide Amenable to Chlorination (QC Lot: 4986003)									
EM2306013-011	OS_TP22_0.1_20230404	EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 4983102)									
EM2305709-049	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	270	280	0.0	No Limit
EM2306073-011	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	80	80	0.0	No Limit
EP010: Formaldehyde (QC Lot: 4988765)									
EM2306013-011	OS_TP22_0.1_20230404	EP010: Formaldehyde	50-00-0	2	mg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4979116)									
EM2305726-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4984028)									
EM2305857-005	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4984028)									
EM2305857-005	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4984028) - continued									
EM2305857-005	Anonymous	EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4976985)									
EM2306011-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 4976985)									
EM2306011-001	Anonymous	EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	<1	0.0	No Limit
EP074H: Naphthalene (QC Lot: 4976985)									
EM2306011-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 4976985)									
EM2306011-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4979118)									
EM2305726-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 4979118) - continued									
EM2305726-001	Anonymous	EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 4979118)									
EM2305726-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4979118)									
EM2305726-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075C: Phthalate Esters (QC Lot: 4979118)									
EM2305726-001	Anonymous	EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075E: Nitroaromatics and Ketones (QC Lot: 4979118)									
EM2305726-001	Anonymous	EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	<1.0	0.0	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 4979118)									
EM2305726-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075I: Organochlorine Pesticides (QC Lot: 4979118) - continued									
EM2305726-001	Anonymous	EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4976985)									
EM2306011-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4979117)									
EM2305726-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4976985)									
EM2306011-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4979117)									
EM2305726-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4976479)									
EM2305972-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2306013-011	OS_TP22_0.1_20230404	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4976479)									

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4976479) - continued									
EM2305972-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2306013-011	OS_TP22_0.1_20230404	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4976479)									
EM2305972-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2306013-011	OS_TP22_0.1_20230404	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4976479)									
EM2305972-003	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2306013-011	OS_TP22_0.1_20230404	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 4988682)									
EM2305923-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 4988682) - continued									
EM2305923-001	Anonymous	EG020A-T: Barium	7440-39-3	0.001	mg/L	0.033	0.033	0.0	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.004	<0.001	108	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.076	0.075	0.0	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.013	0.013	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.08	0.08	0.0	No Limit
EM2306084-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.80	0.80	0.0	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4988113)									
EM2305923-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EM2306081-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4978730)								
EG005T: Antimony	7440-36-0	5	mg/kg	<5	2.57 mg/kg	101	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	102	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	92.6	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	103	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	64.2	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	100	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	92.9	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	99.3	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	99.2	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	95.4	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	72.8	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	99.8	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.9 mg/kg	93.0	70.0	130
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	99.6	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	78.7	70.0	130
EP095: Ethylenediamine Tetraacetic Acid (EDTA) (QCLot: 4988764)								
EP095: Ethylenediamine tetraacetic acid (EDTA)	60-00-04	10	mg/kg	<10	50 mg/kg	101	70.0	130
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4977866)								
EP236: 2.4-D	94-75-7	0.001	mg/kg	<0.001	0.025 mg/kg	84.8	70.0	130
EP236: Tributyltin oxide	56-35-9	0.01	mg/kg	<0.01	0.229 mg/kg	97.6	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4981301)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	101	99.3	101
EA029-A: pH Measurements (QCLot: 4990978)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.4 pH Unit	97.3	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.2 pH Unit	111	70.0	130
EA029-B: Acidity Trail (QCLot: 4990978)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	103	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA029-B: Acidity Trail (QCLot: 4990978) - continued								
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	25 mole H+ / t	119	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 4990978)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.055 % S	104	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.152 % S	88.2	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 4990978)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.201 % Ca	101	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.191 % Ca	104	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 4990978)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.204 % Mg	98.8	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.234 % Mg	102	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 4990978)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4978731)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	89.8	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4983105)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	86.0	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4986001)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	110	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4986003)								
EK030SF: Cyanide amenable to chlorination	----	1	mg/kg	<1	40 mg/kg	119	70.0	130
EK040T: Fluoride Total (QCLot: 4983102)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	101	93.1	107
EP010: Formaldehyde (QCLot: 4988765)								
EP010: Formaldehyde	50-00-0	2	mg/kg	<2	25 mg/kg	91.2	83.9	103
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4979116)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	110	67.4	136
EP068A: Organochlorine Pesticides (OC) (QCLot: 4984028)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.8	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	70.0	124
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	81.9	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	82.3	55.5	132
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4984028)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	74.1	63.0	129

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4984028) - continued								
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	40.4	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	75.7	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	87.0	68.0	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	77.2	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	79.7	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	74.3	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	70.7	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	60.7	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	80.5	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	49.3	43.1	131
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4976985)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	96.3	69.2	116
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	92.6	67.7	116
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	90.7	66.6	115
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	87.2	65.2	112
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	91.8	69.4	111
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	89.1	68.4	110
EP074B: Oxygenated Compounds (QCLot: 4976985)								
EP074-UT: 2-Butanone (MEK)	78-93-3	1	mg/kg	<1	1 mg/kg	97.4	70.0	130
EP074H: Naphthalene (QCLot: 4976985)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	81.9	72.3	114
EP074I: Volatile Halogenated Compounds (QCLot: 4976985)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	101	47.0	138
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	98.4	57.6	125
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	100	72.3	115
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	101	60.5	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP074I: Volatile Halogenated Compounds (QCLot: 4976985) - continued								
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	95.9	70.3	112
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	98.0	66.6	115
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	97.2	64.4	122
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	98.2	58.4	127
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	104	72.9	114
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	94.8	64.7	115
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	99.7	72.6	116
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	93.4	60.0	119
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	94.0	71.8	116
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	100	66.1	116
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	60.0	39.8	128
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	93.2	70.3	113
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	88.1	62.6	113
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	90.8	70.8	110
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	78.2	48.4	120
EP074-UT: 1.3.5-Trichlorobenzene	108-70-3	0.01	mg/kg	<0.01	0.1 mg/kg	72.2	70.0	130
EP074-UT: 1.2.3-Trichlorobenzene	87-61-6	0.01	mg/kg	<0.01	0.1 mg/kg	75.0	70.0	130
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4979118)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	86.4	74.5	126
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	92.8	72.7	126
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	84.9	73.3	134
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	86.4	72.4	128
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4979118)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	87.4	71.5	130
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	85.5	73.4	129
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	85.4	74.3	129
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	89.4	70.9	133
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	78.1	71.8	132
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	10 mg/kg	43.9	41.0	156
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	10 mg/kg	86.0	65.3	134
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	10 mg/kg	74.9	43.6	128
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	10 mg/kg	79.6	62.0	128
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	77.8	34.5	137
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4979118)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4979118) - continued								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	87.5	73.0	131
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	87.1	76.3	130
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	86.4	72.0	135
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	87.2	74.4	131
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	87.7	73.3	130
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	87.6	78.4	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	90.0	75.3	132
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	89.4	75.4	130
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	88.9	69.6	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	90.6	75.0	133
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1.0	4 mg/kg	88.0	75.8	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	90.4	65.1	130
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	87.3	72.1	134
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	87.5	72.9	135
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	91.1	71.3	134
EP075C: Phthalate Esters (QCLot: 4979118)								
EP075-EM: bis(2-ethylhexyl) phthalate	117-81-7	0.5	mg/kg	<0.5	2 mg/kg	93.7	70.0	130
EP075E: Nitroaromatics and Ketones (QCLot: 4979118)								
EP075-EM: 2.4-Dinitrotoluene	121-14-2	1	mg/kg	<1.0	2 mg/kg	85.2	70.0	130
EP075-EM: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	2 mg/kg	89.4	70.0	130
EP075I: Organochlorine Pesticides (QCLot: 4979118)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	88.7	71.0	129
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	89.2	74.8	126
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	88.2	75.7	130
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	87.0	70.8	130
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	87.5	76.5	134
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	87.4	75.5	131
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	89.6	76.8	130
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	90.7	73.6	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	89.8	75.0	133
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	92.0	75.3	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	88.5	69.4	134
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	92.9	71.0	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075I: Organochlorine Pesticides (QCLot: 4979118) - continued								
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	91.7	78.0	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	97.0	69.0	143
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	90.1	55.7	145
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	89.2	71.4	135
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	89.4	74.8	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	87.2	70.2	135
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	82.9	77.7	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	88.3	63.6	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4976985)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	90.4	61.1	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4979117)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	770 mg/kg	119	74.4	129
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	2860 mg/kg	106	81.0	123
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1540 mg/kg	105	81.8	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4976985)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	89.6	59.9	119
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4979117)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1170 mg/kg	108	75.4	132
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3830 mg/kg	104	80.8	120
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	290 mg/kg	110	73.3	136
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4976479)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	86.6	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	91.4	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	90.0	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4976479)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	93.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.2	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.4	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4976479)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	92.2	62.0	145

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4976479) - continued								
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	99.3	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	106	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	94.0	70.0	130
EP231P: PFAS Sums (QCLot: 4976479)								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 4988682)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	89.2	115
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	102	86.0	115
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	105	87.2	117
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	86.4	115
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	105	86.9	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	103	87.7	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	86.9	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	88.3	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	88.7	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	87.9	113
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	110	84.8	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	106	87.1	114
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	105	86.7	117
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	109	89.3	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4988113)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.5	73.4	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4978730)							
EM2305922-063	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	114	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	106	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	107	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	113	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	108	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	106	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	104	80.0	120
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO) (QCLot: 4977866)							
EM2305726-002	Anonymous	EP236: 2.4-D	94-75-7	0.025 mg/kg	84.4	70.0	130
		EP236: Tributyltin oxide	56-35-9	0.229 mg/kg	98.8	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4978731)							
EM2305922-063	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	98.7	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4983105)							
EM2305709-053	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	61.6	58.0	114
EM2305709-053	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	80.6	58.0	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 4986001)							
EM2305709-015	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	116	70.0	130
EK030: Cyanide Amenable to Chlorination (QCLot: 4986003)							
EM2306284-002	Anonymous	EK030SF: Cyanide amenable to chlorination	----	40 mg/kg	97.6	70.0	130
EK040T: Fluoride Total (QCLot: 4983102)							
EM2305709-050	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	# 67.9	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4979116)							
EM2305726-002	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	114	59.6	152
EP068A: Organochlorine Pesticides (OC) (QCLot: 4984028)							
EM2305857-005	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	87.3	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	79.6	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	90.8	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	93.5	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	89.4	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	25.8	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4984028)							
EM2305857-005	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	88.5	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	92.7	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	90.4	55.0	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	90.1	55.1	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	77.8	43.8	128

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4976985)							
EM2306011-005	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	99.4	53.7	130
		EP074-UT: Toluene	108-88-3	2 mg/kg	100	55.1	124
EP074I: Volatile Halogenated Compounds (QCLot: 4976985)							
EM2306011-005	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	82.1	38.4	145
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	88.9	48.1	128
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	94.8	55.5	122
EP075A: Phenolic Compounds (Halogenated) (QCLot: 4979118)							
EM2305942-002	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	3 mg/kg	81.3	44.0	143
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 4979118)							
EM2305942-002	Anonymous	EP075-EM: Phenol	108-95-2	3 mg/kg	78.8	44.2	134
		EP075-EM: 2-Nitrophenol	88-75-5	3 mg/kg	81.1	34.2	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 4979118)							
EM2305942-002	Anonymous	EP075-EM: Acenaphthene	83-32-9	3 mg/kg	82.0	42.6	138
		EP075-EM: Pyrene	129-00-0	3 mg/kg	89.8	37.8	152
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4976985)							
EM2306011-005	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	83.7	42.3	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4979117)							
EM2305726-003	Anonymous	EP071-EM: C10 - C14 Fraction	----	770 mg/kg	117	71.3	126
		EP071-EM: C15 - C28 Fraction	----	2860 mg/kg	104	75.1	123
		EP071-EM: C29 - C36 Fraction	----	1540 mg/kg	103	78.1	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4976985)							
EM2306011-005	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	80.8	39.9	109
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4979117)							
EM2305726-003	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1170 mg/kg	106	71.5	130
		EP071-EM: >C16 - C34 Fraction	----	3830 mg/kg	102	76.9	119
		EP071-EM: >C34 - C40 Fraction	----	290 mg/kg	107	65.3	139
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4976479)							
EM2305972-009	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	88.3	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	95.6	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	82.9	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4976479)							
EM2305972-009	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	96.3	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	106	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	83.2	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	90.7	71.0	131

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4976479) - continued							
EM2305972-009	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	92.0	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4976479)							
EM2305972-009	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	85.2	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	92.3	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	100	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	70.6	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 4988682)							
EM2305923-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	82.0	123
		EG020A-T: Beryllium	7440-41-7	1 mg/L	97.8	79.0	126
		EG020A-T: Barium	7440-39-3	1 mg/L	100	80.0	120
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	100	81.8	123
		EG020A-T: Chromium	7440-47-3	1 mg/L	96.7	78.9	119
		EG020A-T: Cobalt	7440-48-4	1 mg/L	98.5	80.7	121
		EG020A-T: Copper	7440-50-8	1 mg/L	100	80.4	118
		EG020A-T: Lead	7439-92-1	1 mg/L	101	80.5	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	105	73.0	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.2	80.0	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	98.8	81.0	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	102	74.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4988113)							
EM2305923-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	92.2	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2306013**	Page	: 1 of 12
Client	: **JACOBS GROUP(AUSTRALIA)PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: RANULI GOONETILLAKE	Telephone	: +6138549 9645
Project	: IA5000EI	Date Samples Received	: 04-Apr-2023
Site	: IA5000EI_MASTER_COC	Issue Date	: 17-Apr-2023
Sampler	: RANULI GOONETILLAKE	No. of samples received	: 21
Order number	: E1159	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EK040T: Fluoride Total	EM2305709--050	Anonymous	**Fluoride**	16984-48-8	67.9 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	0				
Matrix Spikes (MS)					
Ethylenediamine tetraacetic acid (EDTA) by GCMS	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001) OS_TP22_0.1_20230404	**04-Apr-2023**	**11-Apr-2023**	11-Apr-2023	✓	**11-Apr-2023**	11-Apr-2023	✓
EA029-A: pH Measurements							
Snap Lock Bag - frozen (EA029) OS_TP22_1.0_20230404	**04-Apr-2023**	**17-Apr-2023**	28-Dec-2025	✓	**17-Apr-2023**	16-Jul-2023	✓
EA029-B: Acidity Trail							
Snap Lock Bag - frozen (EA029) OS_TP22_1.0_20230404	**04-Apr-2023**	**17-Apr-2023**	28-Dec-2025	✓	**17-Apr-2023**	16-Jul-2023	✓
EA029-C: Sulfur Trail							
Snap Lock Bag - frozen (EA029) OS_TP22_1.0_20230404	**04-Apr-2023**	**17-Apr-2023**	28-Dec-2025	✓	**17-Apr-2023**	16-Jul-2023	✓
EA029-D: Calcium Values							
Snap Lock Bag - frozen (EA029) OS_TP22_1.0_20230404	**04-Apr-2023**	**17-Apr-2023**	28-Dec-2025	✓	**17-Apr-2023**	16-Jul-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-E: Magnesium Values							
Snap Lock Bag - frozen (EA029)							
OS_TP22_1.0_20230404	**04-Apr-2023**	**17-Apr-2023**	28-Dec-2025	✓	**17-Apr-2023**	16-Jul-2023	✓
EA029-F: Excess Acid Neutralising Capacity							
Snap Lock Bag - frozen (EA029)							
OS_TP22_1.0_20230404	**04-Apr-2023**	**17-Apr-2023**	28-Dec-2025	✓	**17-Apr-2023**	16-Jul-2023	✓
EA029-G: Retained Acidity							
Snap Lock Bag - frozen (EA029)							
OS_TP22_1.0_20230404	**04-Apr-2023**	**17-Apr-2023**	28-Dec-2025	✓	**17-Apr-2023**	16-Jul-2023	✓
EA029-H: Acid Base Accounting							
Snap Lock Bag - frozen (EA029)							
OS_TP22_1.0_20230404	**04-Apr-2023**	**17-Apr-2023**	28-Dec-2025	✓	**17-Apr-2023**	16-Jul-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OS_TP20_0.1_20230404, OS_TP20_0.5_20230404, OS_TP20_1.0_20230404, OS_TP21_0.1_20230404, OS_TP21_1.0_20230404, OS_TP22_0.1_20230404, OS_TP22_0.5_20230404, OS_TP22_1.0_20230404, OS_TP23_0.1_20230404, OS_TP23_0.5_20230404	**04-Apr-2023**	**----**	----	----	**06-Apr-2023**	18-Apr-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**----**	----	----	**06-Apr-2023**	01-Oct-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OS_TP20_0.1_20230404, OS_TP20_0.5_20230404, OS_TP20_1.0_20230404, OS_TP21_0.1_20230404, OS_TP21_1.0_20230404, OS_TP22_0.1_20230404, OS_TP22_0.5_20230404, OS_TP22_1.0_20230404, OS_TP23_0.1_20230404, OS_TP23_0.5_20230404	**04-Apr-2023**	**06-Apr-2023**	01-Oct-2023	✓	**11-Apr-2023**	01-Oct-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OS_TP20_0.1_20230404, OS_TP20_0.5_20230404, OS_TP20_1.0_20230404, OS_TP21_0.1_20230404, OS_TP21_1.0_20230404, OS_TP22_0.1_20230404, OS_TP22_0.5_20230404, OS_TP22_1.0_20230404, OS_TP23_0.1_20230404, OS_TP23_0.5_20230404	**04-Apr-2023**	**06-Apr-2023**	02-May-2023	✓	**11-Apr-2023**	02-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
OS_TP20_0.1_20230404, OS_TP20_0.5_20230404, OS_TP20_1.0_20230404, OS_TP21_0.1_20230404, OS_TP21_1.0_20230404, OS_TP22_0.1_20230404, OS_TP22_0.5_20230404, OS_TP22_1.0_20230404, OS_TP23_0.1_20230404, OS_TP23_0.5_20230404	**04-Apr-2023**	**11-Apr-2023**	02-May-2023	✓	**14-Apr-2023**	18-Apr-2023	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**12-Apr-2023**	18-Apr-2023	✓	**14-Apr-2023**	26-Apr-2023	✓
EK030: Cyanide Amenable to Chlorination							
Soil Glass Jar - Unpreserved (EK030SF)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**12-Apr-2023**	18-Apr-2023	✓	**14-Apr-2023**	26-Apr-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**11-Apr-2023**	02-May-2023	✓	**17-Apr-2023**	02-May-2023	✓
EP010: Formaldehyde							
Soil Glass Jar - Unpreserved (EP010)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**13-Apr-2023**	01-Oct-2023	✓	**14-Apr-2023**	01-Oct-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**10-Apr-2023**	18-Apr-2023	✓	**13-Apr-2023**	20-May-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
OS_TP21_0.1_20230404	**04-Apr-2023**	**12-Apr-2023**	18-Apr-2023	✓	**15-Apr-2023**	22-May-2023	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
OS_TP21_0.1_20230404	**04-Apr-2023**	**12-Apr-2023**	18-Apr-2023	✓	**15-Apr-2023**	22-May-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	11-Apr-2023	✓	**06-Apr-2023**	11-Apr-2023	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	11-Apr-2023	✓	**06-Apr-2023**	11-Apr-2023	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	11-Apr-2023	✓	**06-Apr-2023**	11-Apr-2023	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	11-Apr-2023	✓	**06-Apr-2023**	11-Apr-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP22_0.1_20230404	**04-Apr-2023**	**10-Apr-2023**	18-Apr-2023	✓	**13-Apr-2023**	20-May-2023	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP22_0.1_20230404	**04-Apr-2023**	**10-Apr-2023**	18-Apr-2023	✓	**13-Apr-2023**	20-May-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP22_0.1_20230404	**04-Apr-2023**	**10-Apr-2023**	18-Apr-2023	✓	**13-Apr-2023**	20-May-2023	✓
EP075C: Phthalate Esters							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP22_0.1_20230404	**04-Apr-2023**	**10-Apr-2023**	18-Apr-2023	✓	**13-Apr-2023**	20-May-2023	✓
EP075E: Nitroaromatics and Ketones							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP22_0.1_20230404	**04-Apr-2023**	**10-Apr-2023**	18-Apr-2023	✓	**13-Apr-2023**	20-May-2023	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM) OS_TP22_0.1_20230404	**04-Apr-2023**	**10-Apr-2023**	18-Apr-2023	✓	**13-Apr-2023**	20-May-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	11-Apr-2023	✓	**06-Apr-2023**	11-Apr-2023	✓
Soil Glass Jar - Unpreserved (EP071-EM) OS_TP22_0.1_20230404	**04-Apr-2023**	**10-Apr-2023**	18-Apr-2023	✓	**12-Apr-2023**	20-May-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT) OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	11-Apr-2023	✓	**06-Apr-2023**	11-Apr-2023	✓
Soil Glass Jar - Unpreserved (EP071-EM) OS_TP22_0.1_20230404	**04-Apr-2023**	**10-Apr-2023**	18-Apr-2023	✓	**12-Apr-2023**	20-May-2023	✓
EP095: Ethylenediamine Tetraacetic Acid (EDTA)							
Soil Glass Jar - Unpreserved (EP095) OS_TP22_0.1_20230404	**04-Apr-2023**	**13-Apr-2023**	18-Apr-2023	✓	**14-Apr-2023**	23-May-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	01-Oct-2023	✓	**11-Apr-2023**	16-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	01-Oct-2023	✓	**11-Apr-2023**	16-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	01-Oct-2023	✓	**11-Apr-2023**	16-May-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	01-Oct-2023	✓	**11-Apr-2023**	16-May-2023	✓
EP236: Dichlorophenoxyacetic Acid (2.4-D) and Tributyltin Oxide (TBTO)							
Soil Glass Jar - Unpreserved (EP236)							
OS_TP22_0.1_20230404	**04-Apr-2023**	**06-Apr-2023**	18-Apr-2023	✓	**11-Apr-2023**	16-May-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
RIN01_230404	**04-Apr-2023**	**13-Apr-2023**	01-Oct-2023	✓	**13-Apr-2023**	01-Oct-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
RIN01_230404	**04-Apr-2023**	**----**	----	----	**13-Apr-2023**	02-May-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Formaldehyde	EP010	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Cyanide Amenable to Chlorination (Segmented Flow Analyser)	EK030SF	SOIL	In house: Referenced to APHA 4500 - CN- G. The sample is leached in alkali solution and pretreated by contact with Chlorine (as hypochlorite) prior to determination of Total Cyanide. The measured parameter is the difference between Total Cyanide determined on an untreated sample and Total Cyanide determined post-chlorination. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Formaldehyde	EP010	SOIL	In house: Referenced to ASTM D 6303-98. Determined on 1:5 soil / water extracts by colourimetry using NASH reagent. The Hantszch reaction method is based on the reaction of acetylacetone with formaldehyde in the presence of excess ammonium acetate to form a coloured compound.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Ethylenediamine tetraacetic acid (EDTA) by GCMS	EP095	SOIL	In house: Referenced to DIN EN ISO 16588. The esterified derivative of EDTA from an aliquot of a 1:5 soil:water extract is analysed by GCMS in Selected Ion Monitoring (SIM) mode. This technique is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
2,4-D and Tributyltin Oxide (TBTO) by LCMSMS	EP236	SOIL	In house: soils are solvent extracted. The extract is analysed by LC-Electrospray-MS-MS, Negative Mode using MRM. Quantification by internal standardisation. Results for Tributyltin expressed as Tributyltin Oxide (TBTO).
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction of solids for 2.4-D and TBTO	EP236-PR	SOIL	In house: 2g of homogenised sample is extracted with alkaline solvent. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

ALSCompass SAMPLING Intelligence

ALS

Environmental Division
Melbourne
Work Order Reference
EM2306013

Telephone : +61-3-8549 9600

Custody Document for Submissions via ALS Compass App

Project: EA5000EL Client: JACOBS Project Manager:

Phone: ( )

ALS Compass COC Reference: 47397 # Samples: Sampler:

Phone: ( )

Turnaround Requirements: Standard Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time:	Date / Time:	Date / Time: 4/4 1600

CHAIN OF CUSTODY

(ALS) COC#: 47397 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: IA5000EI_MASTER_COC

ORDER NO: E1159

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Ranuli Goonetillake CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Ranuli Goonetillake QUOTE NO: ME-491-22 / EM2022SINKNI0017

EMAIL REPORTS TO: ranuli.goonetillake@jacobs.com, tea.sviland@jacobs.com, edmanz@jacobs.com, jacobs.labresults@esdat.net

EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	OS_TP20_0.1_20230404		04/04/2023 09:46 AM	SOIL	ALS: 2 Non ALS: 0	No			Partial 2/9		
002	OS_TP20_0.5_20230404		04/04/2023 09:48 AM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
003	OS_TP20_1.0_20230404		04/04/2023 09:48 AM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
004	OS_TP20_2.0_20230404		04/04/2023 09:49 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
005	OS_TP20_3.0_20230404		04/04/2023 09:49 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
006	OS_TP21_0.1_20230404		04/04/2023 11:10 AM	SOIL	ALS: 2 Non ALS: 0	No			Partial 3/9		
007	OS_TP21_0.5_20230404		04/04/2023 11:10 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
008	OS_TP21_1.0_20230404		04/04/2023 11:09 AM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
009	OS_TP21_2.0_20230404		04/04/2023 11:09 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				

CHAIN OF CUSTODY

(ALS) COC#: 47397 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: SINKNI - JACOBS GROUP(AUSTRALIA)PTY LTD

PROJECT: IA5000EI

SITE: IA5000EI_MASTER_COC

ORDER NO: E1159

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Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

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EMAIL INVOICES TO: ranuli.goonetillake@jacobs.com, stephen.sonnenberg@jacobs.com

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	OS_TP21_3.0_20230404		04/04/2023 11:08 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
011	OS_TP22_0.1_20230404		04/04/2023 07:35 AM	SOIL	ALS: 3 Non ALS: 1	No			Partial 3/9		
012	OS_TP22_0.5_20230404		04/04/2023 07:36 AM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
013	OS_TP22_1.0_20230404		04/04/2023 07:38 AM	SOIL	ALS: 2 Non ALS: 0	No			Partial 4/9		
014	OS_TP22_2.0_20230404		04/04/2023 07:39 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
015	OS_TP22_3.0_20230404		04/04/2023 07:39 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
016	OS_TP23_0.1_20230404		04/04/2023 08:23 AM	SOIL	ALS: 2 Non ALS: 0	No			Partial 2/9		
017	OS_TP23_0.5_20230404		04/04/2023 08:24 AM	SOIL	ALS: 1 Non ALS: 0	No			Partial 2/9		
018	OS_TP23_1.0_20230404		04/04/2023 08:24 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				

CHAIN OF CUSTODY

COC#: 47397 *ALS Laboratory:* EM Melbourne

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

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LABORATORY USE ONLY (Circle)

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Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED				
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	RINSATE WATER	SOIL SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
019	OS_TP23_2.0_20230404		04/04/2023 08:24 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
020	OS_TP23_3.0_20230404		04/04/2023 08:25 AM	SOIL	ALS: 1 Non ALS: 0	Yes	-				
021	RIN01_230404		04/04/2023 12:37 PM	WATER	ALS: 1 Non ALS: 0	No		X			