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Central Petroleum Mereenie Pty Ltd

383 Brewer Road, Hugh, Northern Territory

NT Portion 5823

Environmental Site Investigation Report

***Prepared by*: MACH1 ENVIRONMENTAL PTY LTD**

5 APRIL 2024

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Central Petroleum Mereenie Pty Ltd

383 Brewer Road, Hugh, Northern Territory

NT Portion 5823

Environmental Site Investigation Report

	Prepared by:	**Approved by:**
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Date:	5 April 2024	5 April 2024

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1 INTRODUCTION

MACH1 Environmental (MACH1) is pleased to provide Central Petroleum Mereenie Pty Ltd (CP) with the following Environmental Site Investigation (ESI) Report for the site located at 383 Brewer Road, Hugh, Northern Territory identified as NT Portion 5823 (and herein referred to as 'the site'). The works were complete works to a standard suitable to provide expert advice on the potential contaminated land aspects of the site, the suitability of the site for continued commercial / industrial use, and to inform further investigations or potential future remediation works (as required).

The works completed were in accordance with the MACH1 proposal 23-001-069 dated 1 February 2024.

Works were undertaken in response to a 'Notice to Carry Out Environmental Audit Program' issued by the Northern Territory Environment Protection Authority (NT EPA) for the site. This Notice was issued following submission of a Preliminary Site Investigation Report in November 2023 which identified a number of elevated concentrations of arsenic, zinc, Per- and poly-fluoroalkyl substances (PFAS) and Total Recoverable Hydrocarbons (TRH).

1.2 Objectives

The specific objectives of this investigation were to:

- Assess the current contamination status of the site including intrusive soil assessment, and confirm the suitability of the site for future ongoing industrial use;
- Reduce the risk of future unknown contamination, with an assessment of current condition of soils present on site; and
- Outline any limitations or risk potentially posed to future site users.

1.3 Scope of Work

MACH1 proposed the following scope of works:

- Development of Sampling and Analysis Quality Plan (SAQP) and Health & Safety Plan (HSP) for the investigation works;
- Field works including drilling of approximately 20 soil bores across the site to a maximum of 5m, including service location and provision of drill rig contractor;
- Laboratory analysis of selected soil samples for potential contaminants of concern, including leachate assessment of soil samples to guide future disposal options; and
- Preparation of a site assessment report presenting findings of soil assessment and recommendations for any future actions.

1.4 Technical Framework

The works were undertaken in general accordance with the following guidelines:

- AS4482.1-2005 Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1: Non-Volatile and Semi-Volatile Compounds (noting these standards have been withdrawn);
- AS4482.2-1999 Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 2: Volatile Substances (noting these standards have been withdrawn);
- Guidelines issued under Schedule B of the National Environment Protection (Assessment of Site Contamination) Measure (NEPM), National Environment Protection Council, December 1999 (revised May 2013);
- Heads of EPA (January 2020) PFAS National Environmental Management Plan Version 2.0 (NEMP);
- NT EPA, Northern Territory Contaminated Land Guideline, June 2017;
- Waste Management and Pollution Control Act 1998 (WMPC Act);
- New South Wales (NSW) Sampling design guidelines for contaminated land, August 2022; and
- Western Australia Department of Health, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, May 2009.

The sampling works were undertaken under the supervision of Mr Robin Wagland of MACH1, who is a Queensland approved Contaminated Land Auditor and has over thirty years of experience in contaminated land site assessments.

2 SITE SETTING AND HISTORY

2.1 Site Location

The site location and layout are shown in ***Figure 1, Appendix A***.

Details relating to the site are provided below in ***Table 2.1***.

Table 2.1. Site Identification Details

Site Address	383 Brewer Road, Hugh, Northern Territory
Legal Description (Lot and Plan)	NT Portion 5823
Site Owner	Central Petroleum
Operational Site Area	Approximately 3 hectares (whole lot is 50 hectares)
Former Land Use	Oil processing and storage
Current Land Use	Laydown yard for drilling equipment/vacant
Proposed Land Use	Unknown
Local Authority Area	MacDonnell Regional Council
Co-ordinates	-23.8803° / 133.8361°

2.2 Site Description

The site is currently used as a laydown yard for drilling equipment, but is generally unmanned and vacant for the majority of time. Previously the site has been used for oil processing and storage, with tank farm infrastructure still present at the site, though currently disused. A number of evaporation ponds with plastic lining are present in the north-eastern portion of the site, but were all observed to be dry.

Above ground site infrastructure includes:

- Former and current tank farms;
- A bunded chemical storage shed;
- Two sheds, one with a small above-ground storage tank on a stand at the rear;
- Former truck and rail loading areas;
- Former buildings, offices and portacabins;
- Drill rod and mast laydown areas;
- Four evaporation ponds; and
- Sewage treatment infrastructure (septic tank).

The following below-ground infrastructure were noted to be present:

- Mereenie to Alice Springs Pipeline (MASP), now decommissioned (since 2010);
- Wastewater sewer pipeline which runs from the tank farm area in the south to the evaporation ponds in the north;

- High voltage electricity, telecommunications, and water and PVC pipes identified mainly in the southern area of the site surrounding the current and former tank farms and former office building; and
- Two underground pipes entering evaporation pond 1, one from the west and one from the southwest.

Surrounding land uses and activities include:

- North: Vacant land;
- East: Railway line;
- South: Brewer Road and vacant land; and
- West: Vacant land then Brewer Estate CNG plant and the Central Petroleum Dingo Compound industrial properties.

2.4 Hydrology, Soils, Geology and Hydrogeology

2.4.1 Site Hydrology

The site ranges in elevation from 549m Australian Heigh Datum (AHD) to 551mAHD. There are no defined drainage lines across the site, with most rainfall expected to infiltrate the site surface.

2.4.2 Soil and Geology

A review of information held on the NR MAPS Land Systems map showed the site to be underlain by desert sandplains within the MacDonnell Ranges geological zone. The site geology comprises quaternary aged sediments.

The site soils are mapped as calcareous earths with aeolian sands. No potential for acid sulphate soils is mapped within the site area.

Geology and Potential Acid Sulphate Soils (PASS) mapping are shown in the maps included in ***Appendix C***.

2.4.3 Hydrogeology

A search of the NR MAPS database found two (2) registered groundwater bores within a 1km radius of the site. One of these groundwater wells was located within the site boundary in the north-eastern corner of the site.

Both bores were drilled to a total depth of 250 metres below ground level (mgl) with the standing water level not recorded in the off-site bore, while the on-site bore was listed as ‘dry’.

2.5 Unexploded Ordnance (UXO)

A search of the Australian Department of Defence website found no records of Unexploded Ordnance (UXO) within a 2km radius of the site.

Copies of the search information are provided in ***Appendix C***.

2.6 Site History Review

A site history review was completed by JBS&G as part of their preliminary site investigation works.

The review of aerial photographs, historic titles and government records presented by JBS&G, indicated that the site is not listed on the NT EPA Contaminated Land and Environmental Audits Register (CLEAR) and has been owned or leased by various petroleum and oil companies since at least 2001. No environmental licences were recorded for the site. Aerial photographs back to 1999 indicate that the site layout at this time was similar to the current site layout. Anecdotal evidence referenced suggested that the site has been used for industrial purposes from approximately 1984 onwards.

No information was available with regards to any fire events or potential firefighting systems at the site, however, PFAS containing firefighting foams were previously best practice for bulk fuel storage sites, therefore, there is potential for these substances to have been historically present at the site. The site is not within any Department of Defence, Airport and fire station risk areas for PFAS.

A review of the Field Environmental Management Plan (FEMP) dated 2017 indicates that the Brewer Es Crude Oil Terminal was 'mothballed' in 2010 due to integrity issues. The document states that two evaporation ponds were previously used for captured site drainage, tank dewatering and landfarming and that all hydrocarbon tanks were emptied of product and subject to final cleaning in 2017.

More recent discussions with CP suggest internal research has identified the potential for historic minor use of PFAS in a limited number of fire extinguishers. It is understood that these may have occasionally been used for fire training exercises on rare occasions. Review of some archive paperwork identified on site, such as fire plans, also reference the potential use or presence of PFAS on site, but exact locations and volumes of storage were limited. The known presence of PFAS storage/limited use assists in determining the likely sources and hence the assessment of overall risk associated with the widespread use of PFAS was considered to be low.

2.7 JBS&G Investigation

Following a desktop assessment, intrusive investigations by JBS&G included advancement of fourteen (14) test pits across the site to a maximum depth of 2.4m, as well as collection of four (4) surface soil samples from the evaporation ponds. Soil samples were analysed for a selection of contaminants of potential concern including:

- Heavy metals;
- Total recoverable hydrocarbons (TRH);
- Benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Organochlorine and Organophosphorous Pesticides (OC/OP);
- Polychlorinated Biphenyls (PCBs);
- PFAS;
- Cation and anion suite;
- Nutrients; and
- Asbestos.

Elevated soil results above commercial / industrial guidelines were noted for TRH C_{10}-C_{16}, TRH C_{16}-C_{34} and Sum of PFHxS and PFOS in samples from Evaporation Pond 1. A small number of other samples also exceeded ecological guidelines for arsenic, zinc and PFOS. One fragment of fibre cement sheeting collected from the ground surface in the tank farm area was noted to contain chrysotile asbestos.

3 SITE INSPECTION

The following section outlines some of the key findings of the site inspection undertaken on 14 February 2024 by the SQP, Robin Wagland of MACH1.

The purpose of the site visit was to identify any key areas which may be relevant to contaminated land issues and to determine appropriate sample locations, considering potential sources and migration pathways (where accessible). The site visit provided a general characterisation of the property, including an inspection of both the internal areas and the perimeters of the site. It is noted that not all areas of the site were inspected due to access limitations and observations made were general only.

The visual inspections included looking for:

- Potential contamination sources;
- Signs of staining, stressed vegetation and algal blooms;
- Likely contaminant migration pathways from any potential contamination sources onto the site; and
- Locations where contaminants may pool.

The general site layout and specific photographs related to the details provided below can be seen in the photographic log presented in ***Appendix B***.

Observations from the site inspection completed in February 2024 were summarised as follows:

- Surrounding land uses are considered to have a moderate to low potential to impact the site, with generally vacant agricultural properties on all sides, commercial/industrial uses were in the vicinity of the site, but at some distance from the site.
- No surface staining or hydrocarbon odours were identified during the site inspection of accessible areas.
- No observations of potential sources of contamination including buried waste, or staining were noted during the site inspection or intrusive sampling works, however, works were limited by the sampling methodologies and this cannot discount the presence of any such material.
- No potential asbestos containing materials (ACM) was noted on the site surface or in any of the subsurface investigations. The site inspections were limited and site surfaces were covered by asphalt or concrete hardstand, therefore, this cannot discount the potential for this material to be present and the future possibility of unexpected finds.

- No anthropogenic material such as Asbestos Containing Material (ACM) or Construction and Demolition (C&D) waste was noted in any borehole (accepting the limitations of methodology on identifying these items).
- No standing water or evidence of such was noted.
- Occasional residual storage vessels were present, with no labels to identify the contents, but volumes were small (generally <25L).
- Activities on the site appeared to be mothballed with storage tanks empty and vessels allowed to free drain, as applicable.
- There was no active fire management system on site and fire extinguishers, while present were noted to be out of test.
- Storage of equipment appeared to have been in the current status for a number of years and it is reported that the majority of remaining equipment is now likely to be redundant to future use.
- While plumbing and electricity remain, in general, the site is not operational or in a current state of everyday operation.
- Former offices/portacabins appeared abandoned, with occasional paperwork still on shelving or in filing cabinets, but nothing that appears currently relevant.
- It is understood that while some pipelines have been maintained, in general, they are considered to be redundant.
- The site remains securely fenced and access is restricted.

4 PRELIMINARY CONCEPTUAL SITE MODEL (CSM)

Based on our initial understanding of the site, the key areas of potential contamination sources were identified, in concurrence with the Areas of Environmental Concern identified by JBS&G, noting that these former activities are no longer operational, as follows:

- Evaporation ponds;
- Former Tank Farm and current tank Farm;
- Shed 1 (with associated AST);
- Chemical Storage Shed;
- Shed 2; and
- MASP / pipeline;
- Former Rail and Truck loading Area;
- Former building;
- Drill Rod Laydown;
- Drill Mast Laydown; and
- General construction/fill material.

The following potential receptors were initially identified through the site inspection and desktop review, as follows:

- Future site users and maintenance workers;
- Underlying groundwater (noting likely depth of >250m and confined conditions); and
- Potential nearby sensitive environmental receptors.

The following pathways / pollution linkages were initially identified, as follows:

- Direct contact with potentially contaminated soils or surface waters (noting none to be present) by site users, including maintenance workers; and
- Future construction workers undertaking excavation, construction and / or maintenance work;
- Neighbouring commercial / industrial land uses; and
- Dispersal of contaminants to nearby receptors through movement of contaminants through soil, surface water and / or groundwater.

The risk to ongoing future community users at the site from the above key areas is considered to be low; however, potential future liabilities remain due to the possibility for historical contamination of the underlying soils. If contaminated soils are present onsite, the likely contaminants of potential concern comprise:

- Heavy metals;
- TRH/BTEXN;
- PFAS; and
- Asbestos (if encountered).

5 DATA QUALITY OBJECTIVES

In determining the type, quantity and quality of data needed to support decisions relating to the environmental condition of the site, MACH1 has undertaken the seven-step process to develop the data quality objectives (DQOs) in accordance with the process outlined in Schedule B2 of the National Environmental Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013 (NEPM 2013). In developing the DQOs for the investigation the existing site information was reviewed to identify the areas of the site that required investigation for the purpose of assessing the suitability of the site for future uses. These matters are addressed in the DQO steps below.

Step 1: State the Problem

The site has a long history of industrial use with various associated activities having the potential to have caused contamination of the site. The contamination status of the site is currently unknown, with the exception of preliminary site works completed by JBS&G.

Step 2: Identify the Decisions

- Were there areas that could be potentially contaminated based on past use?
- Do soil concentrations exceed Investigation Levels?
- Are there other factors such as aesthetic issues or odours that could impede the proposed future use?
- Do exceedances meet the following decision rules:
  - A single concentration cannot exceed the investigation levels by more than 2.5 times.
  - The standard deviation of a sample population cannot exceed 50% of the investigation level.
  - The average concentration of an analyte must not exceed the investigation level.
  - The 95% Upper Confidence Limit (UCL) must not exceed the investigation level.

Step 3: Identify Inputs to the Decisions

Information needed to address the problem statement included:

- Site inspection;
- Site history;
- Site geology/hydrogeology;
- Off-site uses and potential sources of contamination;
- Sensitive receptors and corresponding environmental values within a 500m radius that could be at risk from on-site contamination;
- Investigation Levels that were relevant to the site setting; and
- Investigation soil concentrations.

Step 4: Define the Study Boundaries

The boundaries of the investigation have been identified as follows:

- Spatial boundaries – defined by the site boundary shown in Figure 1 (attached).
- Constraints within the study boundaries – the sampling strategy is constrained by the presence of buildings, drainage features, gradients and underground services on some parts of the site; and
- Scope constraints – the current investigation is focused on the investigation of shallow soil and does not consider sampling of groundwater conditions at this stage (noting groundwater is a >250m and the on-site well was noted to be previously dry).

Step 5: Develop the Analytic Approach

Reliance on the analytical data was paramount to meeting the objectives of this investigation. This required validation of the analytical data and field Quality Assurance (QA) results. Acceptance limits for data validation were:

- No concentrations could be detected in laboratory blanks, trip blanks or equipment rinsate blanks.
- Relative Percent Differences (RPDs) for laboratory duplicates had:
  - no acceptance criteria for analyte concentrations that were less than 20 times the limit of reporting
  - an acceptance criteria of 20% for concentrations that were >20 times the limit of reporting.
- Relative Percent Differences (RPDs) for field duplicates and triplicates had:
  - no acceptance criteria for analyte concentrations that were less than 10 times the limit of reporting
  - an acceptance criteria of 40% for concentrations that were >10 times the limit of reporting.
- Matrix Spike Recoveries - 70% to 130%.
- Laboratory Control Spikes recovery limits varied for each analyte and were listed by the laboratory providers.
- Surrogate Recoveries recovery limits varied for each analyte and were listed by the laboratory providers.

Step 6: Specify Performance or Acceptance Criteria

Exceedances of the data validation acceptance limits required further investigation which consider:

- obtaining a statement from the laboratory provider as to the likely cause of the laboratory QA exceedance.
- dismissing exceedances that appeared to be outliers or minor in nature based on the overall quality of the data validation results.
- assessment of soil conditions to determine if heterogeneity was the cause of the field QA exceedance.

- review of sample handling, storage, preparation and collection, equipment calibration and decontamination methods to determine if errors occurred that affected analytical reliability.

Step 7: Optimise the Design for Obtaining Data

Optimisation of the data collection process will be achieved by:

- Knowledge gained from site inspections, site setting, expected soil profiles, depth to groundwater and hydrogeology.
- Completion of the investigation in accordance with the requirements of the NEPM 2013.

6 INVESTIGATION WORKS

The following section outlines the methodology adopted for conducting the investigation. Site investigation works were completed on 14 February 2024.

Service location and clearance was provided by Austar Underground Service Pty Ltd (AUS) and the drilling equipment was contracted through Silver City Drilling Pty Ltd (SCD).

6.1 Site Investigation Locations

Prior to commencement of works all locations were then cleared by a service locator, with no services encountered or incidents occurring during the drilling works.

A total of thirty one (31) locations (BH1 to BH20, TP1N, S, E and W, TP3N, S, E and W, Pond 1, Pond 2 and Pond 3) were progressed using a drilling rig or hand tools across the site (depending on access and services) to a maximum depth of 3 mbgl, with the collection of sixty four (64) primary soil samples. The visual observation limitations of drilling over test pitting were noted and while no anthropogenic material such as waste or ACM was noted, the potential to miss material is possible. While the potential for the presence of ACM was considered to be low, unexpected finds in the future cannot be discounted based on the limitations of the methodology.

Soil samples were collected and forwarded to a National Association of Testing Authorities (NATA) accredited laboratories, Eurofins and ALS Environmental in Brisbane, and selectively analysed for identified contaminants of concern.

The locations of all investigation points are shown in ***Figure 2, Appendix A***.

Details of the soils encountered and samples collected can be found in the borehole logs in ***Appendix D.***

6.2 Soil Sampling Works

In summary the following general methodology was employed:

- Disposable nitrile gloves were worn by the sampler and were replaced between samples.
- All samples were transferred directly into applicable laboratory supplied jars for the analysis selected.
- All sample jars were clearly labelled with unique sample identification numbers, consisting of the date, sample location, depth of sample and sampler(s) initials.
- Samples were stored on ice, in an esky whilst at the site, and in transit to the laboratory.
- All samples were delivered to Eurofins or ALS Environmental, both NATA registered laboratory for the analysis conducted, within the required holding times.

- Care was taken to ensure that samples collected were representative of the investigation depths and locations, with dedicated samples obtained from disposable push tube liners. Where samples were obtained by hand tools, these were taken from the centre of the soil profile to avoid contact with the surface of the trowel and reduce the potential for cross-contamination.
- Further, where applicable, all items of field equipment used for the collection were decontaminated between sample locations to avoid any potential for cross-contamination.
- All boreholes were logged in accordance with the Unified Soil Classification System.

The detailed methodology employed was generally in accordance with the industry best practise. Soil samples were obtained from approximately 0.5m depth intervals and labelled as BH1-0.3, BH1-1.0, etc., respectively. Analysis was requested for all samples at the 0.0-0.5m depth interval in the first instance to detect surface down impact, as per our proposal. As needed, Central Petroleum can subsequently select any additional deeper samples for further analysis, as all soils have been placed on hold.

It should be noted that jars selected specifically for PFAS sampling were specifically supplied by the laboratory for this purpose and had Teflon-free lids. Care was taken that Teflon-coated materials and aluminium foil did not come into contact with the sample. During sample processing and storage, the exposure of the sample to light was minimised. No chemical or gel-based coolant products (e.g. BlueIce®) were used to maintain samples at 4°C following sample collection. The use of labels, stickers and inks, unless confirmed to be PFAS-free, was avoided. It was ensured that all equipment that came in contact with soil did not contain and was not coated with Polytetrafluoroethylene (PTFE). All other requirements of NEMP 2.0 were adhered to in the sampling of soils for PFAS to ensure there was no potential for cross-contamination.

6.3 Laboratory Analysis

Chemicals of concern were determined from an understanding of on-site and off-site activities, but also to provide a general assessment of soils**.** Samples were selectively analysed for:

- Total recoverable hydrocarbons (TRH);
- Benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN);
- Heavy metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury);
- Polycyclic Aromatic Hydrocarbons (PAH); and
- Per- and Poly-fluoroalkyl Substances (PFAS).

Standard laboratory Limits of reporting (LORs) were applied and these are presented in the results tables in ***Appendix E***.

6.4 Assessment Criteria

The specific criteria are provided in the laboratory summary tables in ***Appendix E*** and in ***Table 6.1*** below.

The following assessment criteria were utilised to assess the results:

- The ASC NEPM Health based Investigation Levels (HILs) and Health Screening Levels (HSLs) will be used to assess the potential risks to human health for an ongoing commercial/ industrial land use (Land Use D) scenario.
- The PFAS NEMP human health-based investigation levels (20 mg/kg Sum of PFOS + PFHxS) for soil for commercial / industrial (HIL D) will be used to investigate and assess human health risks.
- Leachable PFAS concentrations (Australian Standard Leaching Procedure (ALSP)) were compared with the Interim Landfill Acceptance Criteria presented in the PFAS NEMP for unlined, lined and double lined landfills.
- If encountered, the WA guidelines for assessment of asbestos contamination will be utilised for asbestos impacts.

Assessment Criteria are outlined in ***Table 6.1*** below.

Table 6.1: Soils Assessment Criteria

Contaminant	Selected Screening Criteria	
	NEPM 2013 ESL[1] / NEPM 2013 HIL-D[2]	Vapour intrusion HSL-D[3]
Trace Metals (mg/kg)		
Arsenic	3,000[2]	--
Cadmium	90[2]	--
Chromium	3,600[2]	--
Copper	240,000[2]	--
Lead	1,500[2]	--
Nickel	6.000[2]	--
Zinc	400,00[2]	--
Mercury	750[2]	--
Total Recoverable Hydrocarbons (TRH) (mg/kg)		
TRH C_6-C_{10} (F1)	215[1]	260
TRH >C_{10}-C_{16}	170[1]	--
TRH >C_{16}-C_{34} (F3)	1,700[1]	--
TRH >C_{34}-C_{40} (F4)	3,300[1]	--
TRH C_{10}-C_{16} (- Naphthalene) (F2)	--	Not limiting
BTEXN (mg/kg)		
Benzene	75[1]	3
Toluene	135[1]	Not limiting
Ethylbenzene	165[1]	Not limiting
Total Xylenes	180[1]	230
Naphthalene	--	Not limiting
Other contaminants (mg/kg)		
PFOS	1[4]	--
Sum of PFHxS and PFOS	--	20[5]

1 Soil ESL for urban residential and public open space (fine-grained soils)

2 Soil HIL(A) for residential

3 Soil HSL(A&B) for vapour intrusion for low-high density residential (0 to <1m; clay)

4 PFAS NEMP Ecological Direct Contact guideline

5 PFAS NEMP (HEPA 2020) - Soil - Human Health - Commercial Industrial

"--" = not available

6.5 Laboratory QA/QC

Laboratory quality assurance/quality control (QA/QC) procedures used during the works are summarised in ***Table 6.2***.

Table 6.2 Laboratory quality assurance/quality control

QA/QC procedure	Description
Laboratory duplicate samples	Laboratory duplicate samples were obtained and these were a randomly selected sample, which was split and tested to provide an indication of the precision of the laboratory method and sample heterogeneity.
Method blanks	Method blanks were used to monitor potential laboratory contamination that could affect laboratory results.
Laboratory control samples	Laboratory control samples were undertaken and are solutions prepared in the laboratory that are spiked with a known concentration of the contaminants of concern. The spiked solution is free of matrix interferences that often affect sample results. Analysis of the laboratory control sample indicates the precision and accuracy of the laboratory method and is independent of matrix interferences.
Surrogate recovery	Surrogate recovery were used to demonstrate correct sample preparation and absence of matrix effects in the test method.
Matrix spike recovery	The matrix spike were used and are a measure of the matrix interference that may be present in a field sample. A known concentration of the contaminants of concern is added to a field sample. The analytical result is then compared to the known concentrations of the spike and field sample.

The data quality objectives were assessed by reference to data quality indicators as follows:

Data Representativeness – representativeness expresses the degree that sample data accurately and precisely represents a characteristic of a population or an environmental condition. Representativeness was achieved by collecting samples to complement existing information, and by sufficient sample locations to characterise the site to the required accuracy.

Completeness – is defined as the percentage of measurements made which are judged to be valid measurements (as determined by the other data quality objectives). If there is insufficient valid data then additional data will be required to be collected.

Comparability - is a qualitative parameter expressing the confidence with which one data set can be compared with another. This was achieved through maintaining a level of consistency in techniques used to collect samples and ensuring analysing laboratories use consistent analytical techniques and reporting methods. Reporting of results was done in consistent units and nomenclatures, and comparability was achieved by ensuring that precision and accuracy objectives were met.

Precision - measures the reproducibility of measurements under a given set of conditions. Precision is a measure of the ability to reproduce results and was assessed based on agreement between a set of replicate results obtained from duplicate analyses. The precision of a duplicate determination were measured as RPD, and this was calculated from the following equation:

$$RPD = \frac{|A - B|}{\frac{A + B}{2}} * 100$$

Where: A = Primary sample value

B = Duplicate/triplicate sample value

Laboratory personnel calculated the RPDs of laboratory duplicates and MS/MSDs. Control or acceptance limits are taken from the appropriate method. If the RPD for a sample did not fall within the control limits, laboratory based corrective action was taken; however, the sample was not necessarily reanalysed.

Accuracy - measures the agreement between an experimental determination and the true value of the parameter being measured. The determination of accuracy was achieved through the analysis of known reference materials or assessed by the analysis of matrix spikes. Spiking of reference materials into an actual sample matrix was the preferred technique because it provided a measure of the matrix effects on the analytical accuracy. Accuracy was measured in terms of percentage recovery as defined by the following equation:

$$\%R = \frac{SSR - SR}{SA} * 100$$

Where: %R = percentage spike recovery

SSR = spiked sample result

SR = sample result (native)

SA = spike added

Laboratory personnel calculated percentage recoveries of spiked compounds, which were evaluated against control or acceptance limits taken from the appropriate NATA approved method. If the spike recovery for a sample did not fall within the prescribed control limits, laboratory based corrective action was taken, although the sample was not necessarily reanalysed.

6.6 Field QA/QC

Field QA/QC procedures incorporated decontamination measures, field sampling techniques and QA/QC protocols to maintain sample integrity and maximise the reliability of analytical results. The field QA/QC procedures that were followed included:

- Collection of soil samples that represented discrete soil types.
- Handling samples using new latex gloves to minimise cross contamination between sampling locations.
- Obtaining soil samples from the centre of the material where hand tools were used, to avoid cross contamination.
- Placing samples in laboratory supplied containers that were specific to the analyses being performed.
- Sample containers were filled to the top to minimise headspace loss.
- Storing samples in a chilled state until delivered to the laboratory.

Field QA/QC sampling was undertaken for the purpose of providing an assessment of field sampling techniques and analytical reliability. Field QA/QC results are discussed in ***Section 5.5*** and the laboratory reports can be found in ***Appendix F***.

Field quality control procedures used during the project comprised:

Blind Duplicates: these are prepared in the field by duplicating the original sample and placing two equivalent portions into two separate containers. The blind duplicate sample is sent anonymously to the primary laboratory. Blind duplicates provide an indication of the analytical precision of the primary laboratory, but may also be affected by factors such as sampling methodology or inherent heterogeneity of the sample medium. Blind duplicates are to be collected for all sample media at a rate of one in twenty samples, but evenly divided between split duplicates (below).

Split Duplicates: these are field duplicates analysed by a secondary laboratory. Split duplicates provide an indication of the analytical precision of the primary laboratory. Split duplicates were collected for all sample media at a rate of one in twenty samples (or one in ten for PFAS), but evenly divided between blind duplicates.

Trip Blank: is a sample with contaminant concentrations below detection limits that accompanies the other samples over the course of the fieldwork and subsequently submitted to the laboratory for analyses. Trip blanks provided an indication of contamination introduced during sample transport and handling. Trip blanks were analysed at an approximate rate of one per batch of samples submitted to the laboratory.

Trip Spike: is a sample with known contaminant concentrations that accompanies the other samples over the course of the fieldwork and subsequently submitted to the laboratory for analyses. Trip spikes provided an indication of potential contamination loss such as via volatilisation during sample transport and handling. Trip spikes were analysed at an approximate rate of one per batch of samples submitted to the laboratory.

Assessment of field quality control duplicate samples was undertaken by calculating the Relative Percent Difference (RPD) of the duplicate samples and concentrations detected in primary or triplicate samples. The criteria to be used for the assessment of RPD is based on the NEPM (1999) Schedule B(3) which states that the RPD between results of split samples should in general be within 30% to 50%. However, this variation can be expected to be higher for organic analyses than for inorganic analyses, and for low concentrations of analytes.

In addition to the above, the following procedures were undertaken:

- the fieldwork was supervised by a suitably qualified professional;
- fieldworks were undertaken in accordance with the NEPM (Contaminated Land) procedures;
- all equipment was calibrated prior to use in the field;
- all samples were logged and transferred under complete chain of custody documentation;
- all samples were properly preserved and chilled during handling and transportation, the receiving laboratory acknowledged the condition of the samples upon receipt;
- no rinsate samples were required due to the use of dedicated disposable sample push tubes or ensuring soil samples were collected from the centre of the hand tool sampling equipment; and
- blind field and split duplicates were prepared in accordance with procedures given in Section 8 of AS4482.1 - 2005.

7 RESULTS

7.1 Observations

Various soils were observed on site and are described in the bore logs in ***Appendix D***. Soil bores were advanced to a maximum depth of 3.0 mbgl or refusal on bedrock, which ever was encountered first.

Minor hydrocarbon odours were noted during sampling of evaporation pond 1. No staining, buried waste material or other indicators of potential contamination were noted during the site works, however, limitations of drilling with boreholes during the initial sampling, may prevent a full identification of all material in the soils. While no anthropogenic material was noted within the boreholes the potential presence of unexpected finds cannot be discounted due to the limitations of the methodology.

7.2 Soil Laboratory Results

A total of thirty one (31) primary soil samples were selected for laboratory analysis.

- All results were below the laboratory Limit of Reporting (LOR) for BTEXN and PAH.
- Detectable TRH F3 was recorded in four boreholes, however, all TRH concentrations were below guideline limits.
- All heavy metals were below the laboratory LOR or below the nominated guidelines.
- Two samples reported results above the LOR for PFHxS (Pond 1 0.1 and Pond 3 0.1), while one sample returned results above the LOR for PFOA (Pond 3 0.1). One sample returned results for PFOS above the LOR (TP1W 0.1). All results were well below the guideline limits for residential land use and commercial land use.
- Australian Standard Leaching Procedure (ALSP) results returned results above the Interim Landfill Acceptance Criteria presented in the PFAS NEMP that would be designated for unlined, lined and double lined landfill criteria for sum of PFHxS and PFOS in three of the four samples collected from Evaporation Ponds 1 and 2. One sample from Evaporation Pond 2 only exceeded the guidelines for unlined and lined landfill, but not for double lined landfill.

Laboratory QA/QC reports are attached to the laboratory reports provided in ***Appendix F***.

7.3 QA/QC Results

7.3.1 Laboratory QA/QC

Laboratory QA/QC is summarised in ***Table 7.1*** below.

Table 7.1 Laboratory Quality Assurance / Quality Control

Report #	Analysis Within Holding Time	Surrogate Recovery	Lab Duplicate RPD %	Lab Matrix Spike Recovery	Lab Control Sample	Lab Method Blank
1069986	✓	✓	✓	✓	✓	✓
1073979	✓	✓	✓	✓	✓	✓
EB2405552	✓	✓	✓	x	x	✓
✓= Pass X = Fail - = not required * = refer to report text						

Quality Assurance Criteria	**Quality Control Criteria**
Holding Times	**Accuracy**
VOCs 14 days soil and water SVOCs 7 days water, 14 days soil Metals 6 months, Mercury 28 days	Matrix spike, control sample 70-130% and 80-120% for heavy metals. Surrogate recovery 50-150%.
	Precision
	Method Blank Not detected Duplicate - No limit (<10xEQL), 0-50% (10-20xEQL), 0-200% (>20xEQL)

Review of the laboratory QA/QC procedures and tests revealed that all samples were received in a suitable condition and were analysed within the recommended sample holding times.

All results for laboratory tests with the exception of some results for matrix spike recovery and laboratory control spike recovery were within the acceptable limits, as indicated in ***Table 7.1***. The outliers are not considered to affect the outcomes of the overall results. Based on the outcome of the field QA/QC and laboratory QA/QC review, the laboratory results are considered acceptable for use.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

Based on the findings of the investigation, MACH1 concludes the following:

- The site is currently used as a laydown yard for drilling equipment, but is generally unmanned and vacant for the majority of time. Previously the site has been used for oil processing and storage, with tank farm infrastructure still present at the site, though currently disused. A number of evaporation ponds with plastic lining are present in the north-eastern portion of the site, but were all observed to be dry.
- The previous site investigation works by JBS&G found elevated soil results above commercial / industrial guidelines were noted for TRH C_{10}-C_{16}, TRH C_{16}-C_{34} and Sum of PFHxS and PFOS in samples from Evaporation Pond 1. A small number of other samples also exceeded ecological guidelines for arsenic, zinc and PFOS. One fragment of fibre cement sheeting collected from the ground surface in the tank farm area was noted to contain chrysotile asbestos.
- No potential ACM or anthropogenic material was noted by MACH1 on the site surface or in any of the subsurface investigations, however, the borehole methodology limited the visual assessment of fill quality. While relatively minimal fill was recorded, to this extent, future unexpected finds cannot be ruled out and procedures should be in place if any such finds are encountered.
- All results were below the laboratory Limit of Reporting (LOR) for BTEXN and PAH.
- Detectable TRH F3 was recorded in four boreholes, however, all TRH concentrations were below guideline limits.
- All heavy metals were below the laboratory LOR or below the nominated guidelines.
- Two samples reported results above the LOR for PFHxS (Pond 1 0.1 and Pond 3 0.1), while one sample returned results above the LOR for PFOA (Pond 3 0.1). One sample returned results for PFOS above the LOR (TP1W 0.1). All results were well below the guideline limits for residential land use and commercial/industrial land use.
- Australian Standard Leaching Procedure (ALSP) testing returned results above the concentrations that would be designated for off-site unlined, lined and double lined landfill criteria presented in the PFAS NEMP for sum of PFHxS and PFOS in three of the four samples collected from Evaporation Ponds 1 and 2. One sample from Evaporation Pond 2 only exceeded the guidelines for unlined and lined landfill, but not for double lined landfill.
- Enquires have confirmed that local landfills are not licensed to accept PFAS impacted material, therefore, the remedial option of off-site disposal would not be deemed as feasible or sustainable.
- No concentrations of soil contamination were recorded at levels which would prevent the ongoing use of the site for commercial/industrial purposes.

8.2 Recommendations

Based on the objectives and conclusions, MACH1 recommends the following:

- No contaminants above commercial / industrial guidelines have been found during the recent investigation works by MACH1. Previous investigations by JBS&G found TRH and PFAS impacted soils above guideline levels in Evaporation Pond 1, however, recent results were significantly lower, suggesting concentrations of TRH may have bioremediated and PFAS concentrations previously measured may have been the result of either cross contamination of samples or potential soil heterogeneity.
- No contamination was identified during the MACH1 works at levels requiring remediation or management for the ongoing commercial / industrial use of the site.
- Should additional risk reduction be sought, soils recorded with detectable PFAS concentrations could be excavated and placed within the lined pond structures. The placement area could be compacted, and a further liner placed over the surface to prevent future leaching of low levels of residual PFAS.

9 REFERENCES

- AS4482.1-2005 Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1: Non-Volatile and Semi-Volatile Compounds (no longer in publication, but referenced for context).
- AS4482.2-1999 Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 2: Volatile Substances (no longer in publication, but referenced for context).
- Guidelines issued under Schedule B of the National Environment Protection (Assessment of Site Contamination) Measure (NEPM), National Environment Protection Council, December 1999 (revised May 2013).
- Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater (CRC CARE Health Screening Levels) (Friebel and Nadebaum 2011).
- Environmental Protection Act 1994.
- Heads of EPA, PFAS National Environmental Management Plan (NEMP), Version 2, dated 2020.

10 LIMITATIONS

This report is produced exclusively for the benefit of CP. This report is prepared for the proposed uses stated in the report and the scope outlined and should not be used in whole or part in a different context without reference to MACH1. In time, improved practices or amended legislation may necessitate a re-assessment of the site.

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site. The report is limited to those aspects of land contamination specifically reported on and is necessarily restricted to this and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents.

The findings of this report are based on the Scope of Work outlined in the proposal for the work (email proposal dated 1 February 2024, Reference No. 023-001-069). MACH1 performed the services in a manner consistent with the normal level of care and expertise exercised by members of the contaminated land remediation and environmental auditing profession. No warranties, or guarantees, express or implied, are made. The Report only considers the contaminated land aspects of the site and does not provide an opinion regarding other aspects of the site or the environment not related to site contamination such as (but not limited to): hazardous building materials such as asbestos containing material (ACM) in buildings or structures; structures, footings, infrastructure and the like, whether above or below ground; or the suitability of fill materials for any use and any geotechnical considerations; material not visible or accessible; omission by the client; or regulatory responsibilities or obligations (for which a legal opinion should be sought); or the work health and safety legislation; or the suitability of any engineering design. If specialist technical review of such additional issues is required, then separate advice should be obtained from appropriate specialists.

Subject to the Scope of Work, MACH1's assessment is limited strictly to identifying typical environmental conditions associated with the subject property and does not evaluate structural conditions of any buildings on the subject property, nor any other issues. Although normal standards of professional practice have been applied, the absence of any identified hazardous or toxic materials on the site should not be interpreted as a guarantee that such materials do not exist on the site.

Sampling and chemical analysis of environmental media are based on guidance made and approved by the relevant regulatory authorities. Conclusions arising from the assessment of environmental data are based on the sampling and analysis considered appropriate based on these regulatory requirements and site history, not on sampling and analysis of all media at all locations for all potential contaminants.

Ground conditions between sampling locations may vary, and this should be considered when extrapolating between sampling points. Physical contaminants such as ACM may exist where no obvious source is present and later be identified as an unexpected find.

As environmental sampling is based on site history research and likely contaminants of concern, rather than analysis of all media at all locations for all potential contaminants, the absence of any identified hazardous or toxic materials at the site should not be interpreted as a warranty or guarantee that such materials do not exist at the site. Regulatory standards change over time and there may be materials present at the site that whilst not considered hazardous at the present time may be considered hazardous in the future.

Changes to the site conditions may occur subsequent to the investigations described in this Report, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this Report are based on the available information at the time of the investigation of the site, should new information become available about contamination at the site that may materially affect the validity or appropriateness of the conclusions in the Report, the consultant reserves the right to review the Report in the context of any such additional information.

This assessment is based on a site inspection conducted by MACH1 personnel, soil sampling and analyses described in the report was conducted by MACH1 and information used in the report was provided by CP, associated consultants or other people with knowledge of the site conditions.

All conclusions and recommendations made in the report are the professional opinions of MACH1 personnel involved with the project and, while normal checking of the accuracy of data has been conducted, some of the opinions are based on unconfirmed data and work conducted by others. MACH1 assumes no responsibility or liability for errors in data obtained from regulatory agencies, other consultants or any other external sources, nor from occurrences outside the scope of this project.

MACH1 is not engaged in environmental auditing or reporting for the purpose of advertising, sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The report should not be used or reproduced in full or in part for any such promotional purposes and may not be used or relied upon in any prospectus or offering circular.

Appendix A

Figures

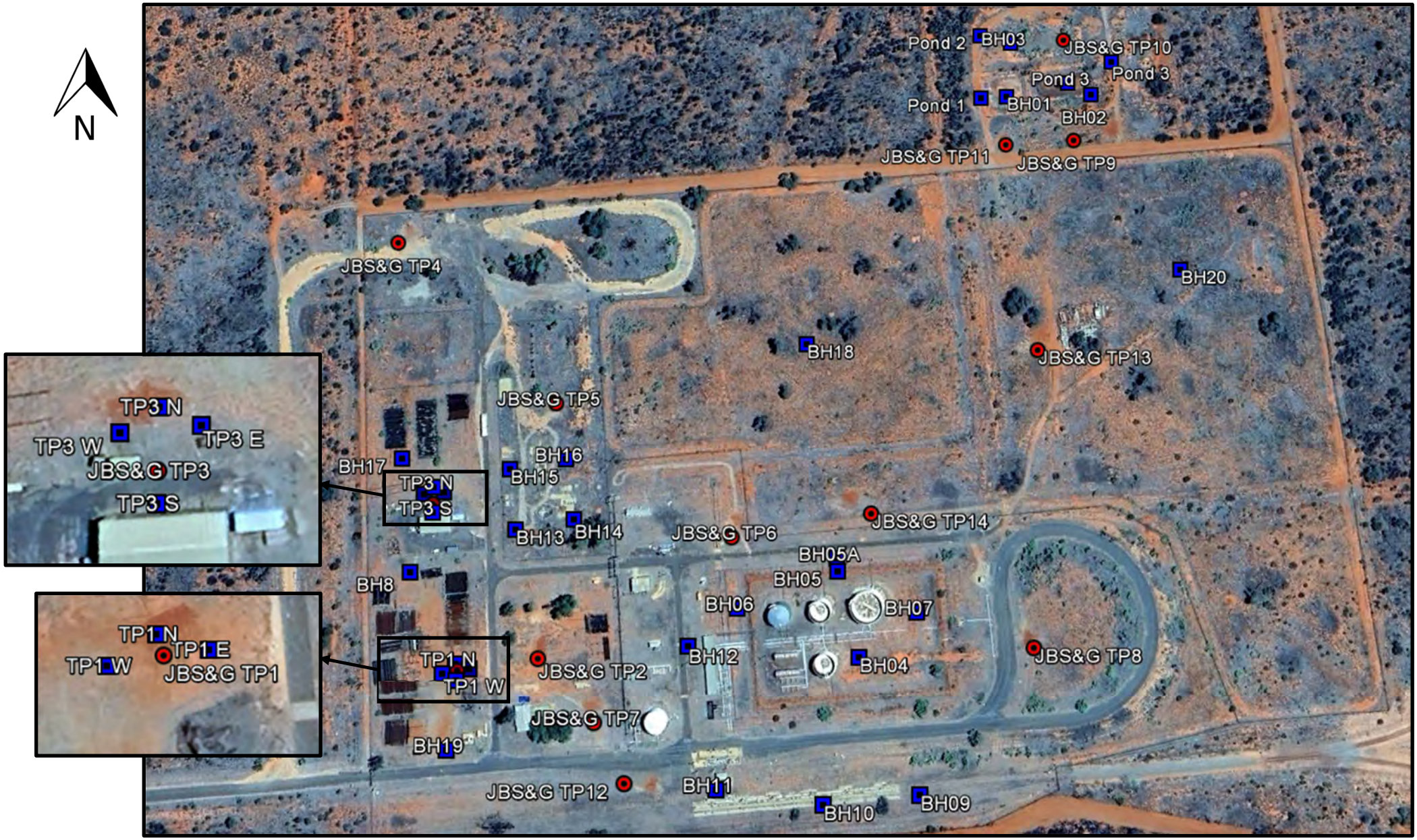


Figure 1: Sample Location Plan

383 Brewer Road, Hugh

Not to scale

Previous JBS&G test pit location

MACH1 soil bore location

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Appendix B

Photographic Log



Photo 1: Site inspection showing layout of tank farm, 14/02/2024



Photo 2: Site inspection showing layout of tank farm infrastructure, 14/02/2024



Photo 3: Site inspection showing layout of tank farm infrastructure, 14/02/2024



Photo 4: Office building, 14/02/2024



Photo 5: Tank farm area, 14/02/2024



Photo 6: Tank farm infrastructure, 14/02/2024

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Photo 7: Earthen bunds surrounding tank farm area, 14/02/2024



Photo 8: Evaporation ponds, 14/02/2024



Photo 9: Evaporation ponds showing plastic liner, 14/02/2024



Photo 10: Typical surrounding natural environment, 14/02/2024



Photo 11: Drilling equipment laydown areas, 14/02/2024



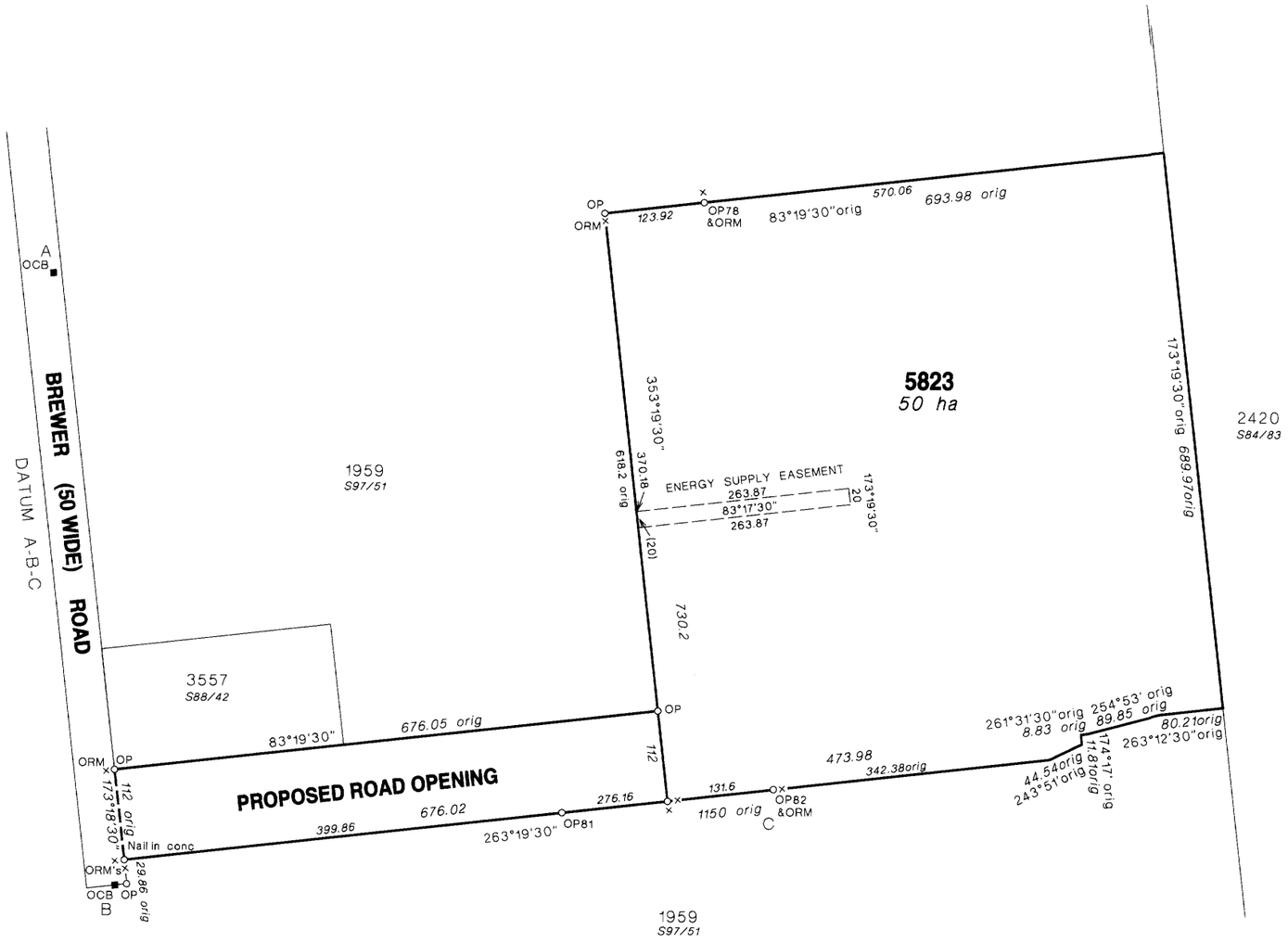
Photo 12: Drilling equipment laydown areas, 14/02/2024

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Appendix C

Site Setting Searches and Previous Reports

Supersedes part of S84/83A



Department of Lands, Planning and Environment.
Northern Territory

I, THOMAS IAN McKNIGHT, hereby certify that the survey represented on this plan was carried out by me or under my immediate supervision and was completed on 12/03/2000 and that this survey has been executed in accordance with the Licensed Surveyors Act and the Directions thereunder.

T.I. McKnight — Licensed Surveyor — 27/04/00 — Date

SURVEY APPROVED

I.J. Gadsley — Delegate of the Surveyor-General — 8/05/00 — Date

Notes: Reference marks are at 1 metre unless otherwise shown.
Energy Supply Easements is in favor of the Territory.
Proposed Road Opening 7.57ha

Field Book
S98/08

Drawn
TONY MARKHAM PTY 10/03/2000

Examined

Map Reference
ALICE SPRINGS 50 000
SHEET 2

True Mid Bearings

AZIMUTH
Assumed from S84/83
Observed at

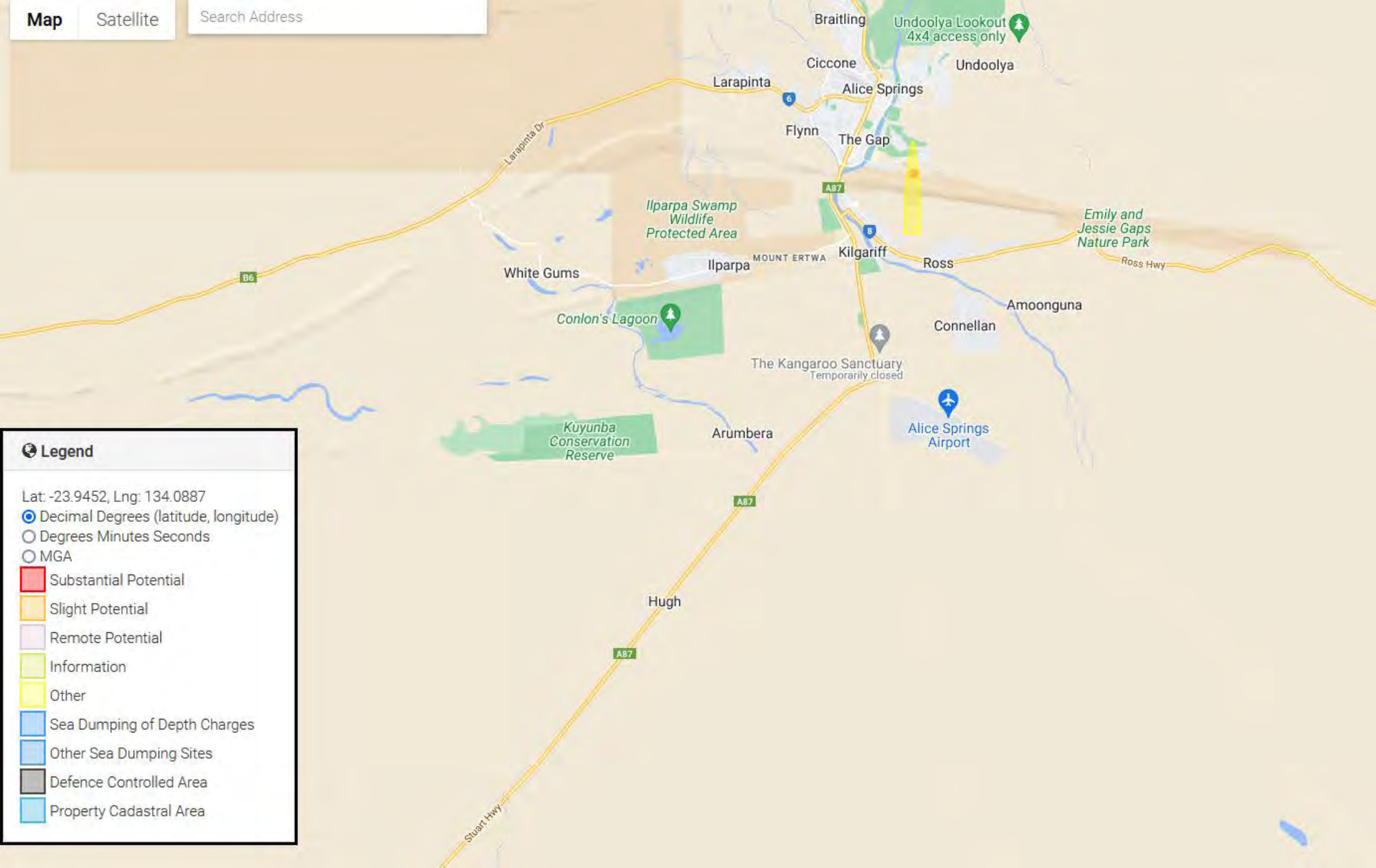
LEGEND
Concrete Post
Concrete Block
Peg or Wooden Post
Reference Mark
Lockspit
Fence Post

NT PORTION 5823 & PROPOSED ROAD OPENING
SUBDVISION OF NT PORTION 3515
OWEN SPRINGS LOCALITY

SCALE 1: 4000
80 0 80 160 240
metres

S2000/002

WARNING - Damaged or creased plan will be rejected.


Map
Satellite
Search Address
Braitling
Undoolya Lookout
4x4 access only
Undoolya
Ciccone
Larapinta
Alice Springs
Flynn
The Gap
Larapinta Dr
A87
Ilparpa Swamp
Wildlife
Protected Area
Emily and
Jessie Gaps
Nature Park
Ross Hwy
Kilgariff
MOUNT ERTWA
Ilparpa
White Gums
Ross
B6
Amoonguna
Conlon's Lagoon
Connellan
The Kangaroo Sanctuary
Temporarily closed
Kuyunba
Conservation
Reserve
Arumbera
Alice Springs
Airport
Hugh
Stuart Hwy
Legend
Lat: -23.9452, Lng: 134.0887
Decimal Degrees (latitude, longitude)
Degrees Minutes Seconds
MGA
Substantial Potential
Slight Potential
Remote Potential
Information
Other
Sea Dumping of Depth Charges
Other Sea Dumping Sites
Defence Controlled Area
Property Cadastral Area

Preliminary Site Investigation - 383 Brewer Road, Hugh, NT

Asia Pacific Aircraft Storage

Report

JBS&G 65513 | 153,750

3 November 2023



We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.



Caring for Country The Journey of JBS&G
Artist: Patrick Caruso, Eastern Arrernte

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Executive Summary

1.1 Conclusions

Subject to the limitations presented in **Section 13** and on the basis of the investigation documented herein, it is concluded that:

- The site resides within the Brewer Estate Building Area and future development is restricted to commercial/industrial use:
    - Surrounding commercial/industrial operations include the Owens Springs Power Station, Brewer State CNG Plant and the Central Petroleum Dingo Compound;
- The Central Australia Railway and associated rail loop adjoin and service the site;
- Industrial activities at the site relating to the storage and distribution of bulk oil and fuel products and associated oil and gas activities likely commenced in the early 1980's and remained operational until the early 2000's, prior to which the site was likely vacant:
    - Configuration of infrastructure at the site has remained relatively consistent since at least the late 1990's;
    - Decommissioning/removal of industrial infrastructure has likely not occurred. JBS&G understands that some onsite industrial infrastructure may be retained as part of the future development (such as large fuel storage tanks);
    - The MASP was mothballed around 2010 and despite references to *decommissioning (including cleaning of tanks), and site assessment and remediation activities* (FEMP [(2017]) evidence and/or verification of these activities has not been revealed;
    - Complex underground services and utilities supporting historical activities remain at the site which precluded access for soil sampling and the contamination assessment;
    - Given historical site use including for the storage of bulk fuel products, storage and/or distribution of PFAS cannot be precluded:
        - Little information is available from site records regarding incidents that may have resulted in PFAS use and/or ingress of PFAS for offsite sources;
- Soil sampling activities targeted the following areas of environmental concern (AECs), noting access to AECs was limited by complexity and volume of underground services (tank farm areas) and desire to maintain integrity of evaporation ponds:
    - Former and current tank farm, and MASP/pipeline;
    - Chemical storage;
    - Former truck and rail loading areas;
    - Former building;
    - Drill rod and mast laydown areas;
    - Evaporation ponds; and
    - Sewage treatment facility.

On weight of evidence, the potential for gross or widespread contamination that would preclude ongoing use and/or development of the site in a commercial/ industrial capacity:

- Is unlikely to be present across the broader site area where infrastructure and former site activities have been limited;

- May be present in areas associated with former and current tank farm, and MASP/pipeline; and
- Is present in soils associated with the evaporation ponds (particularly Pond 1), the chemical store, and in the drill rod laydown area; and

The type of infrastructure that remains at the site (sumps, bulk storage tanks, underground pipelines and utilities, evaporation ponds, etc) *may* present a liability in terms of demolition and/or decommissioning.

1.2 Recommendations

It is recommended that a hazardous materials building survey be undertaken and a construction environmental management plan (CEMP) be developed, including an unexpected finds protocol, to guide and manage environmental matters through demolition and site development.

Data gaps exist based on the limited extent of the soil investigation at the site, understanding of site infrastructure (particularly with respect to the liner in evaporation pond 1), and source of PFAS. Connectivity of the evaporation pond(s) with other infrastructure at the site warrants further assessment in order to manage potential migration of contaminants, particularly from Pond 1.

Remediation and/or management of contamination will be required of those materials in the evaporation pond(s), and may be required and/or considered during future development of other site areas: Guidance for onsite containment or management and/or offsite management of these material, in the context of PFAS concentrations >20 mg/kg, can be sought from the DoD PFAS Construction and Maintenance Framework and the PFAS NEMP.

1.3 Duty to Notify

Given the concentration of PFAS and petroleum hydrocarbons in soil from the base of Pond 1, there is requirement (by the land owners, leasee and/or occupier) of the site to notify NT EPA on the grounds that contamination exists above a "*level of contamination set out in Schedule B1 of the ASC NEPM or other approved guideline value with respect to a current or approved use of the land*[1]*"* in accordance with the requirements of the WMPC Act[2].

[1] Section 6.3 of the NT EPA Contaminated Land Guideline
[2] *Waste Management and Pollution Control Act 1998*

2. Introduction

2.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Asia Pacific Aircraft Storage (APAS, the client) to undertake a preliminary site investigation (PSI) for the property located at 383 Brewer Road, Hugh, NT (the site), formally identified as NT POR 5823. The site locality is shown on **Figure 1**.

It is understood that the site falls within the Brewer Estate Industrial Precinct and is currently owned and operated by Central Petroleum. Infrastructure relating to the storage and distribution of fuel products exist on the site, however, it is understood that the site has not operated as such for at least 10 years. APAS have plans to redevelop the site with infrastructure comprising hardstands, buildings, and including retention of some existing features (fuel and water storage tanks).

The site area approximates the freehold boundary (indicated by the red polygon on **Figure 1**) and comprises an area of approximately 3 hectares (ha). It is understood that approximately 1-2 ha of this area will be developed.

2.2 Objectives

The objective of the investigation is to provide an indication of:

- The potential for gross and widespread contamination across the site as a result of historical and/or current site activities;
- The potential for contamination which may preclude the proposed land use without remediation and/or management; and
- An understanding of liabilities that can be mitigated/require management to inform the purchase and future development of the site.

2.3 Scope of Works

The scope of works undertaken to meet the objective comprised:

- A desktop review of available site history records to identify Areas of Environmental Concern (AECs) and Contaminants of Potential Concern (COPC), including review of:
    - Information independently obtained by and made available to JBS&G;
- Completion of a site visit to undertake the following:
    - Site inspection to identify any AEC;
    - Collection of soil samples from test pits advanced across the site targeting identified AEC; and
- Preparation of this report.

2.4 Guidance

The investigation was undertaken in consideration of the overall objectives as well as guidance made or approved by Northern Territory (NT) Environmental protection Authority (EPA) contaminated land guideline, which describes the legislative and policy framework for the assessment and remediation of contaminated land as it applies in the NT. Contaminated land in the NT is regulated by NT EPA through the *Waste Management and Pollution Control Act 1998* (WMPC Act) and through input into the development approvals process controlled under the *Planning Act 1999*. NT EPA's contaminated land guidance[3]

[3] NT EPA (June 2017) *Northern Territory Contaminated Land Guideline* Version 1.0

considers the policy framework and guidance contained in the *National Environmental Protection (Assessment of Site Contamination) Measure 1999,* as amended 2013 ('the ASC NEPM').

NT EPA recognises the endorsement of the PFAS NEMP[4] by Australia's Environment Ministers: The PFAS NEMP is being implemented in the Northern Territory[5]. The PFAS NEMP provides governments with a consistent, practical, risk-based framework for the environmental regulation of PFAS-contaminated materials and sites and NT EPA recognises onsite containment as one of the four key areas identifies as an urgent priority in Version 2.0 of the NEMP.

[4] Heads of EPA (January 2020) *PFAS National Environmental Management Plan* Version 2.0
[5] https://ntepa.nt.gov.au/your-environment/pfas

3. Site Conditions and Surrounding Environment

3.1 Site Details

The location of the site is shown in **Figure 1** and the layout of the site at the time of the inspection is shown on **Figure 2**. The site details are summarised in **Table 2-1** and described in detail in the following sections.

Table 2-1: Site Details

Item	Details
Site Address	383 Brewer Road, Hugh, NT
NT Portion number	NT POR 5823
Easting/Northing	E: 381489.49m, N: 7358420.11m[6]
Site Area	~ 3 ha
Site Zoning	Specific Use Zone SBE[7] for the Brewer Estate Building Area covering NT Portions 3557, 5259, 5823, 6219 and 6221 Brewer Road, south of Alice Springs[8]. The purpose of the zoning is to facilitate the use and development of land primarily for industrial purposes that need to be isolated from other urban uses.
Local Government Area (LGA)	MacDonnell Regional Council
Previous Land Use	Vacant land
Current and Proposed Land Use	Commercial/industrial

3.2 Site Observations and Anecdotal Information

A site visit was completed by an experienced JBS&G environmental scientist on 26 July 2023 and observations made have been summarised in **Table 2-2**. Photographs taken during the site visit are provided in **Appendix B**, the AEC register is provided in **Appendix C** and features are displayed on **Figure 2**.

Table 2-2: Site Conditions

Item	Details
Site Topography	The site was observed to be generally flat with slight varying elevation associated with uneven ground across a large open space. Observations are consistent with the elevation across the site ranging between 549 and 551 m AHD[9].
Site buildings/infrastructure	Multiple buildings and infrastructure were located across the site, as detailed in the AEC register (**Appendix C**) and shown on **Figure 2**. A hazardous materials building survey was not undertaken and consideration should be given to such materials given building construction materials likely pre-date the 1990's (see **Section 4.3**). Four evaporation ponds were present in the central eastern portion of the site (see **Figure 3** and **Plates 13-16**) two of which was observed to comprise a blue liner (Pond 1, **Plate 13**) and a concrete liner (Pond 2, **Plate 16**). No information is available as to the liner material in Pond 1, age of installation, etc. As detailed in **Appendix C**, there is limited information available about the condition and/or presence of liners (clay or otherwise) in Ponds 3 and 4. The following approximate areas for each of the ponds is: Pond 1 180 m^2, Pond 2 1200 m^2; Pond 3 410 m^2, and Pond 4 1600 m^2. Depth of sediment in base of Pond 1 atop the blue liner was observed in three locations to be approximately 20 cm: An approximate volume of sediment in the base of Pond 1 is calculated at <50 m^3.

[6] Google Earth Pro 2023, accessed 25 July 2023
[7] NT Land Information Search, https://www.ntlis.nt.gov.au/land/info/app/planningdetails, accessed 2 August 2023; NT Planning Scheme Schedule 4 specific use zones
[8] See building area boundary in **Appendix D**
[9] Google Earth Pro 2023, accessed 25 July 2023

Item	Details
	An estimate of volume of materials in the base of Pond 2-4 has not been made given a lack of information around presence of liner (clay or otherwise).
Services	Extensive underground and above ground services were noted to be present at the site in relation to the current tank farm, former tank farm, the former rail and truck loading area and evaporation ponds. The following is noted: • A buried pipeline enters the site from the west and surfaces in the southern central area of the site (**Appendix B, Plate 25**): o The Mereenie to Alice Springs Pipeline (MASP) was used to transfer the produced crude oil from Mereenie (MRN) to the Brewer Estate Crude Oil Terminal for on-shipment by road or rail to refiners. The MASP has been flushed of oil and is now filled with water (from a MRN groundwater bore) and dosed with biocide and corrosion inhibiter (FEMP, 2017)[10]; • A wastewater sewer pipeline was identified on plans provided for review by Central Petroleum (photographs of relevant parts of the plans are provided in **Appendix D**). The pipeline was observed to run from the tank farm area in the south to the evaporation ponds in the north. Reference to a buried wastewater pipeline located in the east and northeast of the Brewer Estate Crude Oil Terminal was also made in the FEMP (2017); • Service locating was undertaken on 26 July 2023 prior to the soil investigation. Services identified included high voltage electricity, telecommunications, and water and PVC pipes identified mainly in the southern area of the site surrounding the current and former tank farms and former office building. Two underground pipes were located entering evaporation pond 1, one from the west and one from the southwest; and • In the former tank farm area multiple sumps were observed (**Appendix B, Plate 18**): Clearance of locations for the soil investigation was unable to be achieved due to the complexity of potential underground services or infrastructure (potentially sumps/tanks).
Surface Conditions	The northern portion of the site comprised shrubs and trees and built infrastructure was not observed to be present, with the exception of the former evaporation ponds in the central eastern area of the site. Where vegetation existed which made access difficult: A slasher was used to clear paths for the soil investigation. The southern portion of the site comprised the built infrastructure including the tank farm, drill rod laydown area, multiple buildings (former office and sheds), fire water tank and above ground services / infrastructure. Surfaces across the site were primarily bare earth, bitumen roads, and bitumen surface surrounding shed 1 (**Figure 2**).
Chemical Storage	A bunded chemical storage shed was identified to be located north of shed 1 (**Figure 2** and **Appendix B, Plate 1-3).** Information on the chemical storage shed is provided in the AEC register (**Appendix C**)**.**
Stressed Vegetation	Stressed vegetation was observed in the base of evaporation pond 1 and 3 (**Appendix B, Plate 13-15**)
Chemical Staining	Staining was observed in the base of evaporation pond 1 and 3 (**Appendix B, Plate 13-15**). Minimal staining was observed in the tank farm area and former tank farm and any potential staining in this area appeared to be faded and well-aged.
Site Fencing and signs of dumping	The perimeter of the site was fenced with chain link fencing with a secured gate entering the site from the southwest corner of the site. Additional fencing was present within the site partitioning the former tank farm area and evaporation ponds.

3.3 Surrounding Land use

Based on observations made during the site visit and review of recent satellite images, a summary of surrounding land use and activities has been presented in **Table 2-3** below.

[10] Central Petroleum (2017) *Mereenie Oil and Gas Field - Field Environment Management Plan*. Prepared by: Low Ecological Services P/L. Retrieved from: https://depws.nt.gov.au/__data/assets/pdf_file/0009/498015/2017-FEMP-Mereenie_-Final-14.3.pdf

Table 2-3: Surrounding Land Use and Activities

Location	Land Use	Activities
North	Industry and vacant land	The Owen Springs Power Station is located approximately 2.1 km northwest of the site, and forms part of the Brewer Estate. The Alice Springs Correctional Centre is located approximately 4.3 km northwest. Vacant land is located beyond the industrial areas.
South	Vacant land	The area to the south of the site is dominated by vacant land comprising shrubby vegetation.
East	Railway corridor and vacant land	The Central Australia Railway (and railway loop on southern site boundary) is located on the eastern site boundary, with the Mereenie Train Station located approximately 0.9 km southeast of the site. Vacant land is present further east.
West	Industry and vacant land	The Brewer Estate CNG plant and the Central Petroleum Dingo Compound are located approximately 0.85 km to the west of the site. Another unnamed site is located 1.2 km northwest of the site (potential storage area with sheds) as part of the Brewer Estate Building Area. Beyond the industrial area is vacant land.

A review of surrounding land use identified the operations within the Brewer Estate Building Area, such as the Owens Springs Power Station, Brewer State CNG Plant and the Central Petroleum Dingo Compound, to present potential sources for offsite contamination. The railway line traversing the eastern boundary also could have resulted in historical contamination entering the site.

Offsite human receptors were identified to include workers and site users associated with the surrounding operations. It is unlikely the surrounding open space would be used for recreational purposes. Offsite ecological receptors were identified to comprise the surrounding terrestrial ecosystems associated with surrounding vegetated open space areas.

4. Environmental Setting

Information pertaining to the environmental setting at the site is provided in **Table 3-1.**

A review of the Mereenie Oil and Gas Field FEMP (2017) was undertaken and relevant environmental information has been referenced to in relation to the Brewer Estate Crude Oil Terminal (**Appendix I**: Brewer Estate Layout Plans, provided in Appendix 6 of FEMP 2017; shows the industrial area of the site).

Table 3-1: Environmental Setting

Environmental Aspect	Description
Topography	A review of Google Earth[11] indicated the site has an approximate elevation ranging from 549 m Australian Height Datum (mAHD) to 551 mAHD, variable across the site.
Geology	Review of NR MAPS Land Systems map[12] (1:100k scale) identified the site to be primarily located on desert sandplains (level to undulating sandplains with red sands). The geological zone was noted to be the MacDonnell Ranges. The site is located within the Amadeus Basin and the geology at the site comprises a superficial cover of quaternary sediments overlying Pertnjara Group sediments which consist of conglomerates, siltstones and sandstones (FEMP, 2017).
Soil	There is no mapped occurrence of acid sulfate soils[13]. The area is dominated by calcareous earths, with aeolian sands common (FEMP, 2017).
Hydrology	The Todd River is located approximately 12.8 km to the east / northeast of the site[14]. The FEMP (2017) outlined that at the estate there is almost a complete lack of defined surface drainage systems because of the irregular surface morphology and the presence of soils with high infiltration rates.
Hydrogeology	A search of the NR MAPS bore database[15] identified two registered groundwater monitoring bores located within a 1.0 km radius from the site, including one bore located in the northeastern corner of the site: Relevant details are provided below. Both bores were identified to have been dry bores drilled in 1983 on a property named “Owen Springs” with a property description as “station”.
Environmentally Sensitive Areas	A search of NR Maps[16] revealed the site is located within the Finke bioregion of the MacDonnell Ranges. The site is not located within areas of conservation or botanical significance. The Greater MacDonnell Ranges forms an area of conservation significance and is located approximately 6.5 km to the north. A search of the EPBC Act Protected Matters Search Tool (PMST) (DCCEW, 2023)[17] was undertaken for the site and revealed that there are no listed threatened ecological communities present at the site. Twelve listed threatened species and nine listed migratory species were noted as known to occur, may occur or be likely to occur at the site.

Table 3-2: Groundwater Bore Information

ID	Satus	Distance from Site	Date of Drilling	Standing Water Level (mbgl)	Total Depth (mbgl)
RN013482	Existing	On Site	4/06/1983	Dry bore	250.29
RN013484	Existing	0.98 km	21/06/1983	No records	250.27

[11] Google Earth Pro, accessed 2 August 2023
[12] NR Maps, https://nrmaps.nt.gov.au/, accessed 25 July 2023
[13] NR MAPS, https://nrmaps.nt.gov.au/, accessed 25 July 2023
[14] NT Atlas and Spatial Data Directory, accessed 2 August 2023
[15] NR MAPS, accessed 25 July 2023
[16] NR Maps, accessed 3 August 2023
[17] DCCEEW. (2023) Protected Matters Search Tool. Retrieved from https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool

5. Site History

5.1 General

The following sections present a summary of the site history that has been reviewed (publicly provided or supplied) and gathered anecdotally.

5.2 Historical Land Ownership

Land title information has been reviewed in order to assess whether any current or historical owners of the site can be associated with specific contaminating activities of concern (see **Appendix E**). Results are presented within **Table 4-1.**

Historical land title information was obtained from 2001 to current. A review of the historical land title information indicated that the site has been occupied by companies associated with the oil and gas industry since circa 2001 and the site is currently owned by Central Petroleum.

5.3 Aerial Photographs

Historical aerial photographs obtained via Google Earth[18], NearMaps[19] and the Library & Archives NT[20] have been reviewed in order to identify potential areas and activities of concern with respect to contamination (refer to **Table 4-2** and **Figure 4a to 4d**).

5.4 Environmental Protection Licenses

The NT EPA manages the licensing of environmentally relevant operational activities that have the potential to pose serious or material environmental harm, or harm to human health.

A search of NR Maps[21] identified two site environmental licences to be located within the surrounding area of the site. Details of the environmental protection licences are summarised in **Table 4-3**.

The environmental protection licences identified on NR Maps were not listed in the Listed Waste Company Summary provided by the NT EPA.

The EPA approval document was reviewed for EPA284 which identified the scheduled activity described as part of the licence as “constructing, installing or carrying out works in relation to premises, other than sewage treatment plants, for the storage, re-cycling, treatment or disposal of listed wastes on a commercial or fee for service basis”.

The EPA approval document for licence No. EPL264 could not be located.

5.5 NT EPA Contaminated Land and Environmental Audit Results (CLEAR) Register

A review of the CLEAR[22] does not indicate that the site is listed on the register nor is currently being assessed in accordance with the requirements for environmental audits in the Act.

[18] Google Earth Pro, accessed 25 July 2023
[19] Nearmap, https://www.nearmap.com/au/en, accessed 2 August 2023
[20] Library & Archives NT, accessed from https://lant.nt.gov.au/, on 2 August 2023
[21] NR Maps, https://nrmaps.nt.gov.au/nrmaps.html, accessed 2 August 2023
[22] https://ntepa.nt.gov.au/your-business/public-registers/contaminated-land-audits

Table 4-1: Historical Ownership Summary

Date Title Registered	Title Reference	Survey Plan	Registered Proprietor(s) & Occupants
18/05/2023	871 772	S2000/002	Tenants in common: • Central Petroleum Mereenie Pty Ltd; • Macquarie Mereenie Pty Limited; • NZOG Mereenie Pty Limited; and • Cue Mereenie Pty Ltd.
11/02/2022	856 755	S2000/002	Tenants in common: • Central Petroleum Mereenie Pty Ltd; • Macquarie Mereenie Pty Limited; • NZOG Mereenie Pty Limited; and • Cue Mereenie Pty Ltd.
31/03/2017	817 830	S2000/002	Tenants in common: • Central Petroleum Mereenie Pty Ltd; and • Macquarie Mereenie Pty Limited.
01/07/2016	812 048	S2000/002	Tenants in common: • Santos QNT Pty Ltd; • Santos Limited; and • Central Petroleum Mereenie Pty Ltd.
28/05/2012	766 796	S2000/002	Tenants in common: • Santos QNT Pty Ltd; and • Santos Limited.
10/06/2010	747 827	S2000/002	Tenants in common: • Magellan Petroleum (N.T.) Pty Ltd; • Santos QNT Pty Ltd; and • Santos Limited.
23/11/2005	693 210	S2000/002	Tenants in common: • Transoil Pty Ltd; • Petromin Pty Ltd; • Farmount Drillers Pty Ltd; • Magellan Petroleum (N.T.) Pty Ltd; • United Oil and Gas Co; • Canso Resources Pty Ltd; • Moonie Oil Pty Ltd; and • Santos Exploration Pty Ltd.
13/02/2001	633 782	S2000/002	Tenants in common: • Transoil Pty Ltd; • Petromin Pty Ltd; • Farmount Drillers Pty Ltd; • Magellan Petroleum (N.T.) Pty Ltd; • United Oil and Gas Co; • Canso Resources Pty Ltd; • Moonie Oil Pty Ltd; and • Santos Exploration Pty Ltd. • Dealings: • 23/11/2005: Correction to Register – updated owner to Moonie Oil Pty Ltd; • 11/09/2000: Lease to Central Oil Refineries Pty Ltd

Table 4-2: Historical Aerial Photograph Summary

Date	Comments
1999	The site was observed to have a layout broadly consistent with that observed in the current state in 2023. The following was observed from review of the aerial image: • The holding tanks in the Tank Farm Area were observed to be present within a bunded area, consistent with present configuration; • The area where the office is currently present is bare; • Shed 1 is present with what appears to be bitumen ground coverage in its surrounds; • Area adjacent to Shed 1 to the north comprises structures which are not present currently; • Former Tank Farm area comprises a large white cylinder type structure and further structures to the south where foundations are still present at current; • A building is located in the central southern area of the site north of Shed 2; • Drill mast laydown area appears to be used as a laydown; • No evidence of a drill rod laydown. • Evaporation ponds are evident in a similar configuration as today; • Remainder of the northern portion of the site is free from structures and comprises bare earth and vegetation; and • An area on the north of the western boundary appears to be grey in colour and may represent stressed vegetation or a dump area.
2004	The site was observed to be broadly consistent with that observed in the 1999 aerial image. The following is noted: • The large white cylinder tank in the Former Tank Farm area had been replaced with approximately 10 large above ground horizontal cylinder tanks with 5 holding tanks located to the east. The infrastructure located to the south of the tanks in this area had been developed with further buildings and a large white structure located on the western part of this area traversing north to south; • A further building was in the northwestern corner of the southern cleared half of the site; • Area on the north of western boundary identified in 1999 aerial image appears to be mounded and grass is greener in comparison to surrounding vegetation, potential material dumped here; • The evaporation ponds were present in the same configuration as today with no vegetation observed in the base of the ponds and Evaporation Pond 1 appearing to contain water.
2013	• The above ground cylinder tanks and further infrastructure in the Former Tank Farm Area appeared to have been demolished and now comprised vegetated and bare earth. Foundations appeared to remain in the area just south of the tanks where infrastructure was present; • The building in the northwestern corner of the southern cleared half of the site appeared to have been demolished; and • No water was observed to be present in Evaporation Pond 1.
2017	The site was observed to be broadly consistent with that observed in the 2013 aerial image.
2023	The site was observed to be broadly consistent with that observed in the 2017 aerial image. • Water appeared to be present within Evaporation Pond 1 and black staining appeared to be present in Evaporation Pond 3. Bases of Evaporation Pond 2 and 4 were covered in vegetation; and • Drill rods were observed to be located in the southwestern area of the site in the Drill Rod Laydown on unsealed earth.

Table 4-3: Summary of Environmental Licences within a 1 km Radius of Site

Licence No.	Location	Responsible Entity	Commence and Expiry Date	Distance from Site (approximate)	Scheduled Activity
EPL264	-23.871287 / 133.831833	Alice Airlite	N/A	810 m southeast	Incinerator
EPA284	-23.873249 / 133.825292	JJ Richards and Sons Pty Ltd	3 December 2021 – 2 December 2023	540 m south	Listed waste handler

5.6 Local Government Records

5.6.1 Property Enquiry

A search of the NT Land Information[23] website revealed the site is subject to the "Alice Springs Regional Land Use Plan 2016" (ASRLUP, 2016). The document describes the Brewer Estate as the following:

"The Brewer Estate was established to accommodate hazardous and noxious industry as it is remote from any sensitive use, with the land of a geological profile which means there is low risk of contaminants impacting on the aquifer and therefore land supply".

In relation to future development the ASRLUP (2016) details:

"The Land Development Corporation (LDC) is currently assessing future land release options, which may include the creation of a transport hub. A railway spurline could be established to create a railway terminal for industry".

5.6.2 Historical Development Applications and other Council Records

A search of the NT Land Information Search did not identify any planning applications to be found at the site. A search of the NT Government Development Applications Online[24] interface did not identify any current planning proposals within the surrounding area.

No other council records or property reports could be found through available online searches.

5.6.3 Heritage Register

A search of the NT Heritage Register[25] was undertaken and did not identify any listed heritage places to be located on the site or in the surrounding area.

5.7 National Waste Database

The National Waste Reporting Mapping Tool[26] provides information regarding the spatial distribution of Australia's waste infrastructure (i.e. reprocessing facilities, transfer station, landfills and collection points), with a data current up to 2013. A review of the mapping tool identified that no waste facilities are located within a 5 km radius of the site, which was verified by NR Maps.

5.8 Unexploded Ordnance

UXO refers to ammunition such as artillery shells, mortar bombs and grenades which had been fired, but failed to function as intended. JBS&G conducted a search of the nationwide UXO map[27] developed and maintained by DoD. No UXO areas were identified within a 5 km radius of the site, therefore it is not considered that UXOs present an environmental (nor human health) risk onsite.

5.9 Per and Polyfluoroalkyl Substances (PFAS)

5.9.1 Background

Per- and poly-fluoroalkyl substances (PFAS) contamination represents an emerging issue in Australia and across the globe. The following presents a summary of key information regarding PFAS compounds:

[23] NT Land Information Search, https://www.ntlis.nt.gov.au/land/info/app/planningdetails, accessed 3 August 2023
[24] NT Government, Development Applications Online, https://www.ntlis.nt.gov.au/planning-notices-online/notices#/index, accessed 3 August 2023
[25] NT Government, Heritage Council, http://www.ntlis.nt.gov.au/heritageregister/f?p=103:300:3000581263573, accessed 3 August 2023
[26] Australian Government, http://www.environment.gov.au/webgis-framework/apps/nwr-wide/nwr-wide.jsf, accessed 3 August 2023
[27] UXO Map (whereisuxo.org.au), accessed 3 August 2023

- PFAS compounds have been widely used historically since the early 1950s and continue to be legally used at the time of this report;
- PFAS compounds are unique contaminants with respect to the distance they can travel from a source area in groundwater and their persistence in the environment;
- PFAS contamination has been the centre of significant litigation in the United States of America (e.g. 3M, DuPont) and Australia (e.g. Defence) in recent years.
- The NT Government's response is being coordinated by the Department of the Chief Minister, through the Interagency Steering Committee (PFASISC), with input from stakeholders as part of the Interagency Working Group (PFASIWG); and
- The PFASIWG developed and coordinates implementation of the NT PFAS Legacy Site Investigation Strategy. This strategy guides an expanded investigation into the presence of PFAS in water and soils at locations where they may have been used in large quantities in the NT, including airports, firefighting training facilities and some industrial sites.

The following sections provide comment regarding the potential for PFAS contamination to be present.

5.9.2 Site History Related to Fire Fighting Activities

Anecdotal information indicated the site has been subject to industrial operations from circa 1984 which was confirmed with review of A1 site plans indicating development plans for the site in 1984. The surrounding area of the site comprises the Brewer Industrial Estate which forms a Special Purpose area subject to hazardous operations.

A fire system at the site was referred to in the FEMP (2017). It is unknown if PFAS containing firefighting foams were ever used as part of a fire suppression system that was present at the site. However, the site has operated since circa 1984 storing bulk fuel: PFAS containing firefighting foams were considered as industry best practice during this time and prior to the phase out in recent years.

No information has been provided by the site regarding fire incidents and/or use of firefighting foams to manage any fire incidents at the site since early 1980's operation.

5.9.3 Department of Defence Sites

The Department of Defence (DoD) is currently investigating the potential for PFAS contamination across Australia. The site is not located within a Defence Management Area and the closest DoD site is located >5 km from the site[28].

5.9.4 Airports

The Alice Springs Airport is located ~20 km northeast of the site.

5.9.5 Fire Stations

The closest fire station identified to the site is located within the township of Alice Springs ~25 km north of the site.

5.9.6 Sewage Treatment Plants and Related Infrastructure

Outside of firefighting foam related sources, sewage treatment plants represent the next most significant source of PFAS contamination which impacts properties affected by sewage related infrastructure, inclusive of pump stations, manholes, pipework, sewage treatment plants, biosolids application areas and liquid waste discharge points. The main sources of PFAS related with these facilities are discharges from residences where PFAS containing goods are still widely used and industry (i.e., trade waste agreements).

[28] DoD https://uxo.defence.gov.au/where-unexploded-ordnance, accessed 3 August 2023

No sewage treatment plants are located within 5 km radius of the site.

It is however, noted that a sewer pipeline is present on the site as identified on plans (see **Section 2.2**) between the tank farm area in the south of the site to the evaporation pond area in the central portion of the site: There is no information suggesting that the evaporation ponds were *not* used for such purposes including receival of wastewater generated for sewage treatment.

5.9.7 Other Activities

The sections above focus upon the typical PFAS sources which are of most concern with respect to the potential for widespread and elevated PFAS contamination. The PFAS NEMP[29] provides two lists of potential PFAS sources (i.e. activities associated with risk of fire and activities associated with broader concerns) and this list has been considered in **Appendix F**. In brief, based upon the available information, the following activities of potential concern were identified:

- Chemical storage; and
- Petroleum products other than fuel.

5.9.8 Summary

On the basis of the above, it is considered that PFAS contamination may be present onsite although the source of PFAS warrants further investigation.

[29] Heads of EPA Australia and New Zealand (HEPA) (January 2020) *PFAS National Environmental Management Plan* Version 2.0

6. Previous Environmental Assessments

6.1 Documentation Made Available to JBS&G

JBS&G was not provided with previous environmental reports related to the site for review.

During the site visit Central Petroleum provided historical A1 drawings for the site, photographs of information of interest on these drawings are provided in **Appendix D**. A summary of relevant information obtained from review of the A1 drawings is provided below:

- The drawings were dated 1984;
- A wastewater sewer pipe was identified on the plans which was described to be installed in a sand bedding as a concrete half pipe. The pipe was illustrated as being located from the southern area of site and connecting to the evaporation pond;
- Drawings of 5 above ground storage tanks labelled as:
    - Diesel load out tank x 2;
    - Light fuel oil tank;
    - Future tank; and
    - Slops;
- Drawing named "Alice Springs Refinery, Loadout Area, API Separator – IOU – 1" illustrates a drawing with the label "50 threaded flange. 6 THK asbestos gaskets between flanges wall FL"; and
- Fill material illustrated and labelled on drawings.

Information obtained from the review of the A1 drawings indicate asbestos material was used as part of the development of the site's infrastructure.

6.2 Environmental Assessments Available Online

An online search for environmental reports was undertaken and revealed multiple historical environmental assessments had been undertaken in relation to the Mereenie Oil and Gas project. A review of all the documents was not undertaken as part of this scope.

Information obtained from the FEMP (2017) relating to the Brewer Industrial Estate Crude Oil Terminal historical activities and contamination at the site has been provided below (diagram from the FEMP (2017) provided in **Appendix I**):

- *"The 267 km Mereenie to Alice Springs oil pipeline (MASP) to the Brewer Estate Crude Oil Terminal facility at Alice Springs is presently mothballed. It happened in 2010 due to integrity issues (first 70 km from Mereenie)";*
- *"The facility area is 50 ha, of which 19 ha is fenced. The fenced section is subdivided into three areas:*
    - *South and southwest: Central oil storage and oil transfer facility, including oil storage tanks, oil transfer pumps, road and rail loading gantries, pigging facilities, oil-water interceptor, maintenance workshop, storage and administration buildings. The MASP enters this area from the west. The site is not currently operating and is unmanned apart from occasional visits to check site security or to conduct maintenance (such as grass cutting), decommissioning (including cleaning of tanks), and site assessment and remediation activities.*
    - *Northwest corner: area previously leased to and occupied by Central Oil Refineries Pty Ltd (COR), which received crude oil by pipeline from the Central site and processed it to produce diesel which was exported by truck. The COR site stopped operating and went into administration at the end of 2002. The site has largely been cleared.*

- *East and northeast: undeveloped zone, occupied only by a small area of scrap storage, an anode bed for cathodic protection, and a buried wastewater pipeline. Outside the fenced area, but still within the property boundary: two evaporation ponds for captured site drainage and previously for tank dewatering, and a land farm.*

- **Appendix G** diagram reveals: "*all hydrocarbon tanks emptied of product, final cleaning 2017 to complete moth ball facility. Only fire system and emergency systems remain active".*

6.3 Brewer Estate Building Area

The area surrounding the site is the "Brewer Estate Building Area" "BBASP 002" and is subject to the Brewer Estate (Offensive or Hazardous Industry) Control Plan[30]. NT portions encompassed by this plan include: 1959, 2420, 3515 and 3557. It is noted that land to which the planning instrument applies shall not be used or developed for any purpose except with the consent of the Minister.

[30] Northern Territory Australia, Planning Act, Notification of Planning Instrument. 19 March 1990. *Brewer Estate (Offensive or Hazardous Industry) Control Plan 1990.*

7. Areas of Environmental Concern

Based on review of the site history and site observation, AECs and associated COPCs have been identified (**Appendix C**) and are summarised below.

Table 6-1: Summary of AEC

AEC/Feature	Location	COPC	Test pit ID(s) targeting AEC
Evaporation ponds	Central east	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, Nutrients, PFAS	TP9, TP10, TP11 Base of Pond soil samples[1]
Former and current tank farm	South	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	TP5, TP6, TP8, TP14
Chemical storage	Central west	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	TP3
MASP/pipeline	Southwest	TRH, BTEXN, OCP, OPP, PCB, Heavy metals	TP2
Former truck and rail loading areas	South	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	TP12
Former building	Central west	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS, Asbestos	TP4
Drill rod laydown	Southwest	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	TP1
Drill mast laydown	Central east	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	TP13
Sewage treatment	Southwest	Nutrients, PFAS	TP7, TP12

[1] Surface soil samples collected from each of the four ponds as detailed

Potentially contaminated environmental media were identified to comprise:

- Surface soil;
- Fill material; and
- Natural soil/bedrock.

Surface/shallow fill and natural soil have the potential to have been impacted based on the historical use of the site, importation of contaminated fill and from possible migration of offsite contamination through historically unsealed surfaces and vertical migration of contaminants from surface soil and fill material into underlying soil and natural bedrock.

As the groundwater in the area is known to be >100 m deep, groundwater is not considered to present an environmental media of concern.

8. Soil Sampling Methodology

JBS&G undertook a soil investigation on 26 and 27 July 2023 comprising the advancement of 14 test pits in locations targeting the AECs (TP1-TP14) where potential sources of contamination may exist. Proximity to AECs was in many cases limited by the potential and/or actual presence of underground services.

Additional sampling of the internal areas of the evaporation ponds (POND1 – POND4, **Figure 3**) was undertaken by a representative of APAS on 9 October 2023, based on the work instruction provided in **Appendix H** which is consistent with the methodology provided in **Table 7-1**, below.

Sample locations have been illustrated on **Figure 3** and soil borehole logs have been provided as **Appendix G**.

8.1 Soil Methodology

The methodology adhered to during the investigation has been presented in **Table 7-1.**

Table 7-1. Soil Investigation Methodology

Task	Detail
Service Clearance	• For the July 2023 works, underground services were cleared by a professional underground service locater following review of Before you Dig Australia plans; • For the October 2023 sampling works of the evaporation ponds, service clearance was not undertaken
Test Pit Advancement	• Soil test pits (TP1-TP14) were advanced between 26 and 27 July 2023 using an excavator, to a maximum depth 2.4 m. Access to test pit locations was facilitated by scrub/vegetation clearing utilising a slasher
Pond Soil Samples	• Soil samples from each of the four evaporation ponds (POND1 – POND4) were collected by hand trowel.
Soil Sampling	• The soil encountered was logged in accordance with the Unified Soil Classification System (USCS) and soil samples were collected at lithological changes or where visual/ olfactory evidence of contamination was observed; • New, clean, disposable gloves were used for the collection of each sample; • Soil samples were collected in clean acid washed sample jars provided by the laboratory and immediately placed on ice for storage and transport; • Duplicate soil samples were collected for screening of volatile compounds with a calibrated photo-ionisation detector (PID). Calibration certificates have been provided as **Appendix J**; • Quality control (QC) samples were collected in July 2023 to assess whether results were biased by field sampling techniques or laboratory methods. QC samples were not collected in October 2023; • Following completion of logging and sampling in July 2023, test pits were backfilled with the spoil from the excavation process; • Samples were transported to the laboratory under chain of custody (COC) documentation for selected chemical analyses; • Primary samples were transported to the National Association of Testing Authorities (NATA) accredited laboratory Eurofins for chemical analysis; • Inter-laboratory duplicate samples collected in July 2023 were analysed by ALS, which is also NATA accredited for the analyses undertaken; and • Samples not tested were archived and stored under refrigerated conditions for possible future analysis, if required.

8.2 Analytical Program

The analytical program was designed to investigate the potential presence of a range of COPC associated with sites with a commercial/ industrial and fuel storage site history, and/or based on the information revealed in the site history. The analysis applied to the soil investigation is summarised below in **Table 7-2.**

For the primary test pit samples collected by JBS&G in July 2023, representative QC samples were collected in accordance with the requirements of the ASC NEPM (1 QC sample: 20 primary samples).

For the evaporation pond samples collected by APAS, primary samples were collected in accordance with the provided work instruction, and QC samples were not collected.

Table 7-2: Analytical Schedule for Soil Investigation

Analysis	Number of Primary Samples	Blind Duplicate Samples	Split Duplicate Samples
TRH / BTEXN	30	1	1
Heavy metals	30	1	1
OCP/OPP/PCB	20	-	-
PFAS	20	1	1
Cation Suite	9	-	-
Anion Suite	9	-	-
Nutrients	9	-	-

TRH: Total recoverable hydrocarbons, BTEXN: Benzene Toluene, Ethylbenzene, Xylene, Naphthalene
OCP: Organochlorine Pesticides, OPP: Organophosphorus Pesticides, PCB: Polychlorinated biphenyl
Cation Suite: (Na, K, Ca, Mg)
Anion Suite: (Cl, SO4, Alkalinity (CO3, HCO3, OH-, Total Alkalinity))

9. Assessment Criteria and Investigation Levels

9.1 General

The following assessment criteria and investigation levels were used in the interpretation of the laboratory results. These criteria are presented with the laboratory results in the summary tables appended to this report (**Appendix A**).

The ASC NEPM states that: "***Investigation levels*** *and* ***screening levels*** *are the concentrations of a contaminant above which further appropriate investigation and evaluation will be required*".

An exceedance of an investigation or screening level does not indicate that there is an unacceptable risk to human health or ecological receptors, but rather that further site-specific assessment may be required to quantify the potential risk. Applicable criteria for relevant land uses are discussed below.

9.2 Potential Human Health Risks

The following criteria were adopted in relation to the protection of human health:

- The ASC NEPM Health based Investigation Levels (HILs) were used to assess the potential risks to human health for an ongoing commercial/ industrial land use (Land Use D) scenario. The HILs generally apply for the upper 3.0 m of the soil profile and are based upon direct contact exposure (i.e., dermal contact, incidental ingestion, dust, home grown produce);
- The ASC NEPM also provides Health Screening Levels (HSLs) for BTEXN and volatile petroleum hydrocarbon fractions based on vapour intrusion risks from soil contamination. These criteria have also been considered; and
- The PFAS NEMP human health-based investigation levels (20 mg/kg Sum of PFOS + PFHxS) for soil for commercial / industrial (HIL D) were used to investigate and assess human health risks.

9.3 Potential Ecological Risks

The following criteria were adopted in relation to the protection of ecological values:

- The ASC NEPM Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for commercial/industrial land use were used to assess the potential risks to the environment receptors. The EILs/ESLs generally apply to the upper 2 m of the soil profile and are based upon the protection of non-human terrestrial organisms. The EILs represent a combination of generic investigation levels as a preliminary screening tool; and
- The PFAS NEMP 2.0 ecological soil guideline values (direct exposure; 1 mg/kg PFOS) for all land uses were used to assess and investigate potential risks to aquatic and terrestrial ecosystems.

10. Data Reliability Assessment

A data quality assessment based upon the project objectives is provided below in **Table 9-1.**

Inter-laboratory and intra-laboratory duplicate relative percentage difference (RPD) calculations are provided in **Appendix A**, for the samples collected by JBS&G. No Inter-laboratory and intra-laboratory duplicate samples were collected by APAS. The following table presents a summary of the data quality assessment on the basis of the key aspects**.**

Laboratory documentation is provided in **Appendix K.**

Table 9-1: Summary of Data Reliability Assessment

Aspect	Summary
Data completeness	Samples were collected by both JBS&G and APAS were undertaken in accordance with the project objectives. As such, the data set is considered to be adequately complete.
Accuracy of reported data	A review of the field records recorded by JBS&G and APAS, and of analytical results and laboratory documentation does not indicate any potential significant data accuracy issues.
Identification of potentially anomalous results	Nil
Identification of invalid data	The data collected is considered to be valid.

11. Results and Discussion

11.1 General

The soil investigation comprised the advancement of 14 test pits to a maximum depth of 2.4 metres below ground level (mbgl) across the site. A judgemental sampling approach was adopted targeting AECs. Test pit locations are provided in **Figure 3** and test pit logs are provided in **Appendix G.**

The evaporation pond sampling comprised the collection of samples from three locations from the surface (maximum depth of 20 cm) of each of the four evaporation ponds (**Figure 3**).

11.2 Material Encountered

11.2.1 Test Pits

Fill material was encountered at TP4 where a former building was located and comprised gravelly sand overlain large clay rocks interbedded in natural red sands to a depth of 0.5 m.

Natural material across the site comprised red sand from surface to test pit termination. The sand became more compact with a reduction in moisture at all test pit locations, tending a sandstone material. The termination of the test pits was determined by the compact sand/ sandstone material which resulted in the excavator scraping minimal material at a time and refusal being called.

A potential fragment of asbestos containing material (ACM) was identified within the tank farm area on the surface of the ground. The fragment was collected and submitted for asbestos identification analysis.

Minimal staining was noted in soils within the tank farm area and former tank farm area.

11.2.2 Evaporation Ponds

A review of the photographs taken of the soil sampled from within the evaporation ponds revealed the soil comprised red sand and clay across all sampling locations: Presence of clay is likely related to material used to form a compacted pond base. The presence of a blue liner was noted beneath soil in Pond 1. The material was described by APAS as being dry at all sample locations with the exception of moist samples identified from Pond 1 (Pond 1/1 – 0-10, Pond 1/1 – 10-20 and Pond 1/2 – 10-20).

Staining was observed in the base of Evaporation Pond 1 and Evaporation Pond 3.

11.3 PID Results

PID results ranged from 0.1 – 0.2 parts per million (ppm) which indicate an absence of significant volatile organic compounds in collected soil samples.

Field screening of evaporation pond soil samples by the PID was not undertaken.

11.4 Analytical Results

Laboratory analytical results for the soil investigation are presented in **Appendix A** and the NATA certified laboratory certificates of analysis and COC documentation are attached as **Appendix K.**

11.4.1 Heavy Metals

A range of heavy metals (arsenic, chromium, copper, lead, nickel, zinc) were recorded at detectable concentrations or below the laboratory limit of reporting (LOR) in soil samples collected from the site.

A summary of results is presented below (**Table 10-1**) and includes a comparison both to the adopted assessment criteria for commercial/industrial land use setting (HIL D) and the proposed residual level (Salmon 2017[31]).

Exceedances of the adopted criteria for commercial/industrial landuse were not reported for soil samples collected from either test pits or from the evaporation ponds.

Table 10-1: Heavy Metals Results Summary and Comparison to Adopted Criteria

Analytes	Range (mg/kg)	Criteria (HIL D)	Proposed Residual Level
Arsenic	<2-1,200 (POND 1/1-10-20)	3,000	50
Cadmium	<0.5-0.5 (POND 1/1-10-20)	900	4
Chromium	11-46 (POND 4/1- 0-10)	3,600	50
Copper	<5-37 (POND 1/1-10-20)	240,000	200
Lead	<5-18 (POND 1/1-0-10)	1,500	60
Nickel	<5-25 (POND 1/1-10-20)	6,000	60
Zinc	<5-530 (POND 1/1-10-20)	400,000	400

11.4.2 Hydrocarbons

Hydrocarbon concentrations reported above or equal to the LOR from the test pit locations were limited to soil from TP3 (located to the north of the chemical storage shed) from a depth of 0.5-0.6 m: Results did not exceed the management limits for coarse soil for hydrocarbon fractions for commercial/industrial land use settings from within any of the test pit sample locations.

Hydrocarbon concentrations were reported above the LOR in soil collected from all evaporation pond locations with the exception of Pond 3, location 1. Management limits for coarse soil were exceeded for all samples from Pond 1, with hydrocarbons dominated by mid-heavy chain length (C16-C34) TRHs and an absence of volatile (BTEXN) and light chain length TRHs (<C16) hydrocarbons: This hydrocarbon signature likely represents impacts by diesel/oil products which is consistent with infrastructure connecting the current and former tank farm and evaporation pond 1 (refer **Table 2-2**), and signage identifying the area for crude oil land farming (**Plate 13**).

For those samples with demonstrated exceedances of the adopted criteria, results are summarised in **Table 10-2,** below.

Table 10-2: Hydrocarbon Criteria Exceedances Reported from Within the Evaporation Ponds

Sample Name	Concentrations Above Criteria	Criteria Exceedances
POND 1/1-0-10	C16-C34: 4,500 mg/kg	NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil (3,500 mg/kg)
POND 1/1-10-20	C10-C16: 5,300 mg/kg	NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil (1,000 mg/kg)
	C16-C34: 24,000 mg/kg	NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil (3,500 mg/kg)
POND 1/3- 10-20	C10-C16: 1,400 mg/kg	NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil (1,000 mg/kg)
	C16-C34: 19,000 mg/kg	NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil (3,500 mg/kg)

[31] Salmon, M.C. (2017) *Background Concentrations of Metals in Queensland Soils* Easterly Point Environmental Pty Ltd © These concentrations are applied for soils with a high level of confidence that contaminating activities have not been conducted at the site/area where these levels are to be applied. Analytical results have been compared to Salmon's (2017) proposed residual level as an indication that impacts from site activities appear to be limited.

It is noted that concentrations of BTEXN in all soil samples analysed were less than the LOR with the exception of naphthalene from sample POND 1/1-10-20 which was recorded at a concentration above the LOR and below the adopted criteria.

11.4.3 OCP / OPP / PCB

Concentrations of these analytes were reported below the laboratory LOR with the exception of an OPP, Fenitrothion, reported equal to the laboratory LOR from sample POND 3/1- 10/20.

11.4.4 PFAS

PFAS compounds from the test pit locations were limited to soils collected from TP1, TP3, TP4, TP5 and TP7: Where results exceeded adopted guidelines those results are summarised in **Table 10-3**, below.

PFAS compounds were reported above the laboratory LOR at all sample locations collected from the evaporation ponds, with the exception of sample POND 4/2- 0-20.

Criteria exceedances of the HIL D (20 mg/kg Sum of PFOS and PFHxS), ecological soil guideline values (direct exposure; 1 mg/kg PFOS) and ecological indirect exposure guidelines (0.01 mg/kg PFOS) were reported for soil collected from Pond 1: A summary of exceedances for all soil samples collected from the site is presented in **Table 10-3**, below.

Table 10-3: PFAS Results Summary

Sample Location, Depth	AEC	PFAS Compound	Concentration (mg/kg)
TP1 0.0 – 0.1	Drill rod laydown	PFOS	0.15
TP3 0.0 – 0.1	Chemical storage shed (low point approximately 3 m from the shed)	PFOS	0.84
POND 1/1 – 0-10	Pond 1	PFOS	99
		Sum of PFHxS and PFOS	103.2
POND 1/1 – 10-20		PFOS	120
		Sum of PFHxS and PFOS	128
POND 1/3 – 10-20		PFOS	83
		Sum of PFHxS and PFOS	86.4

* Perfluorohexanesulfonic acid (PFHxS); Perfluorooctanesulfonic acid (PFOS)

[1] Note: Where the guideline values refer to the sum of PFOS + PFHxS, this includes PFOS only, PFHxS only, and the sum of the two.

The Department of Defence (DoD) state in their *Defence PFAS Construction and Maintenance Framework*[32] that "*Excavated soils with PFOS + PFHxS concentrations of 20 mg/kg*[33] *or more* pose an unacceptable risk and should be managed offsite (destroyed or appropriately managed at landfill) or onsite (with options appropriately managed via a remediation action plan or similar). They further state that "*Soil at concentrations > 50 mg/kg should be sent for destruction at a licensed facility"* and that for excavated soil requiring to be temporarily stockpiled for later treatment, their *Contamination Management Manual*[34] provides a range of management options for stockpiled materials including onsite under roadways/runways or capped landscaping, provided sufficient information is available to inform the most appropriate management option.

The PFAS NEMP provides guidance for on-site containment options for PFAS-contaminated materials and includes detailed guidance on stockpiling, storage and containment during investigation, remediation and construction projects. The PFAS NEMP notes that *On-site storage and containment is often required during*

[32] Department of Defence (August 2021) *Defence PFAS Construction and Maintenance Framework Guidance for managing the risks of PFAS contamination for works on the Defence estate* DoD Infrastructure Division Directorate of PFAS Investigation and Remediation Version 3.0

[33] The Human health criterion for direct soil contact for industrial land use, PFAS NEMP

[34] Department of Defence (June 2021) *Contamination Management Manual Annex C Planning to Minimise and Manage Stockpiling* Environment and Engineering Branch Directorate of Contamination, Assessment, Remediation and Management

the investigation, remediation and/or construction phases of a project, or where other treatment or remediation options are not yet available and noting that "*Timeframes and risks are important considerations in planning stockpiling, storage and containment infrastructure*". Table 6 of the PFAS NEMP provides storage infrastructure for a short term (6 months to 2 years) scenario of PFAS-containing stockpiled soil, which may or may not be considered appropriate for the PFAS-identified material from Pond 1 given the magnitude of the PFAS concentrations (>50 mg/kg).

11.4.5 Macronutrients, Anions and Cations

Two samples from the evaporation ponds were analysed for macronutrients, anions and cations (POND 1/1 – 10-20 and POND 4/2 – 0-20). The results indicate that the sample collected from Pond 1 reported elevated concentrations of nitrogen, calcium, potassium, magnesium, sodium, phosphorus, alkalinity (bicarbonate as CaCO3), chloride, sulfate, alkalinity (total) as CaC03 compared to concentrations of these analytes in surrounding soils, likely a result of inputs into the evaporation ponds and the sewage treatment plant. Soil results from samples collected in proximity to these features (TP9 (sewage treatment plant), TP10, TP11 indicate the following:

Surface (0-0.1 m) and subsurface (1.0-1.1 m) soils from locations surrounding the evaporation ponds (TP9¸TP10, TP11) and sewage treatment plant (TP9) were assessed for a range of macronutrients (nitrogen, phosphorus, potassium, calcium, magnesium, and sulfur) and other cations/anions and elements in an attempt to understand potential impacts of activities. The results indicate the following:

- Concentrations are low which is consistent with Australian soils being highly weathered;
- Surface soils generally contained more phosphorus and total nitrogen than subsurface soils likely due to presence of organic matter;
- Cations (calcium, magnesium, potassium, sodium) and anions (chloride and sulfate) were generally at higher concentrations in subsoils compared to surface soils likely a result of leaching; and
- Consistency in concentrations of these elements, in additional to concentrations of a range of COPC (TRH/BTEXN, PFAS, etc) across all samples analysed indicates a low likelihood of impact from activities undertaken in the evaporation pond and sewage treatment areas, noting that samples were collected in proximity to these features.

11.4.6 Asbestos

Three soil samples (TP1, TP2, TP4) were collected and analysed for asbestos and results reported an absence of asbestos in these surface soil samples.

A fragment was collected from the ground surface within the bunded tank farm area (**Plate 4**, **Appendix B**) and analysis confirmed the presence of asbestos per a summary of results provided in **Table 10-4** below.

Table 10-4: Asbestos Identification Results Summary

Sample ID	Sample Location	Sample size / weight	Sample Description	Asbestos Results
FRAG_01	Fragment identified on the ground surface within the tank farm bunded area	3g / 50x20x2 mm	Blue hard fibrous material	**Chrysotile asbestos detected**

12. Preliminary Conceptual Site Model

A conceptual site model (CSM) is a representation of the site related information regarding contamination sources, receptors and exposure pathways between the sources and receptors. The ASC NEPM identifies several essential elements of a CSM:

- Known and potential sources of contamination and contaminants of concern, including the mechanism(s) of contamination;
- Potentially affected media;
- Human and ecological receptors;
- Any potential preferential pathways for vapour migration; and
- Potential and complete exposure pathways.

For a potentially unacceptable risk of exposure to site contamination to exist there must be a complete linkage between a source (e.g., contaminated soil, groundwater), a pathway of exposure (e.g. direct contact, ingestion) and a receptor that may be exposed to the source (e.g. a person, a species of significance), otherwise known as Source-Pathway-Receptor linkage (S-P-R linkage). Where one or more of the S-P-R linkage components do not exist at a site, then an S-P-R linkage is incomplete, and an unacceptable risk is not considered to exist.

12.1 Source

The site has a history of potentially contaminating activities associated with historical use as a crude oil terminal.

Potentially contaminated environmental media may comprise fill material, surficial and sub soil, and natural bedrock. Potential surface/shallow fill and natural soil has the potential to have been impacted based on the historical use of the site, potential importation of contaminated fill and from possible migration of offsite contamination through historically unsealed surfaces and vertical migration of contaminants from surface soil and fill material into underlying soil and natural bedrock.

Analytical soil results presented in **Section 10** indicate that significant or gross contamination from former site activities:

- Is present in remnant soil in the base of Pond 1;
- May be present in AECs unable to be accessed due to volume and complexity of underground services such as the above ground tank farm; and
- Is unlikely to be present in the broader site area;

While it is noted that the site has not been operational for a number of years, information regarding decommissioning of fuel storage and distribution systems was not available. Observations recorded during the site visit identified the presence of infrastructure related to former site use, that will require appropriate demolition/decommissioning during development. Additional soil testing following these works would be considered prudent.

Given the known depth of the regional groundwater, groundwater is not considered to present as an environmental media of concern.

12.2 Pathways

Mechanisms of contamination migration may include a combination of windblown dust, rainwater infiltration, and surface water runoff. The propensity for contaminants to migrate is dependent on:

- The nature of contamination (soil/liquid/gas and mobility characteristics);

- The extent of contamination (isolated or widespread);
- The location of contamination (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

Groundwater migration is precluded based on the depth to groundwater.

Underground services, storage sumps / tanks and associated pipework are considered to present potential preferential pathway(s). Underground services are present at the site and the presence of underground sumps were evident in the former tank farm area.

Potential pathways which may result in a potential risk to current and/or future receptors include:

- Potential dermal contact with and ingestion of impacted soils as present at shallow depths and / or accessible by future excavations; and
- Potential inhalation of volatile compounds from the potential presence of volatile hydrocarbons in soil.

12.3 Receptors

The primary human receptors of concern were identified to include:

- Current and future site occupants and landowners under commercial / industrial land use;
- Site operators undertaking excavation, construction and / or maintenance work; and
- Existing and / or future users / occupants of adjoining commercial properties.

The ecological receptors include the terrestrial ecosystems present at the site and within the surrounding area. There are no water bodies present within the sites surrounding area, noting the Todd River is located approximately 12.8 km to the east.

12.4 Data Gaps

The preliminary CSM is presented below. Based on the data presented herein, there are sufficient data gaps such that an assessment of the likelihood of a risk of harm to identified receptors warrants further assessment, notably:

- Presence of PFAS in soils around the chemical store (TP3), drill rod laydown (TP1), and evaporation Pond 1:
    - Source of PFAS on the site or from offsite sources (via pipework and infrastructure) warrants further investigation;
    - Lateral and vertical migration of PFAS from the evaporation pond is likely to be limited given presence of liner and absence of PFAS in surrounding soils (TP9, TP10, TP11) however integrity of liner is unknown and further investigation of soils at depth is warranted;
    - Further soil investigation around chemical store (TP3), drill rod laydown (TP1) is warranted to determine extent of PFAS impacts proximal to this infrastructure;
- Presence of elevated petroleum hydrocarbons related to diesel/oil in Pond 1 warrants investigation including understand source of hydrocarbons and potential infrastructure distribution networks at the site.

Based on the data presented herein concentrations of other COPC are unlikely to present a risk of harm to identified receptors, noting that the lateral and vertical extent site investigation was limited due to the volume and complexity of services and remnant infrastructure observed at the site, collection of soil samples in close proximity to these features was precluded, including within the tank farm bund, etc.

During demolition of infrastructure and/or development of the site, it would be prudent to further assess the contamination status of soils beneath and within these features. As such, the CSM remains as a preliminary model that can be refined as additional data is assessed.

Table 11-1: Preliminary Conceptual Site Model

Potential Source of Contamination (AECs)	COPC	Potential Exposure Pathways	Potential Receptor
MASP/pipeline	• TRH, BTEXN, OCP, OPP, PCB, Heavy metals	• Potential dermal contact with and ingestion of impacted soils as present at shallow depths and / or accessible by future excavations; and • Potential inhalation of volatile compounds from the potential presence of volatile hydrocarbons in soil.	• Current and future site occupants and landowners under commercial / industrial land use; • Site operators undertaking excavation, construction and / or maintenance work; and • Existing and / or future users / occupants of adjoining commercial properties; • Terrestrial ecosystems on and surrounding the site.
Evaporation ponds	• TRH, BTEXN, Heavy metals, Nutrients, PFAS		
Former and current tank farm	• TRH, BTEXN, OCP, OPP, PCB, Heavy metals, Nutrients, PFAS, asbestos		
Chemical storage			
Former truck and rail loading areas			
Former building			
Drill rod laydown			
Drill mast laydown			
Sewage treatment	Nutrients, PFAS		

13. Conclusion and Recommendations

13.1 Conclusions

Subject to the limitations presented in **Section 13** and on the basis of the investigation documented herein, it is concluded that:

- The site resides within the Brewer Estate Building Area and future development is restricted to commercial/industrial use:
    - Surrounding commercial/industrial operations include the Owens Springs Power Station, Brewer State CNG Plant and the Central Petroleum Dingo Compound;
- The Central Australia Railway and associated rail loop adjoin and service the site;
- Industrial activities at the site relating to the storage and distribution of bulk oil and fuel products and associated oil and gas activities likely commenced in the early 1980's and remained operational until the early 2000's, prior to which the site was likely vacant:
    - Configuration of infrastructure at the site has remained relatively consistent since at least the late 1990's;
    - Decommissioning/removal of industrial infrastructure has likely not occurred. JBS&G understands that some onsite industrial infrastructure may be retained as part of the future development (such as large fuel storage tanks);
    - The MASP was mothballed around 2010 and despite references to *decommissioning (including cleaning of tanks), and site assessment and remediation activities* (FEMP [(2017]) evidence and/or verification of these activities has not been revealed;
    - Complex underground services and utilities supporting historical activities remain at the site which precluded access for soil sampling and the contamination assessment;
    - Given historical site use including for the storage of bulk fuel products, storage and/or distribution of PFAS cannot be precluded:
        - Little information is available from site records regarding incidents that may have resulted in PFAS use and/or ingress of PFAS for offsite sources;
- Soil sampling activities targeted the following areas of environmental concern (AECs), noting access to AECs was limited by complexity and volume of underground services (tank farm areas) and desire to maintain integrity of evaporation ponds:
    - Former and current tank farm, and MASP/pipeline;
    - Chemical storage;
    - Former truck and rail loading areas;
    - Former building;
    - Drill rod and mast laydown areas;
    - Evaporation ponds; and
    - Sewage treatment facility.

On weight of evidence, the potential for gross or widespread contamination that would preclude ongoing use and/or development of the site in a commercial/ industrial capacity:

- Is unlikely to be present across the broader site area where infrastructure and former site activities have been limited;

- May be present in areas associated with former and current tank farm, and MASP/pipeline; and
- Is present in soils associated with the evaporation ponds (particularly Pond 1), the chemical store, and in the drill rod laydown area; and

The type of infrastructure that remains at the site (sumps, bulk storage tanks, underground pipelines and utilities, evaporation ponds, etc) *may* present a liability in terms of demolition and/or decommissioning.

13.2 Recommendations

It is recommended that a hazardous materials building survey be undertaken and a construction environmental management plan (CEMP) be developed, including an unexpected finds protocol, to guide and manage environmental matters through demolition and site development.

Data gaps exist based on the limited extent of the soil investigation at the site, understanding of site infrastructure (particularly with respect to the liner in evaporation pond 1), and source of PFAS. Connectivity of the evaporation pond(s) with other infrastructure at the site warrants further assessment in order to manage potential migration of contaminants, particularly from Pond 1.

Remediation and/or management of contamination will be required of those materials in the evaporation pond(s), and may be required and/or considered during future development of other site areas: Guidance for onsite containment or management and/or offsite management of these material, in the context of PFAS concentrations >20 mg/kg, can be sought from the DoD PFAS Construction and Maintenance Framework and the PFAS NEMP.

13.3 Duty to Notify

Given the concentration of PFAS and petroleum hydrocarbons in soil from the base of Pond 1, there is requirement (by the land owners, leasee and/or occupier) of the site to notify NT EPA on the grounds that contamination exists above a "*level of contamination set out in Schedule B1 of the ASC NEPM or other approved guideline value with respect to a current or approved use of the land*[35]*"* in accordance with the requirements of the WMPC Act.

[35] Section 6.3 of the NT EPA Contaminated Land Guideline

14. Limitations

Scope of services

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

Reliance on data

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

Figures

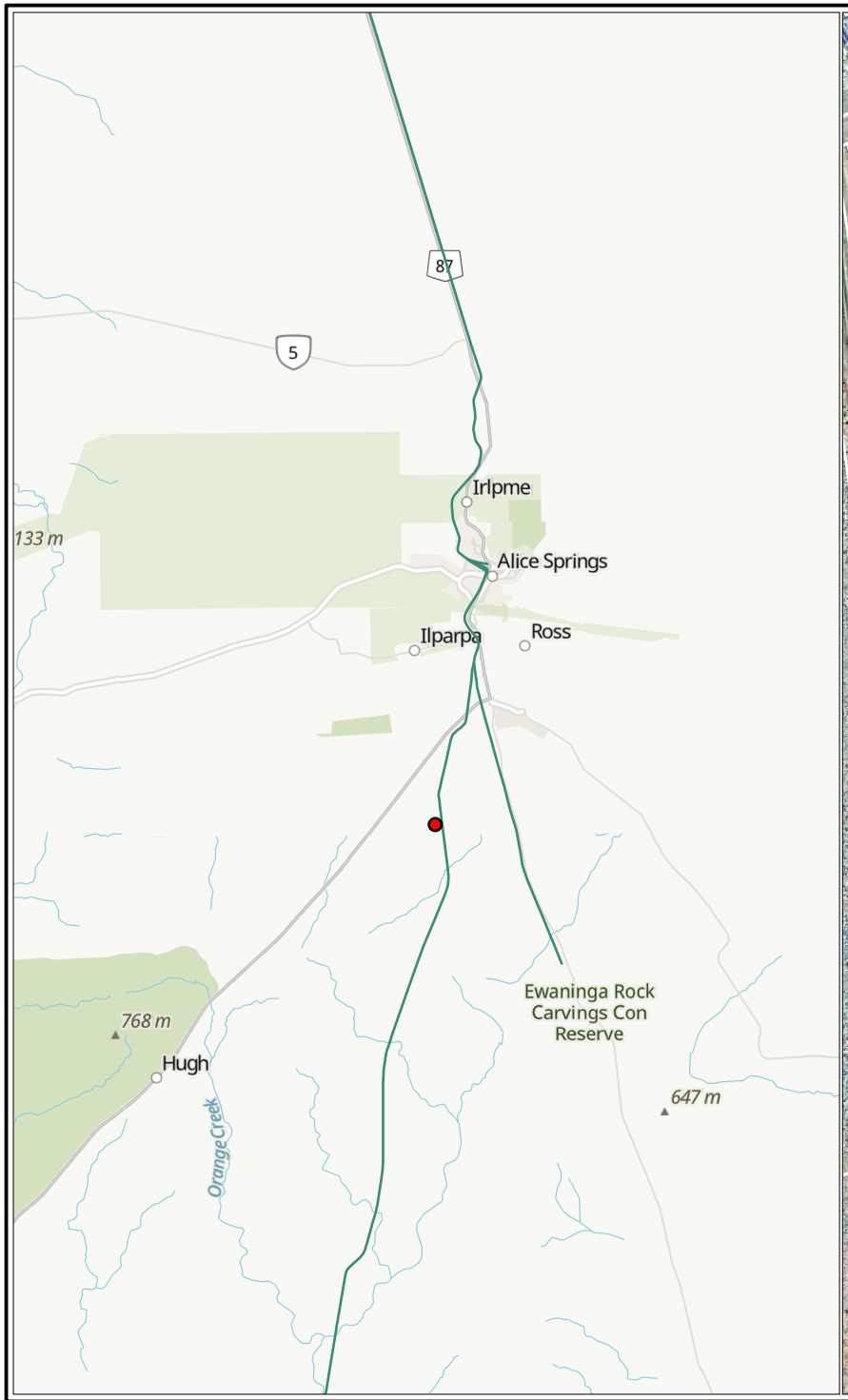
Figure 1: Site Location

Figure 2: Site Layout

Figure 3: Soil Inspection Locations

Figure 4: Historical Aerials

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Legend

- Site Location
- Site Boundary
- Cadastre

JBS&G

Job No: 65513

Client: Asia Pacific Aircraft Storage

Version: v2	Date: 31-Oct-2023
Drawn By: BH	Checked By: RS

Scale 1:18,000

0 400 800

metres

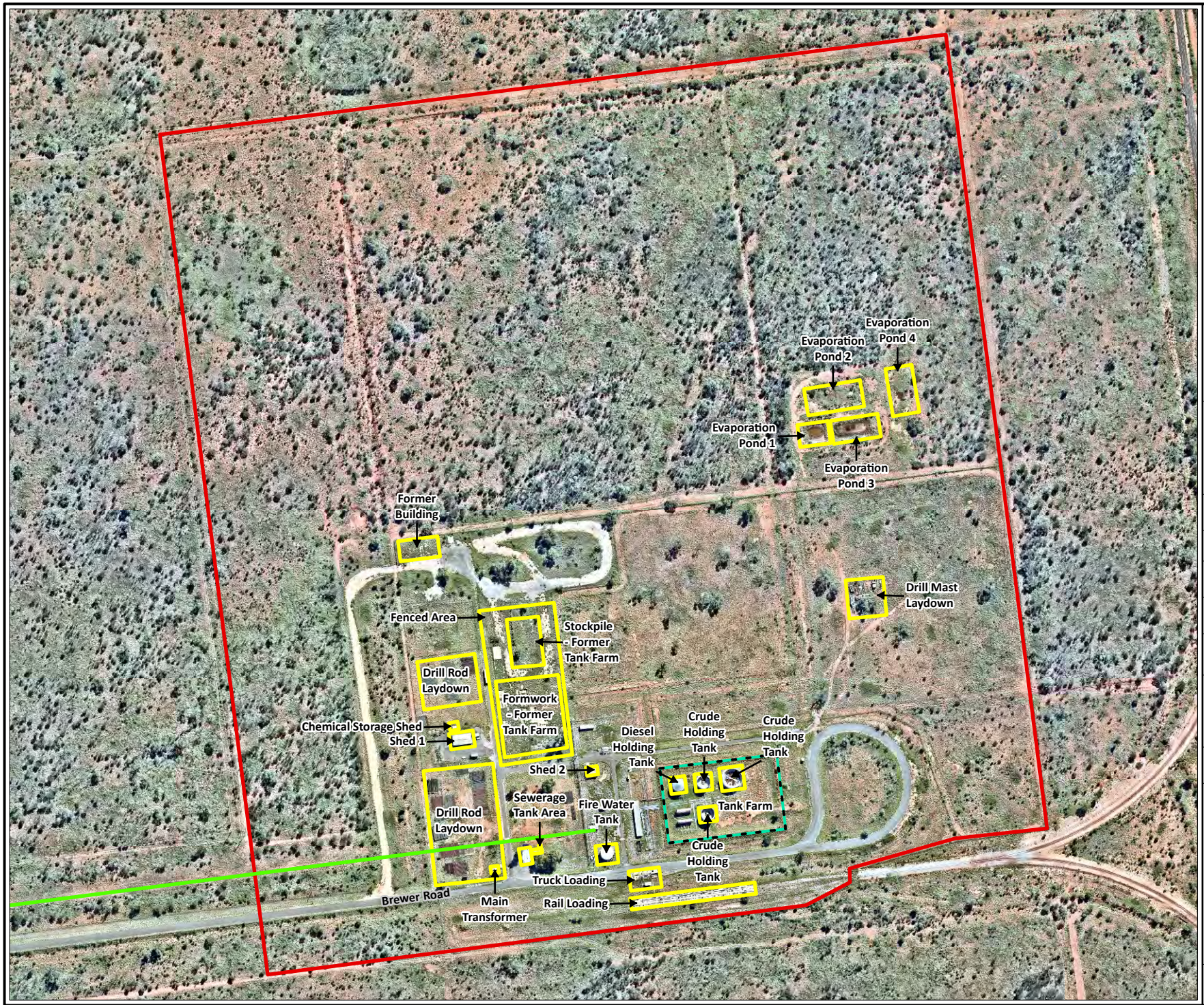
Coord. Sys. GDA2020 MGA Zone 53

383 Brewer Road
Hugh, Northern Territory

SITE LOCATION

FIGURE 1

File Name: C:\Users\bholgate\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Asia Pacific Aircraft Storage (APAS)\GIS\02_MapProjects\65513_APAS_HughNT_DD_v2.aprx; Name:65513_01_SiteLoc
Reference: ESRI Topographic Basemap - Accessed Imagery: 31/10/2023 & www.nearmap.com - Imagery Date: 30/04/2023



Legend

- Site Boundary
- Bunded Area
- Site Feature
- MASP

JBS&G

Job No: 65513

Client: Asia Pacific Aircraft Storage

Version: v2	Date: 31-Oct-2023
Drawn By: BH	Checked By: RS

Scale 1:4,500

0 100 200

metres

Coord. Sys. GDA2020 MGA Zone 53

383 Brewer Road
Hugh, Northern Territory

SITE LAYOUT

FIGURE 2

File Name: C:\Users\bholgate\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Asia Pacific Aircraft Storage (APAS)\GIS\02_MapProjects\65513_APAS_HughNT_DD_v2.aprx; Name:65513_02_Site Layout
Reference: www.nearmap.com - Imagery Date: 30/04/2023



Legend

- Site Boundary
- Site Feature
- Soil Inspection Location
- Evaporation Pond Surface Soil Sample

JBS&G

Job No: 65513

Client: Asia Pacific Aircraft Storage

Version: v2	Date: 31-Oct-2023
Drawn By: BH	Checked By: RS

Scale 1:4,500

0 100 200

metres

Coord. Sys. GDA2020 MGA Zone 53

383 Brewer Road
Hugh, Northern Territory

SOIL INSPECTION LOCATIONS

FIGURE 3

File Name: C:\Users\bholgate\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Asia Pacific Aircraft Storage (APAS)\GIS\02_MapProjects\65513_APAS_HughNT_DD_v2.aprx; Name:65513_03_Soil Inspection Locations
Reference: www.nearmap.com - Imagery Date: 30/04/2023



Legend

Site Boundary

RGB

Red: Band_1

Green: Band_2

Blue: Band_3

JBS&G

Job No: 65513

Client: Asia Pacific Aircraft Storage

Version: v2 | Date: 31-Oct-2023

Drawn By: BH | Checked By: RS

Scale 1:4,500

0 100 200

metres

Coord. Sys. GDA2020 MGA Zone 53

383 Brewer Road
Hugh, Northern Territory

HISTORICAL AERIAL - 1999

FIGURE 4A

File Name: C:\Users\bholgate\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Asia Pacific Aircraft Storage (APAS)\GIS\02_MapProjects\65513_APAS_HughNT_DD_v2.aprx; Name:65513_04a_Historical Aerial
Reference: www.nearmap.com - Imagery Date: 12/06/2020



Legend

Site Boundary

JBS&G

Job No: 65513

Client: Asia Pacific Aircraft Storage

Version: v2	Date: 31-Oct-2023
Drawn By: BH	Checked By: RS

Scale 1:4,500

0 100 200

metres

Coord. Sys. GDA2020 MGA Zone 53

383 Brewer Road
Hugh, Northern Territory

HISTORICAL AERIAL - 2004

FIGURE 4B

File Name: C:\Users\bholgate\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Asia Pacific Aircraft Storage (APAS)\GIS\02_MapProjects\65513_APAS_HughNT_DD_v2.aprx; Name:65513_04b_Historical Aerial
Reference: www.nearmap.com - Imagery Date: 12/06/2020



Legend

Site Boundary

JBS&G

Job No: 65513

Client: Asia Pacific Aircraft Storage

Version: v2	Date: 31-Oct-2023
Drawn By: BH	Checked By: RS

Scale 1:4,500

0 100 200

metres

Coord. Sys. GDA2020 MGA Zone 53

383 Brewer Road
Hugh, Northern Territory

HISTORICAL AERIAL - 2013

FIGURE 4C

File Name: C:\Users\bholgate\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Asia Pacific Aircraft Storage (APAS)\GIS\02_MapProjects\65513_APAS_HughNT_DD_v2.aprx; Name:65513_04c_Historical Aerial
Reference: Google Maps © 2016 Imagery Date: March 2013



Legend

Site Boundary

JBS&G

Job No: 65513

Client: Asia Pacific Aircraft Storage

Version: v2	Date: 31-Oct-2023
Drawn By: BH	Checked By: RS

Scale 1:4,500

0 100 200

metres

Coord. Sys. GDA2020 MGA Zone 53

383 Brewer Road
Hugh, Northern Territory

HISTORICAL AERIAL - 2017

FIGURE 4D

File Name: C:\Users\bholgate\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Asia Pacific Aircraft Storage (APAS)\GIS\02_MapProjects\65513_APAS_HughNT_DD_v2.aprx; Name:65513_04d_Historical Aerial
Reference: www.nearmap.com - Imagery Date: 15/07/2017



Legend

Site Boundary

JBS&G

Job No: 65513

Client: Asia Pacific Aircraft Storage

Version: v2	Date: 31-Oct-2023
Drawn By: BH	Checked By: RS

Scale 1:4,500

0 100 200

metres

Coord. Sys. GDA2020 MGA Zone 53

383 Brewer Road
Hugh, Northern Territory

HISTORICAL AERIAL - 2023

FIGURE 4E

File Name: C:\Users\bholgate\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Asia Pacific Aircraft Storage (APAS)\GIS\02_MapProjects\65513_APAS_HughNT_DD_v2.aprx; Name:65513_04e_Historical Aerial
Reference: www.nearmap.com - Imagery Date: 30/04/2023

Appendix A Summary Tables

Soil Summary Table
Project Number: 65513
Project Name: Brewer Road PSI

	Metals & Metalloids								TPHs (NEPC 1999)					TRHs (NEPC 2013)							BTEXN							
	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum of Total)	C6-C10	C10-C16	C16-C34	C34-C40	C10-C40 (Sum of total)	F1 (C6-C10 minus BTEX)	F2 (C10-C16 less Naphthalene)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Total BTEX	Naphthalene_VOC
	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	2	0.5	5	5	5	0.1	5	5	20	20	50	50	50	20	50	100	100	100	20	50	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.5
PFAS NEMP (HEPA 2020) - Interim Soil - Ecological Direct Exposure																												
PFAS NEMP (HEPA 2020) - Interim Soil - Ecological Indirect Exposure																												
PFAS NEMP (HEPA 2020) - Soil - Human Health - Commercial Industrial																												
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil	3000	900	3600	240000	1500	730	6000	400000																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																												
0-1m																			260	NL	3	NL	NL			230		NL
NEPM 2013 Table 1B(1-5) Generic EIL - Comm/Ind	160		310	85	1800		55	110																				370
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil														700	1000	3500	10000											

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date	Lab_Report_Number																										
FRAG_01	FRAG_01		26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POND 1/1-0-10	POND 1/1	0-10	9/10/2023	1034559	790	<0.5	33	32	18	-	22	420	<20	190	3100	1900	5190	<20	290	4500	1300	6090	<20	290	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
POND 1/1-10-20	POND 1/1	10-20	9/10/2023	1034559	1200	0.5	28	37	15	-	25	530	<20	2800	20,000	8200	31,000	<20	5300	24,000	6400	35,700	<20	5,299	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	0.9
POND 1/3- 10-20	POND 1/3	10-20	9/10/2023	1034559	480	<0.5	20	17	7.3	-	9.1	140	<20	490	14,000	7900	22,390	<20	1400	19,000	6300	26,700	<20	1,400	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
POND 2/1- 0-10	POND 2/1	0-10	9/10/2023	1034559	10	<0.5	20	9.6	6.5	-	9.6	22	<20	<20	66	70	136	<20	<50	110	<100	110	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
POND 2/3- 0-20	POND 2/3	0-20	9/10/2023	1034559	4.6	<0.5	11	5.8	<5	-	<5	11	<20	<20	60	62	122	<20	<50	110	<100	110	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
POND 3/1- 0-10	POND 3/1	0-10	9/10/2023	1034559	35	<0.5	21	9.3	6.3	-	9.2	33	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
POND 3/1- 10/20	POND 3/1	10-20	9/10/2023	1034559	43	<0.5	22	11	6.6	-	9.9	37	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
POND 3/2- 0-20	POND 3/2	0-20	9/10/2023	1034559	36	<0.5	16	9.9	8.1	-	5.2	38	<20	<20	73	82	155	<20	<50	130	<100	130	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
POND 4/1- 0-10	POND 4/1	0-10	9/10/2023	1034559	17	<0.5	46	24	17	-	21	50	<20	<20	110	110	220	<20	<50	190	<100	190	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
POND 4/2- 0-20	POND 4/2	0-10	9/10/2023	1034559	15	<0.5	22	15	8.5	-	10	24	<20	<20	150	170	320	<20	<50	270	140	410	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP1_0.0-0.1	TP1	0-0.1	26/07/2023	1011929	<2	<0.5	14	6	<5	-	<5	12	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP2_0.0-0.1	TP2	0-0.1	26/07/2023	1011929	<2	<0.5	13	<5	<5	-	<5	11	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP3_0.0-0.1	TP3	0-0.1	26/07/2023	1011929	<2	<0.5	13	5.4	<5	-	<5	11	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP3_0.5-0.6	TP3	0.5-0.6	26/07/2023	1011929	<2	<0.5	16	5.8	<5	-	<5	11	<20	<20	<50	57	57	<20	<50	<100	100	100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP4_0.0-0.1	TP4	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP4_0.2-0.3	TP4	0.2-0.3	26/07/2023	1011929	<2	<0.5	22	19	5.7	-	9.3	20	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP5_0.0-0.1	TP5	0-0.1	26/07/2023	1011929	<2	<0.5	12	5.2	<5	-	<5	18	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP5_0.5-0.6	TP5	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP5_2.0-2.1	TP5	2-2.1	26/07/2023	1011929	<2	<0.5	13	<5	<5	-	<5	8.6	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP6_0.0-0.1	TP6	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP6_0.5-0.6	TP6	0.5-0.6	26/07/2023	1011929	2.7	<0.5	27	10	8.6	-	11	24	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP7_0.0-0.1	TP7	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP7_0.5-0.6	TP7	0.5-0.6	26/07/2023	1011929	<2	<0.5	17	<5	<5	-	<5	11	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP7_1.5-1.6	TP7	1.5-1.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP8_0.0-0.1	TP8	0-0.1	26/07/2023	1011929	<2	<0.5	13	5.7	<5	-	<5	12	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP8_1.0-1.1	TP8	1-1.1	26/07/2023	1011929	<2	<0.5	17	<5	<5	-	<5	8.9	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP9_0.0-0.1	TP9	0-0.1	27/07/2023	1011929	<2	<0.5	14	5.1	<5	-	<5	12	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP9_1.0-1.1	TP9	1-1.1	27/07/2023	1011929	<2	<0.5	13	<5	<5	-	<5	8.1	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP10_0.0-0.1	TP10	0-0.1	27/07/2023	1011929	<2	<0.5	17	5.8	<5	-	<5	13	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP10_0.4-0.5	TP10	0.4-0.5	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_1.0-1.1	TP10	1-1.1	27/07/2023	1011929	<2	<0.5	17	5	<5	-	<5	9.4	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP11_0.0-0.1	TP11	0-0.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.4-0.5	TP11	0.4-0.5	27/07/2023	1011929	<2	<0.5	18	5.3	<5	-	<5	10	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
QC102	TP11_0.4-0.5	0.4-0.5	27/07/2023	1011929	<2	<0.5	17	5	<5	-	<5	9.2	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
QC103	TP11_0.4-0.5	0.4-0.5	27/07/2023	EB2323134	<5	<1	10	<5	<5	<0.1	<2	<5	<10	<50	<100	<100	<50	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP11_1.0-1.1	TP11	1-1.1	27/07/2023	1011929	2	<0.5	23	8.6	6.6	-	8.2	18	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP12_0.0-0.1	TP12	0-0.1	26/07/2023	1011929	<2	<0.5	17	34	5.5	-	6.8	24	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP13_0.0-0.1	TP13	0-0.1	26/07/2023	1011929	<2	<0.5	11	<5	<5	-	<5	6.6	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5
TP14_0.0-0.1	TP14	0-0.1	26/07/2023	1011929	<2	<0.5	13	<5	<5	-	<5	18	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	-	<0.5

Soil Summary Table
Project Number: 65513
Project Name: Brewer Road PSI

					Organochlorine Pesticides																																			
					4,4-DDE	a-BHC	b-BHC	d-BHC	g-BHC (Lindane)	Aldrin	Dieldrin	Aldrin + Dieldrin	Chlordane	Chlordane (cis)	Chlordane (trans)	DDT	DDD	DDT+DDE+DDD	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor Epoxide	Methoxychlor	Azinophos methyl	Bolstar (Sulprofos)	Bromophos-ethyl	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-O
					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					0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	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	0.05	0.05	0.2	0.2	0.05	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2
PFAS NEMP (HEPA 2020) - Interim Soil - Ecological Direct Exposure																																								
PFAS NEMP (HEPA 2020) - Interim Soil - Ecological Indirect Exposure																																								
PFAS NEMP (HEPA 2020) - Soil - Human Health - Commercial Industrial																																								
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil												45	530					3600	2000				100			50		2500					2000							
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																																								
0-1m																																								
NEPM 2013 Table 1B(1-5) Generic EIL - Comm/Ind																640																									
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																																								
Field_ID	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date**	**Lab_Report_Number**																																				
FRAG_01	FRAG_01		26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POND 1/1-0-10	POND 1/1	0-10	9/10/2023	1034559	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
POND 1/1-10-20	POND 1/1	10-20	9/10/2023	1034559	<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	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5
POND 1/3- 10-20	POND 1/3	10-20	9/10/2023	1034559	<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	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5
POND 2/1- 0-10	POND 2/1	0-10	9/10/2023	1034559	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
POND 2/3- 0-20	POND 2/3	0-20	9/10/2023	1034559	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
POND 3/1- 0-10	POND 3/1	0-10	9/10/2023	1034559	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
POND 3/1- 10/20	POND 3/1	10-20	9/10/2023	1034559	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
POND 3/2- 0-20	POND 3/2	0-20	9/10/2023	1034559	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
POND 4/1- 0-10	POND 4/1	0-10	9/10/2023	1034559	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
POND 4/2- 0-20	POND 4/2	0-10	9/10/2023	1034559	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP1_0.0-0.1	TP1	0-0.1	26/07/2023	1011929	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP2_0.0-0.1	TP2	0-0.1	26/07/2023	1011929	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP3_0.0-0.1	TP3	0-0.1	26/07/2023	1011929	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP3_0.5-0.6	TP3	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP4_0.0-0.1	TP4	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP4_0.2-0.3	TP4	0.2-0.3	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP5_0.0-0.1	TP5	0-0.1	26/07/2023	1011929	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP5_0.5-0.6	TP5	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP5_2.0-2.1	TP5	2-2.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP6_0.0-0.1	TP6	0-0.1	26/07/2023	1011929	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP6_0.5-0.6	TP6	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP7_0.0-0.1	TP7	0-0.1	26/07/2023	1011929	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP7_0.5-0.6	TP7	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP7_1.5-1.6	TP7	1.5-1.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP8_0.0-0.1	TP8	0-0.1	26/07/2023	1011929	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP8_1.0-1.1	TP8	1-1.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP9_0.0-0.1	TP9	0-0.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP9_1.0-1.1	TP9	1-1.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.0-0.1	TP10	0-0.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.4-0.5	TP10	0.4-0.5	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_1.0-1.1	TP10	1-1.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.0-0.1	TP11	0-0.1	27/07/2023	1011929	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP11_0.4-0.5	TP11	0.4-0.5	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC102	TP11_0.4-0.5	0.4-0.5	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC103	TP11_0.4-0.5	0.4-0.5	27/07/2023	EB2323134	<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	<0.2	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-
TP11_1.0-1.1	TP11	1-1.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12_0.0-0.1	TP12	0-0.1	26/07/2023	1011929	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP13_0.0-0.1	TP13	0-0.1	26/07/2023	1011929	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<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	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
TP14_0.0-0.1	TP14	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Soil Summary Table
Project Number: 65513
Project Name: Brewer Road PSI

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Soil Summary Table
Project Number: 65513
Project Name: Brewer Road PSI

	PFAS																																		
	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (NMeFOSA)	N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	N-Methylperfluorooctanesulfonamidoethanol (N-MeFOSE)	N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	1H-1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	1H-1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	1H-1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	1H-1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	Sum of PFHxS and PFOS	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of WA DWER PFAS (n=10)*	Sum of PFAS	Perfluorononanesulfonic acid ion
	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	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.005	0.005	0.005	0.01	0.05	0.005
PFAS NEMP (HEPA 2020) - Interim Soil - Ecological Direct Exposure					10																			1											
PFAS NEMP (HEPA 2020) - Interim Soil - Ecological Indirect Exposure																								0.01											
PFAS NEMP (HEPA 2020) - Soil - Human Health - Commercial Industrial					50																									20					
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																																			
0-1m																																			
NEPM 2013 Table 1B(1-5) Generic EIL - Comm/Ind																																			
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																																			

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date	Lab_Report_Number																																	
FRAG_01	FRAG_01		26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POND 1/1-0-10	POND 1/1	0-10	9/10/2023	1034559	0.19	0.37	1.7	0.28	1.1	0.035	<0.005	<0.005	<0.005	<0.005	<0.005	0.18	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	0.045	0.13	0.22	4.2	0.71	99	0.5	<0.005	0.53	1	0.037	103.2	104.3	100.1	108.5	111.427	1.2
POND 1/1-10-20	POND 1/1	10-20	9/10/2023	1034559	0.16	0.36	3.2	0.51	1.3	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	0.072	<0.005	<0.005	0.014	0.0058	<0.01	<0.01	0.045	0.3	0.6	8	1.2	120	<0.005	<0.005	0.78	0.52	0.016	128	129.3	121.3	135.13	137.9878	0.89
POND 1/3- 10-20	POND 1/3	10-20	9/10/2023	1034559	0.052	0.067	0.31	0.059	0.65	<0.005	<0.005	<0.005	<0.005	<0.005	0.0065	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	0.029	0.092	3.4	0.69	83	<0.005	<0.005	0.11	0.25	<0.005	86.4	87.05	83.65	87.927	89.4055	0.69
POND 2/1- 0-10	POND 2/1	0-10	9/10/2023	1034559	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.032	<0.005	<0.005	<0.01	<0.005	<0.005	0.032	0.032	0.032	0.032	<0.05	<0.005
POND 2/3- 0-20	POND 2/3	0-20	9/10/2023	1034559	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.028	<0.005	<0.005	<0.01	<0.005	<0.005	0.028	0.028	0.028	0.028	<0.05	<0.005
POND 3/1- 0-10	POND 3/1	0-10	9/10/2023	1034559	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.074	0.0063	<0.005	<0.01	<0.005	<0.005	0.074	0.074	0.074	0.074	0.089	0.0087
POND 3/1- 10/20	POND 3/1	10-20	9/10/2023	1034559	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.054	0.0059	<0.005	<0.01	0.0062	<0.005	0.054	0.054	0.054	0.0602	0.0733	0.0072
POND 3/2- 0-20	POND 3/2	0-20	9/10/2023	1034559	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	0.0093	<0.005	0.14	0.0091	<0.005	<0.01	<0.005	<0.005	0.1493	0.1493	0.14	0.1493	0.1794	0.014
POND 4/1- 0-10	POND 4/1	0-10	9/10/2023	1034559	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.0052	<0.005	<0.005	<0.01	<0.005	<0.005	0.0052	0.0052	0.0052	<0.01	<0.05	<0.005
POND 4/2- 0-20	POND 4/2	0-10	9/10/2023	1034559	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.05	<0.005
TP1_0.0-0.1	TP1	0-0.1	26/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	0.011	<0.005	0.15	<0.005	<0.005	<0.01	<0.005	<0.005	0.161	0.161	0.15	0.161	0.161	<0.005
TP2_0.0-0.1	TP2	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP3_0.0-0.1	TP3	0-0.1	26/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.84	<0.005	<0.005	<0.01	<0.005	<0.005	0.84	0.84	0.84	0.84	0.852	0.012
TP3_0.5-0.6	TP3	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP4_0.0-0.1	TP4	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP4_0.2-0.3	TP4	0.2-0.3	26/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.023	<0.005	<0.005	<0.01	<0.005	<0.005	0.023	0.023	0.023	0.023	<0.05	<0.005
TP5_0.0-0.1	TP5	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP5_0.5-0.6	TP5	0.5-0.6	26/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.01	0.01	0.01	0.01	<0.05	<0.005
TP5_2.0-2.1	TP5	2-2.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP6_0.0-0.1	TP6	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP6_0.5-0.6	TP6	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP7_0.0-0.1	TP7	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP7_0.5-0.6	TP7	0.5-0.6	26/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.0058	<0.005	<0.005	<0.01	<0.005	<0.005	0.0058	0.0058	0.0058	<0.01	<0.05	<0.005
TP7_1.5-1.6	TP7	1.5-1.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP8_0.0-0.1	TP8	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP8_1.0-1.1	TP8	1-1.1	26/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.05	<0.005
TP9_0.0-0.1	TP9	0-0.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP9_1.0-1.1	TP9	1-1.1	27/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.05	<0.005
TP10_0.0-0.1	TP10	0-0.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.4-0.5	TP10	0.4-0.5	27/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.05	<0.005
TP10_1.0-1.1	TP10	1-1.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.0-0.1	TP11	0-0.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.4-0.5	TP11	0.4-0.5	27/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.05	<0.005
QC102	TP11_0.4-0.5	0.4-0.5	27/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.05	<0.005
QC103	TP11_0.4-0.5	0.4-0.5	27/07/2023	EB2323134	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0011	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0011	-	-	0.0011	0.0011	-
TP11_1.0-1.1	TP11	1-1.1	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12_0.0-0.1	TP12	0-0.1	26/07/2023	1011929	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.05	<0.005
TP13_0.0-0.1	TP13	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.0-0.1	TP14	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Soil Summary Table
Project Number: 65513
Project Name: Brewer Road PSI

	Chlorinated Benzenes	Non-Metallic Inorganics				Major Cations				Major Anions						Ionic Balance	A VIC - IWRG6		Borehole Logging	Inorganics	Asbestos - Eurofins										Other
	Hexachlorobenzene	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Calcium	Potassium	Magnesium	Sodium	Phosphorus	Alkalinity (Carbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (Bicarbonate as CaCO3)	Chloride	Sulphate	Alkalinity (total) as CaCO3	Organochlorine Pesticides EPAVic	Other Organochlorine Pesticides EPAVic	PID	Nitrite + Nitrate as N	Approximate Sample Mass	Asbestos Sample Dimensions	Mass ACM	Mass Asbestos in ACM	Asbestos from ACM in Soil	Mass FA	Mass Asbestos in FA	Mass AF	Mass asbestos in AF	Asbestos from FA & AF in Soil	Mass Asbestos in FA & AF	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	mg/kg	mg/kg	ppm	mg/kg	g	Comment	g	g	% (w/w)	g	g	g	g	% (w/w)	g	%
EQL	0.05	5	5	10	10	5	5	5	5	5	20	20	20	5	10	50	0.1	0.1		5												1
PFAS NEMP (HEPA 2020) - Interim Soil - Ecological Direct Exposure																																
PFAS NEMP (HEPA 2020) - Interim Soil - Ecological Indirect Exposure																																
PFAS NEMP (HEPA 2020) - Soil - Human Health - Commercial Industrial																																
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil	80																															
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																																
0-1m																																
NEPM 2013 Table 1B(1-5) Generic EIL - Comm/Ind																																
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																																

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date	Lab_Report_Number																													
FRAG_01	FRAG_01		26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1	0	0	0	0	0	0	0	-
POND 1/1-0-10	POND 1/1	0-10	9/10/2023	1034559	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	21
POND 1/1-10-20	POND 1/1	10-20	9/10/2023	1034559	<0.5	<5	<5	3300	3300	45,000	9100	9900	27,000	6600	<20	<20	770	21,000	3800	770	<0.5	<0.5	-	<5	-	-	-	-	-	-	-	-	-	25
POND 1/3- 10-20	POND 1/3	10-20	9/10/2023	1034559	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	18
POND 2/1- 0-10	POND 2/1	0-10	9/10/2023	1034559	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	5.3
POND 2/3- 0-20	POND 2/3	0-20	9/10/2023	1034559	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	1.8
POND 3/1- 0-10	POND 3/1	0-10	9/10/2023	1034559	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	6
POND 3/1- 10/20	POND 3/1	10-20	9/10/2023	1034559	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	16
POND 3/2- 0-20	POND 3/2	0-20	9/10/2023	1034559	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	4
POND 4/1- 0-10	POND 4/1	0-10	9/10/2023	1034559	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	10
POND 4/2- 0-20	POND 4/2	0-10	9/10/2023	1034559	<0.05	<5	<5	43	43	4300	3100	3800	170	170	<20	<20	87	49	<10	-	<0.1	<0.1	-	<5	-	-	-	-	-	-	-	-	-	7
TP1_0.0-0.1	TP1	0-0.1	26/07/2023	1011929	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	172	-	0	0	0	0	0	0	0	5
TP2_0.0-0.1	TP2	0-0.1	26/07/2023	1011929	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	315	-	0	0	0	0	0	0	0	1.6
TP3_0.0-0.1	TP3	0-0.1	26/07/2023	1011929	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	2.2
TP3_0.5-0.6	TP3	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
TP4_0.0-0.1	TP4	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	345	-	0	0	0	0	0	0	0	-
TP4_0.2-0.3	TP4	0.2-0.3	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	399	-	0	0	0	0	0	0	0	2.8
TP5_0.0-0.1	TP5	0-0.1	26/07/2023	1011929	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	5.1
TP5_0.5-0.6	TP5	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7
TP5_2.0-2.1	TP5	2-2.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.5
TP6_0.0-0.1	TP6	0-0.1	26/07/2023	1011929	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	1.3
TP6_0.5-0.6	TP6	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.2
TP7_0.0-0.1	TP7	0-0.1	26/07/2023	1011929	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	1.1
TP7_0.5-0.6	TP7	0.5-0.6	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.9
TP7_1.5-1.6	TP7	1.5-1.6	26/07/2023	1011929	-	<5	<5	85	85	730	1600	1600	98	65	<20	<20	54	10	15	54	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	2.5
TP8_0.0-0.1	TP8	0-0.1	26/07/2023	1011929	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	1.5
TP8_1.0-1.1	TP8	1-1.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8
TP9_0.0-0.1	TP9	0-0.1	27/07/2023	1011929	-	<5	<5	270	270	350	1200	710	<10	100	<20	<20	38	6.5	<50	<50	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	1.3
TP9_1.0-1.1	TP9	1-1.1	27/07/2023	1011929	-	<5	<5	140	140	430	1300	910	68	80	<20	<20	46	6.6	59	<50	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	4.1
TP10_0.0-0.1	TP10	0-0.1	27/07/2023	1011929	-	<5	<5	250	250	490	1200	800	<10	110	<20	<20	32	9.4	<10	<50	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	3.1
TP10_0.4-0.5	TP10	0.4-0.5	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4
TP10_1.0-1.1	TP10	1-1.1	27/07/2023	1011929	-	<5	<5	130	130	280	880	610	19	60	<20	<20	36	<5	11	<50	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	2.5
TP11_0.0-0.1	TP11	0-0.1	27/07/2023	1011929	<0.05	<5	<5	380	380	580	1500	990	<10	140	<20	<20	36	6	11	<50	<0.1	<0.1	-	<5	-	-	-	-	-	-	-	-	-	-	4
TP11_0.4-0.5	TP11	0.4-0.5	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8
QC102	TP11_0.4-0.5	0.4-0.5	27/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.9
QC103	TP11_0.4-0.5	0.4-0.5	27/07/2023	EB2323134	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_1.0-1.1	TP11	1-1.1	27/07/2023	1011929	-	<5	<5	160	160	710	2100	1900	67	93	<20	<20	49	<5	49	<50	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	4.6
TP12_0.0-0.1	TP12	0-0.1	26/07/2023	1011929	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	1.7
TP13_0.0-0.1	TP13	0-0.1	26/07/2023	1011929	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	3
TP14_0.0-0.1	TP14	0-0.1	26/07/2023	1011929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1

INSERT QAQC TABLE NAME
Project Number: 65513
Project Name: Brewer Road PSI

Lab Report Number	1011929	1011929	
Field ID	TP11_0.4-0.5	QC102	**RPD**
Sampled Date/Time	27/07/2023	27/07/2023	

Chem_Group	ChemName	Units	EQL			
Metals & Metalloids	Arsenic	mg/kg	2	<2	<2	0
	Cadmium	mg/kg	0.5	<0.5	<0.5	0
	Chromium (III+VI)	mg/kg	5	18	17	6
	Copper	mg/kg	5	5.3	5	6
	Lead	mg/kg	5	<5	<5	0
	Nickel	mg/kg	5	<5	<5	0
	Zinc	mg/kg	5	10	9.2	8
TPHs (NEPC 1999)	C6-C9 Fraction	mg/kg	20	<20	<20	0
	C10-C14 Fraction	mg/kg	20	<20	<20	0
	C15-C28 Fraction	mg/kg	50	<50	<50	0
	C29-C36 Fraction	mg/kg	50	<50	<50	0
	C10-C36 Fraction (Sum of Total)	mg/kg	50	<50	<50	0
TRHs (NEPC 2013)	C6-C10	mg/kg	20	<20	<20	0
	C10-C16	mg/kg	50	<50	<50	0
	C16-C34	mg/kg	100	<100	<100	0
	C34-C40	mg/kg	100	<100	<100	0
	C10-C40 (Sum of total)	mg/kg	100	<100	<100	0
	F1 (C6-C10 minus BTEX)	mg/kg	20	<20	<20	0
	F2 (C10-C16 less Naphthalene)	mg/kg	50	<50	<50	0
BTEXN	Benzene	mg/kg	0.1	<0.1	<0.1	0
	Toluene	mg/kg	0.1	<0.1	<0.1	0
	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	0
	Xylene (o)	mg/kg	0.1	<0.1	<0.1	0
	Xylene (m & p)	mg/kg	0.2	<0.2	<0.2	0
	Xylene Total	mg/kg	0.3	<0.3	<0.3	0
	Naphthalene_VOC	mg/kg	0.5	<0.5	<0.5	0
PFAS	Perfluorobutanoic acid (PFBA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluoropentanoic acid (PFPeA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorohexanoic acid (PFHxA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluoroheptanoic acid (PFHpA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorooctanoic acid (PFOA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorononanoic acid (PFNA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorodecanoic acid (PFDA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorododecanoic acid (PFDoDA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorooctane sulfonamide (FOSA)	mg/kg	0.005	<0.005	<0.005	0
	N-Methyl perfluorooctane sulfonamide (NMeFOSA)	mg/kg	0.005	<0.005	<0.005	0
	N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	mg/kg	0.005	<0.005	<0.005	0
	N-Methylperfluorooctanesulfonamidoethanol (N-MeFOSE)	mg/kg	0.005	<0.005	<0.005	0
	N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	mg/kg	0.005	<0.005	<0.005	0
	N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	mg/kg	0.01	<0.01	<0.01	0
	N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	mg/kg	0.01	<0.01	<0.01	0
	Perfluoropropanesulfonic acid (PFPrS)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.005	<0.005	<0.005	0
	Perfluoropentanesulfonic acid (PFPeS)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.005	<0.005	<0.005	0
	Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.005	<0.005	<0.005	0
	Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.005	<0.005	<0.005	0
	1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	mg/kg	0.005	<0.005	<0.005	0
	1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	mg/kg	0.01	<0.01	<0.01	0
	1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	mg/kg	0.005	<0.005	<0.005	0
	1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	mg/kg	0.005	<0.005	<0.005	0
	Sum of PFHxS and PFOS	mg/kg	0.005	<0.005	<0.005	0
	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	mg/kg	0.005	<0.005	<0.005	0
	Sum of US EPA PFAS (PFOS + PFOA)*	mg/kg	0.005	<0.005	<0.005	0
	Sum of WA DWER PFAS (n=10)*	mg/kg	0.01	<0.01	<0.01	0
	Sum of PFAS	mg/kg	0.05	<0.05	<0.05	0
	Perfluorononanesulfonic acid ion	mg/kg	0.005	<0.005	<0.005	0
Other	Moisture Content (dried @ 103°C)	%	1	2.8	2.9	4

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 30 (1-10 x EQL); 30 (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 lab

Appendix B Photographic Log

PLATE 1 CHEMICAL STORAGE SHED



PLATE 2 CHEMICAL STORAGE SHED



PLATE 3 CHEMICAL STORAGE SHED



PLATE 4 POTENTIAL ASBESTOS FRAGMENT (SAMPLE ID FRAG_01)



JBS&G

Job No: 65513	
Client: Asia Pacific Aircraft Storage	
Version: RevA	Date: 07/08/2023
Drawn By: RL	Checked By: RS
Not to Scale	
Coord. Sys n/a	

383 Brewer Road, Hugh, NT

ATTACHMENT B – PHOTO LOG

PLATE 5 DRILL MAST LAYDOWN



PLATE 6 DRILL MAST LAYDOWN



PLATE 7 DRILL MAST LAYDOWN



PLATE 8 DRILL MAST LAYDOWN



JBS&G

Job No: 65513	
Client: Asia Pacific Aircraft Storage	
Version: RevA	Date: 07/08/2023
Drawn By: RL	Checked By: RS
Not to Scale	
Coord. Sys n/a	

383 Brewer Road, Hugh, NT

ATTACHMENT B – PHOTO LOG

PLATE 9 DRILL ROD LAYDOWN



PLATE 10 DRILL ROD LAYDOWN



PLATE 11 DRILL ROD LAYDOWN



PLATE 12 DRILL ROD LAYDOWN



JBS&G

Job No: 65513	
Client: Asia Pacific Aircraft Storage	
Version: RevA	Date: 07/08/2023
Drawn By: RL	Checked By: RS
Not to Scale	
Coord. Sys n/a	

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ATTACHMENT B – PHOTO LOG

PLATE 13 EVAPORATION POND 1



PLATE 14 EVAPORATION POND 3



PLATE 15 EVAPORATION POND 1



PLATE 16 EVAPORATION POND 2



JBS&G

Job No: 65513	
Client: Asia Pacific Aircraft Storage	
Version: RevA	Date: 07/08/2023
Drawn By: RL	Checked By: RS
Not to Scale	
Coord. Sys n/a	

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ATTACHMENT B – PHOTO LOG

PLATE 17 FORMER FUEL FARM



PLATE 18 FORMER FUEL FARM



PLATE 19 FORMER FUEL FARM



PLATE 20 FORMER FUEL FARM



JBS&G

Job No: 65513	
Client: Asia Pacific Aircraft Storage	
Version: RevA	Date: 07/08/2023
Drawn By: RL	Checked By: RS
Not to Scale	
Coord. Sys n/a	

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ATTACHMENT B – PHOTO LOG

PLATE 21 FORMER FUEL FARM



PLATE 22 FORMER FUEL FARM



PLATE 23 FORMER FUEL FARM



PLATE 24 FORMER FUEL FARM



JBS&G

Job No: 65513	
Client: Asia Pacific Aircraft Storage	
Version: RevA	Date: 07/08/2023
Drawn By: RL	Checked By: RS
Not to Scale	
Coord. Sys n/a	

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ATTACHMENT B – PHOTO LOG

PLATE 25 MASP LOCATION



PLATE 26 TOILETS / AREA OF UNDERGROUND SEWAGE TANK



PLATE 27 SHED 1 DRILL HEAD LAYDOWN



PLATE 28 UNDERGROUND SEWAGE TANK



JBS&G

Job No: 65513	
Client: Asia Pacific Aircraft Storage	
Version: RevA	Date: 07/08/2023
Drawn By: RL	Checked By: RS
Not to Scale	
Coord. Sys n/a	
383 Brewer Road, Hugh, NT	

ATTACHMENT B – PHOTO LOG

PLATE 29 SHED 1



PLATE 30 SHED 1



PLATE 31 SHED 2



PLATE 32 SHED 2



JBS&G

Job No: 65513

Client: Asia Pacific Aircraft Storage

Version: RevA	Date: 07/08/2023
Drawn By: RL	Checked By: RS

Not to Scale

Coord. Sys n/a

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ATTACHMENT B – PHOTO LOG

PLATE 33 SHED 2



PLATE 34 SHED 2



PLATE 35 TANK FARM



PLATE 36 TANK FARM



JBS&G

Job No: 65513	
Client: Asia Pacific Aircraft Storage	
Version: RevA	Date: 07/08/2023
Drawn By: RL	Checked By: RS
Not to Scale	
Coord. Sys n/a	

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ATTACHMENT B – PHOTO LOG

PLATE 37 TANK FARM



PLATE 38 TANK FARM



PLATE 39 TANK FARM



PLATE 40 TANK FARM



JBS&G

Job No: 65513	
Client: Asia Pacific Aircraft Storage	
Version: RevA	Date: 07/08/2023
Drawn By: RL	Checked By: RS
Not to Scale	
Coord. Sys n/a	
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ATTACHMENT B – PHOTO LOG

PLATE 41 TRANSFORMER



PLATE 42 TRANSFORMER



PLATE 43 TEST PIT 1



PLATE 44 TEST PIT 9



JBS&G

Job No: 65513

Client: Asia Pacific Aircraft Storage

Version: RevA | Date: 07/08/2023

Drawn By: RL | Checked By: RS

Not to Scale

Coord. Sys n/a

383 Brewer Road, Hugh, NT

ATTACHMENT B – PHOTO LOG

Appendix C Areas of Environmental Concern Register

Areas of Environmental Concern Register

Feature name	Feature Type	Location on site	Test Pit Targeting AEC	COPC	Description
Evaporation ponds	Evaporation ponds	Central east	TP9, TP10, TP11	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, Nutrients, PFAS	Evaporation ponds comprising four ponds in total: Evaporation pond 1: evaporation pond was fenced off with a sign reading "Caution crude oil land farm and evaporation pond no entry". The pond was noted to be lined with a blue plastic liner. A pipe entering the pond was observed from the west. Service locating confirmed another pipe running from the west to the east into the pond, and southwest to northeast towards the pond. Staining noted in base of pond. Evaporation pond 2: larger evaporation pond to the north, appeared to be unlined. Vegetation present in base of pond. Concrete slab noted at base of pond. Evaporation pond 3: located in the southeast corner of ponds area. Staining observed in the base of the pond. Vegetation present on the banks, no vegetation present on the base. A pipe was observed on the western wall- potentially connected to Evaporation pond 1. Evaporation pond 4: located to the east of the ponds area. No lining observed, base covered in vegetation - grass and trees.
Tank Farm	Fuel storage area	South	TP6, TP8, TP14	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	Tank farm was located within a bunded area. Bund was observed to be of red sand. Site contact advised the area was most likely lined. Consisted of 4 large circular holding tanks and two cylinder tanks. Above ground services were prevalent in the area. FRAG01 sample was collected from the ground within the bunded area near the tanks. Potential asbestos fragment. Minor staining and no odours were noted in the bunded area.
Former Tank Farm	Fuel storage area	Southwest	TP5	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	Area observed in 2004 aerial imagery consisting of 10 cylinder tanks and 5 round holding tanks within a fenced area - fences still present today. Signs on gate read LP Gas and DANGER do not enter. Multiple concrete pads observed. A stockpile area where previous holding tanks were in the centre covered in buffalo grass and shrubby vegetation. Concrete foundations were present to the south where further infrastructure was observed in the aerial. 2 drainage pits were observed, most likely associated with sumps, water in drainage pits was dark, could not reach the water to check for sheen. Lots of services- limited to completing one test pit in this area. Tried to clear 2 more but was not able to excavate due to high voltage electric and other underground services. Area thought to be related to the Mereenie oil diesel trial that had been undertaken historically at the site.
Shed 1	Infrastructure	Central west	TP3	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	Small above ground fuel tank stored on metal structures at the back of the shed with fire extinguishers located on wall of shed. An emergency wash station was located on the outside of the shed. A drill head and drill equipment laydown was located on unsealed ground to the west of the shed. The area was situated on bitumen surface.
Chemical Storage Shed	Infrastructure	Central west	TP3	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	Bunded chemical storage shed built of corrugated steel located to the north of Shed 1 with staining located on the ground within the shed. Chemicals observed in the shed included coolant, water based enamel, 2-stoke fuel can and further metal containers potentially storing fuel. Hoses were located on the wall. A cage to the east of the chem shed was observed on concrete comprising a rusty metal drum and a three plastic chem containers - contents unknown.
Shed 2	Infrastructure	Central south	N/A	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	Shed used for drill equipment storage comprising soil cores in wooden pallets and an IBC storing smaller plastic containers. Sign on door "hazardous substance/materials register". Complexity of services precluded advancement of test pit.
MASP	Infrastructure	Southwest	TP2	TRH, BTEXN, OCP, OPP, PCB, Heavy metals	MASP line entering site from the west underground to the central southern area of the site.
Former Rail loading Area	Infrastructure	South	TP12	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	Loading infrastructure located to the south of the fuel farm. Above ground services prevalent in area.
Former Truck Loading area	Infrastructure	South	TP12	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	Loading infrastructure located to the south of the fuel farm. Above ground services prevalent in area.
Former building	Infrastructure	Central west	TP4	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS, Asbestos	Foundations still present in area where a building was observed in 2004 aerial imagery. Fill comprising clay rocks observed to depths of 0.5 m.
Drill Rod Laydown	Laydown	Southwest	TP1	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	Drill rods stored on open ground. Drill rods all capped and no staining was noted to be present on ground in surrounding areas.
Drill Mast Laydown	Laydown	Central east	TP13	TRH, BTEXN, OCP, OPP, PCB, Heavy metals, PFAS	Drill mast laydown inclusive of a potential fuel storage pod that was noted to have contents in the bottom of the pod.
Sewerage Infrastructure	Sewage treatment	Southwest	TP7, TP12	Nutrients, PFAS	Underground sewerage tank located north of the toilets by the office. Sewerage tank noted to look like a pump out tank. Site contact advised the effluent would have been pumped out rather than irrigated at site. The grass and trees in the area of underground infrastructure were noted to be extra green.

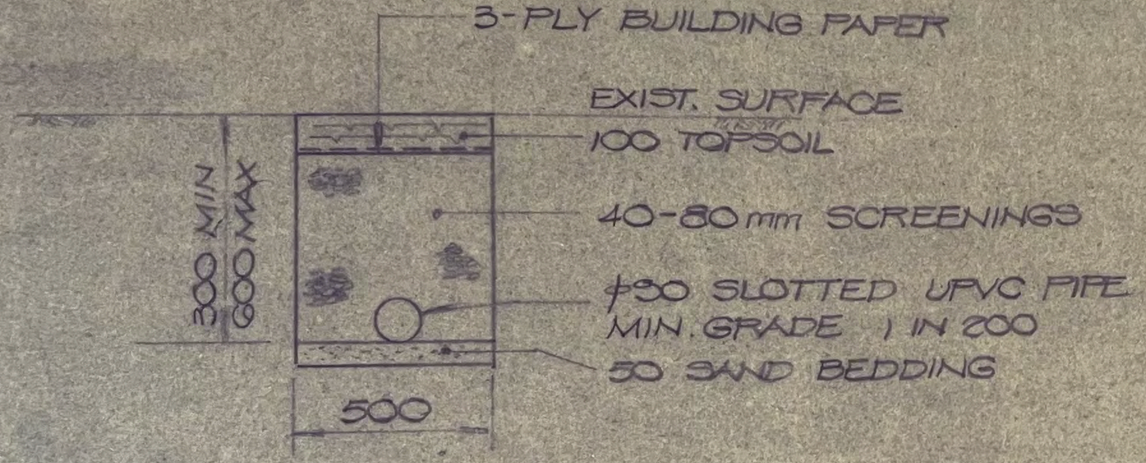
Appendix D Photographs of A1 Site Drawings

			DRAWN
			DESIGNED
			CHECKED
			APPROVED
D	24.10.84	Hunter	JOB
SCRIPTION	DATE	APPR'D	SCALE

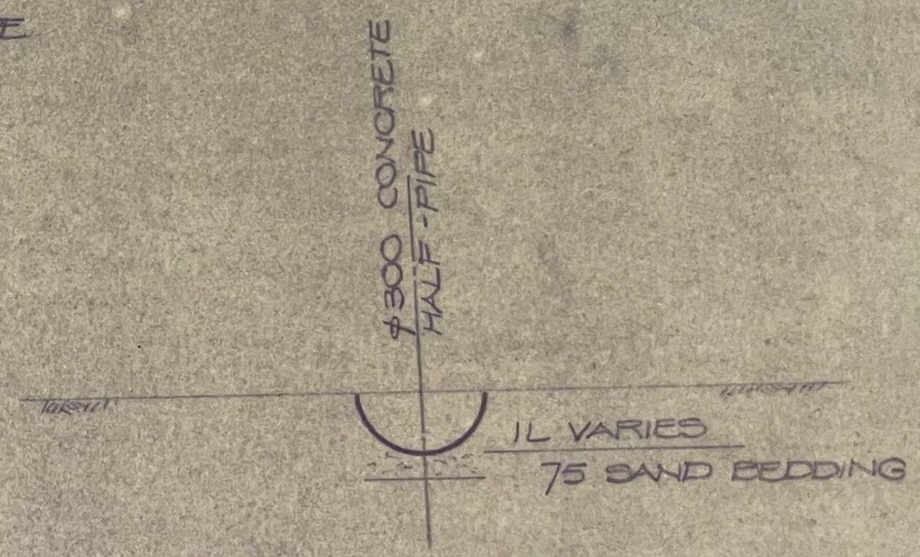
REVISIONS

9 10 11 12

9 10 11 12

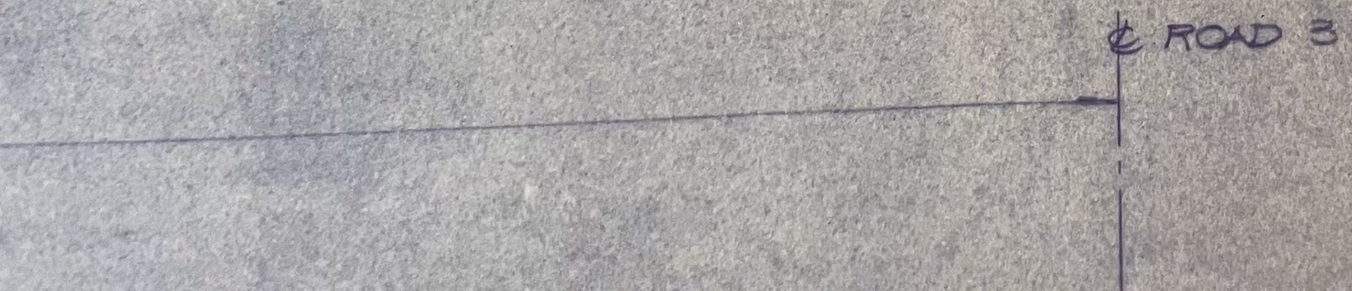


ABSORPTION TRENCH



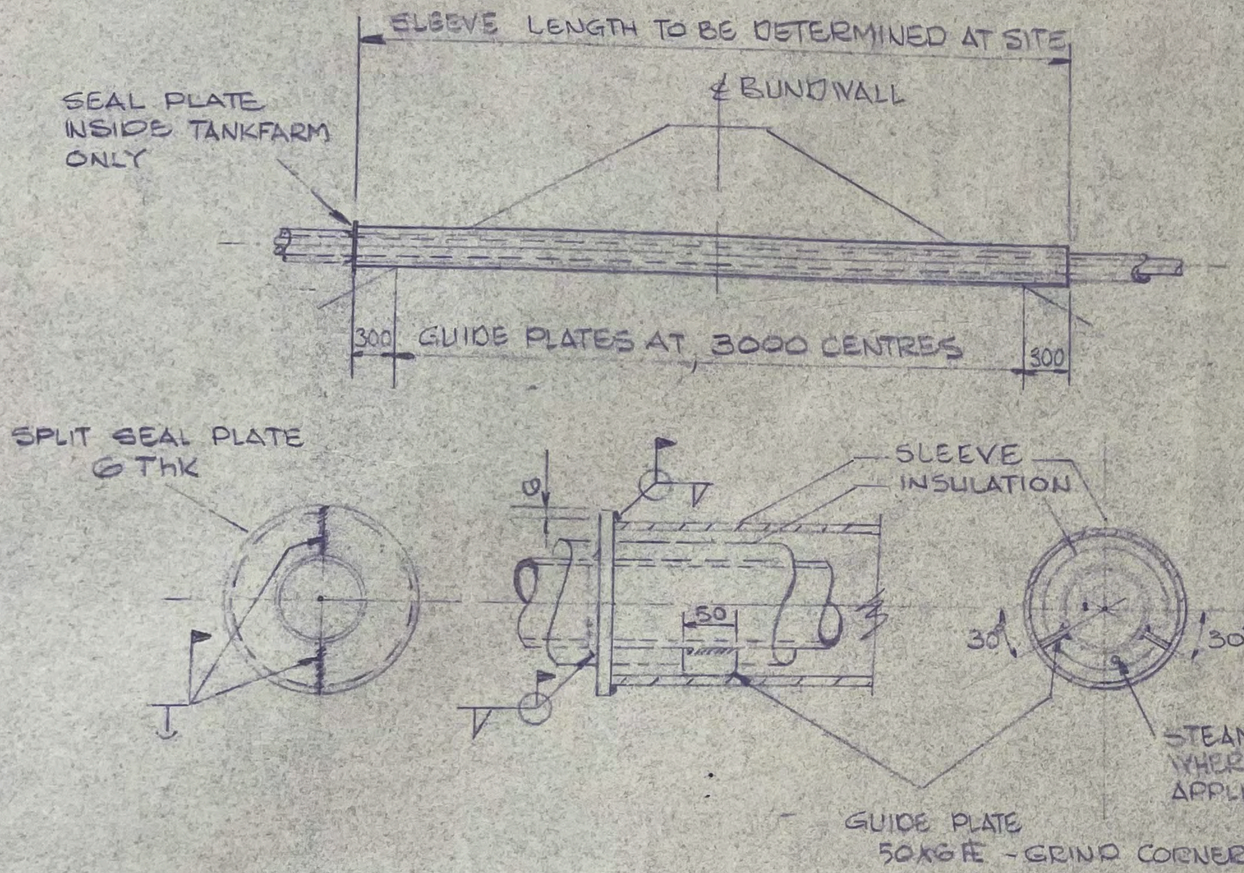
WASTE WATER SEWER
TYPICAL DETAILS

ETAILS



DETAIL (H)

SCALE 1:50 9-L-01



PIPE Ø	SLEEVE Ø
50	150
100	250
150	300

SLEEVES REQUIRED FOR THE FOLLOWING LINES:-
9-CL-002-A3-50
9-SL-004-A3-50
9-P-084-A1-150 (STEAM TRACED)
9-P-081-A1-50 (STEAM TRACED)
9-P-090-A1-100
9-P-025-A1-50

- ALL SLEEVES SHALL BE WRAPPED & COATED AS PER SPECIFICATION
- INSULATION & STEAM TRACERS (WHERE REQUIRED) TO BE INSTALLED BEFORE PIPE IS FITTED THROUGH SLEEVE

DETAILS OF SLEEVES FOR INSULATED PIPES THROUGH BUNDWALLS

N.T.S

FOR CONSTRUCTION

REV'N	DESCRIPTION	DATE	APPR'D
2	DIMENSIONS CHANGED	22-11-84	
1	368 WAS 343	23.10.84	
0	FOR CONSTRUCTION	15.10.84	

REVISIONS

DRAWN	M. BELL	3.8.84
DESIGNED	J SCHMIDT	3.8.84
CHECKED		15.10.84
APPROVED		15.10.84

JOB N° Q7357 8.11.84

SCALE AS NOTED

OILMIN N L
ALICE SPRINGS REFINERY
PIPING DETAILS
PRODUCT TANKFARM

CROOKS MICHELL PEACOCK STEWART
PTY LIMITED
ENGINEERS MANAGERS PLANNERS
324 QUEEN STREET, BRISBANE 4000
QUEENSLAND, AUSTRALIA. TEL: 229 5288

DRAWING No.	REV'N
9-L-09	2

8 9 10 11 12

F G H

EDGE OF SLEEPERS N37·950 m

10D-1 SLOPS TANK

9D-7 LIGHT FUEL OIL TANK

9D-6 DIESEL LOAD OUT TANK

9D-5 DIESEL LOAD OUT TANK

FUTURE

BOP RL10.810

BOP RL 10.710

9-SL-005-A8-40

10-DC-014-A1-50

10-DC-013-A1-50

10-DC-020-A1-50

9-A1-005-A8-50

9-P-090-A1-100

9-P-092-A1-150

9-P-099-A1-25

9-P-098-A1-40

9-P-062-A1-100

9-P-064-A1-150

9-P-080-A1-40

9-P-061-A1-100

9-P-065-A1-150

9-P-101-A1-25

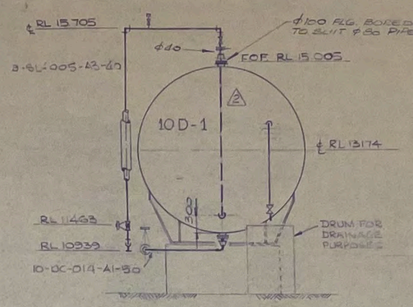
9-P-079-A1-40

50×20 RED. TEE (TYP)

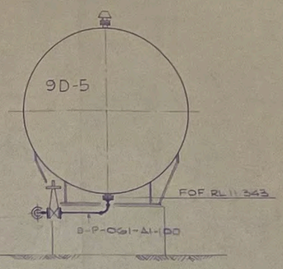
9 PSV 77

9 PSV 79

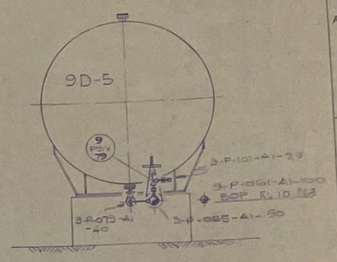
9 PSV 67



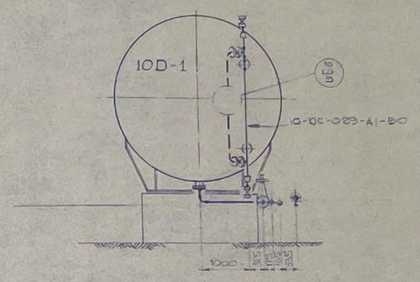
SECTION 1



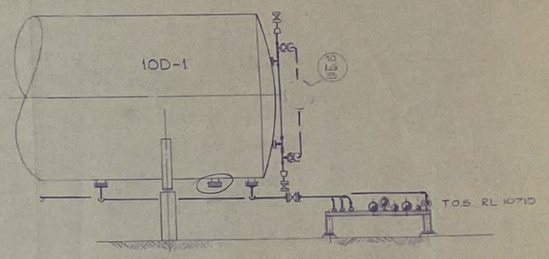
SECTION 2



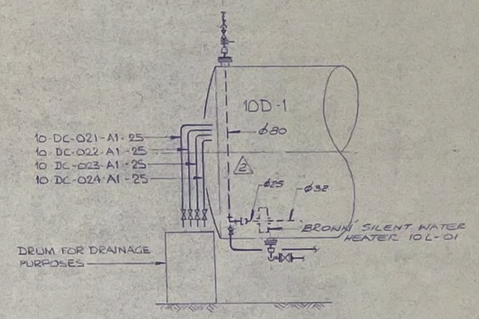
SECTION 3



SECTION 4



SECTION 5



SECTION 6

FOR CONSTRUCTION

REV'N	DESCRIPTION	DATE	APP'D
3	CO-ORDINATE & DIMENSION CHANGED	11·84	J.F
2	INTERNAL HEATER ADDED TO 10D-1	11·84	
1	DIM^n 308 WAS 370	11·84	
0	FOR CONSTRUCTION	10.10.84	

REVISIONS

DESIGNED	J.SCHMIDT	10.10.84
DRAWN	D.WHITELAW	AUG.84
CHECKED		
APPROVED		

JOB N° Q735

SCALE 1:50

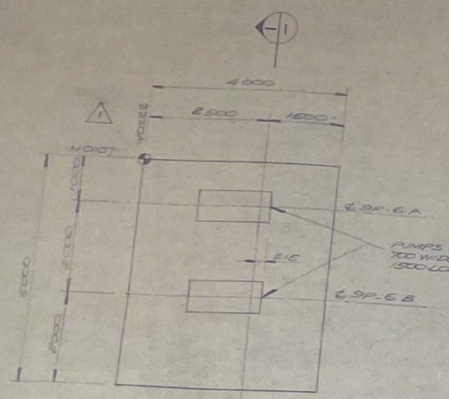
OILMIN NL
ALICE SPRINGS REFINERY
PIPING SECTIONS & DETAILS
PRODUCT TANKAGE

CROOKS MICHELL PEACOCK STEWART PTY. LIMITED
ENGINEERS MANAGERS PLANNERS
124 QUEEN STREET BRISBANE 4000 QUEENSLAND, AUSTRALIA. TEL. 229 1288

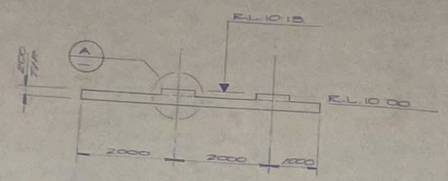
DRAWING No. 9-L-08 REVISION 3

REFERENCE DRAWINGS

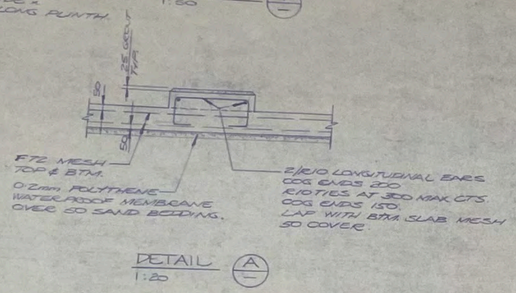
NOTES



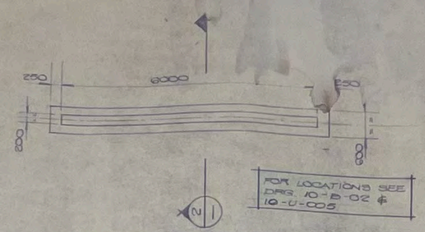
PLAN - PUMP SLAB DFQ-2
1:50
SEE DRG. 10-U-005 FOR LOCATION



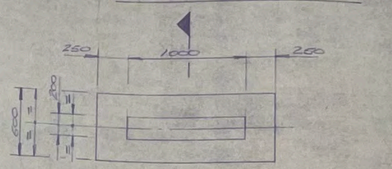
SECTION 1/— 1:50



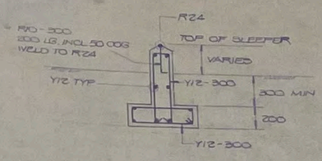
DETAIL A/— 1:20



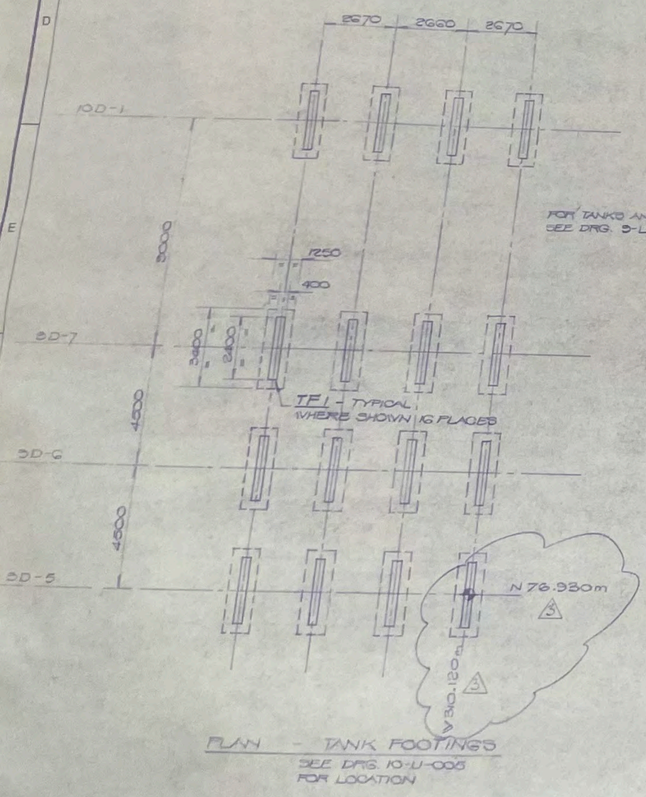
PLAN - SLEEPER TYPE A



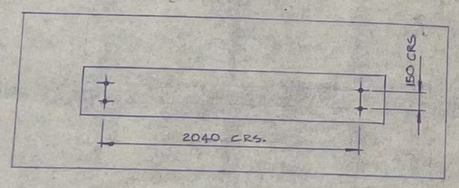
PLAN - SLEEPER TYPE B

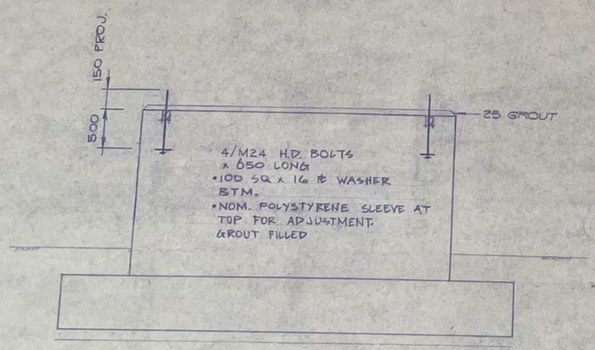


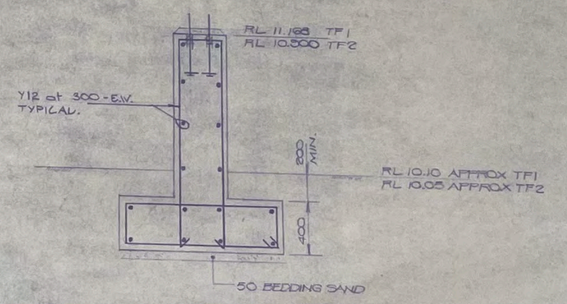
SECTION 2/—



PLAN - TANK FOOTINGS
SEE DRG. 10-U-005 FOR LOCATION







TF1 / TF2 SIM. AS NOTED (SEE DRG 3-Q-001)

FOR CONSTRUCTION

• FOR NOTES SEE DRG. 3-Q-003

REV'N	DESCRIPTION	DATE	APPR'D
3	CO-ORDINATES OF TANK FOOTINGS ALTERED	20.11.86	GD
2	SLEEPER TYPE 2 DETAIL ADDED	11.87	
1.	HOLD REMOVED WEST CO-ORD ALTER ON PUMP SLAB	19.10.84	

REVISIONS

DRAWN	J. POMROY 5.84
DESIGNED	S. ROTHWELL 5.84
CHECKED	30.10.84
APPROVED	10.84
JOB No	9735
SCALE	1:100 1:20 1:50

OILMIN N.L.
ALICE SPRINGS REFINERY
CRUDE TANKAGE
TANK FOOTINGS : PUMP SLAB DFQ-2
GENERAL ARRANGEMENT & DETAILS

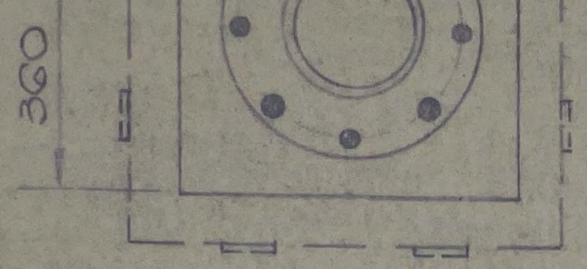
CROOKS MICHELL PEACOCK STEWART PTY LIMITED
ENGINEERS MANAGERS PLANNERS
324 QUEEN STREET BRISBANE 4000 QUEENSLAND, AUSTRALIA TEL 229 0288

DRAWING No. 3-Q-004 REV'N 3

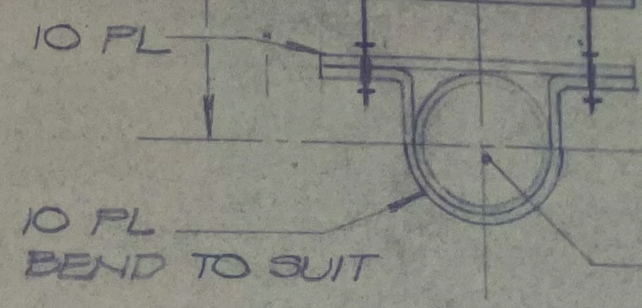
REFERENCE DRAWINGS

NOTES

1 2 3 4 5 6 7 8 9 10 11 12

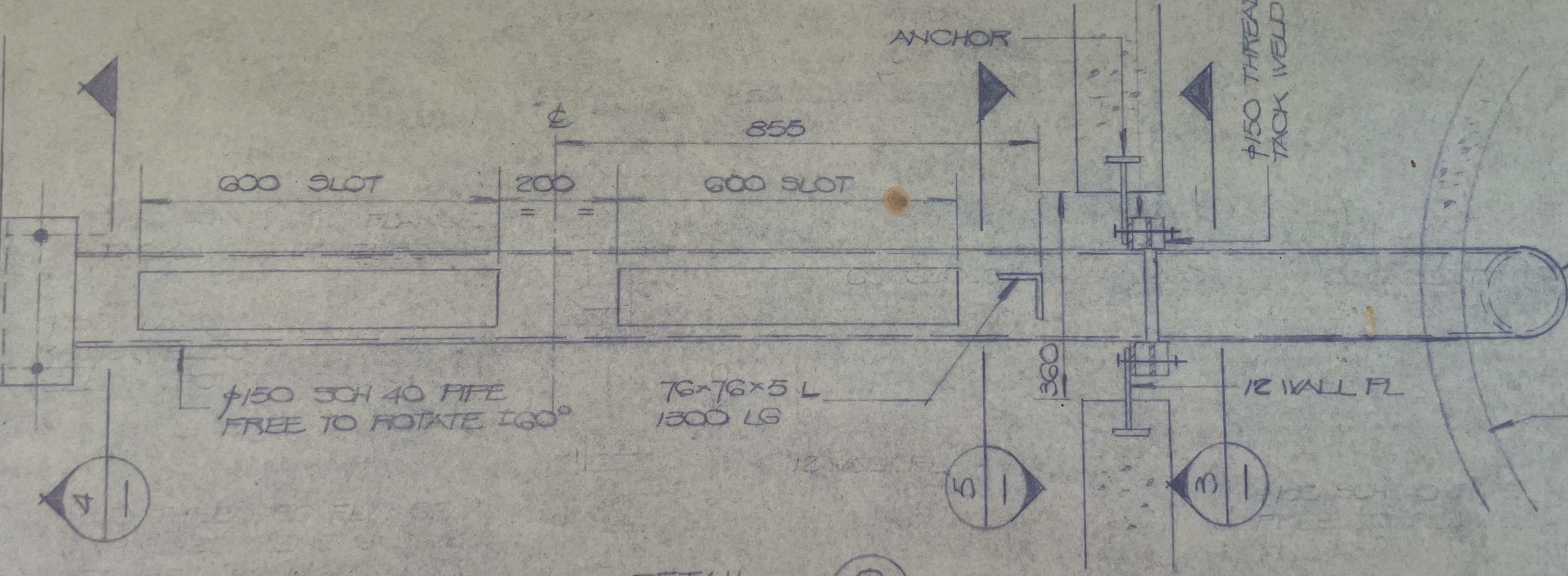


SECTION 3

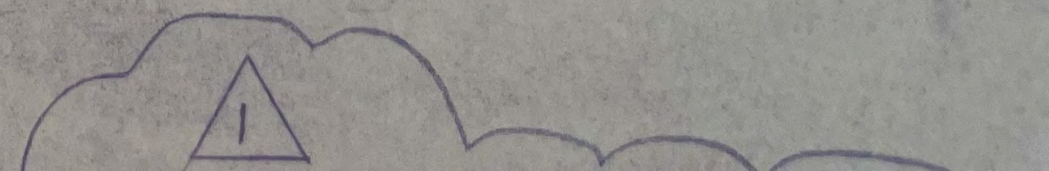


SECTION

ϕ150 THREADED FLANGE. 6 THK ASBESTOS GASKETS BETWEEN FLANGES AND WALL FL



DETAIL C



522066
~~Flight~~
Flight 31 TAA
Dep 1315
ETA Bne 838pm
Ticket at Airport
QF 27/2932

SECTION 3

SECTION 4

SECTION 5

DETAIL A

DETAIL B

TYPICAL DETAILS AT WALL INTERSECTIONS

DETAIL C

DETAIL D

SECTION 1

SECTION 2

SECTION 3

PLAN - 10U-1

FOR CONSTRUCTION

- CONCRETE F'c 25MPa/20 ; MAX WATER/CEMENT RATIO 0.5
- FOR CONCRETE NOTES SEE DRG 5-9-005

NOTES

REFERENCE DRAWINGS

REV'N	DESCRIPTION	DATE	APPR'D
1	PIPE I.L. SECTION 1 ALTERED NOTES ADDED TO PLAN 10U-1.	11.84	

REVISIONS

DRAWN	J POMROY	3.84
DESIGNED	J McINERNEY B ROTHWELL	3.84
CHECKED		8/11/84
APPROVED		Oct 84

JOB No 0735

SCALE 1:50 1:20 1:10

OILMIN NL
ALICE SPRINGS REFINERY
LOADOUT AREA
API SEPARATOR - 10U-1
DETAILS

CROOKS MICHELL PEACOCK STEWART PTY LIMITED
ENGINEERS MANAGERS PLANNERS
224 QUEEN STREET, BRISBANE 4000
QUEENSLAND, AUSTRALIA TEL 229 0266

DRAWING No. 5-9-005 REV'N 1

6 7 8 9 10 11 12

CONCRETE 20 MPa/20

11.01
110

CONC. KERB TYP. WHERE SHOWN.

2/M20 ANCHOR BOLTS REFER DRG. 9-S-004.

300

R10 TIES

4/Y16

200 um POLYTHENE.

50 BEDDING SAND.

COG 150 TYPICAL.

150

FILL MATERIAL TO BE COMPACTED TO 95% R.D.D. (REFER SPEC.)

OTHERWISE EXTEND FOOTING BASE TO NATURAL SURFACE, WITH MINIMUM SAFE BEARING CAPACITY OF 100 kPa.

1 TYP.

4000

FSL VARIES 10.78 - 10.63

10.78

CONC. 25 MPa/20

1 S/2 LAP 450 AS REQD

200 um POLYTHENE

50 SAND BEDDING

EDGE THICKENING TYP. ALL AROUND

300

2 SECTION 1

VIEW A

CIRCULAR CI GRATE REMOVEABLE

4/M20 ANCHOR BOLTS REFER 9-S-004.

Y12 HOOP LAP 300

R.L 10.912

F62 CENTRAL

12 SPANDEX.

Y16

Y12

Y16

R.L. 9.80

300

I.L. 8.85

2 SECTION 2

FSL RL 10.67

CONCRETE SURROUND

RL 10.90

200

100 TYP

ϕ200 LONG RADIUS ELBOW

ILB85

ϕ200 CARBON STEEL PIPE. REFER SPEC. A1

SECTION 3

EDGE OF PAVEMENT

1

500

R10 TIES

500

APPROVED

2 3 4 5 6 7

API SEPARATOR
10 U-1
SEE DRG 9-0-003

IL 9.35

IL 9.32

OVERFLOW PIPE TO
STORMWATER DRAIN
ϕ200 CARBON STEEL
REFER SPEC. A1

10-PC-004-A1-200

ϕ200 PIPE FROM
PUMP SUMP PP1
SEE DRG 9-9-005

PIPE TRACK

N0065

IL 8.85

10-PC-004-A1-200

STORMWATER
DRAIN

DC.006

10-PC-005-A1-200

16.00

OILY WATER SEWER
SEE TYP DETAILS

175 MIN. THK SLAB
F102 MESH 50 TOP COVER

10.62

10.78

10.73

10.78

FOR ELECTRICAL CONDUITS
SEE DRG. 10-IV-03

℄ ROAD 1

CULVERT B
SEE DRG 10-U-002

PP1

C.M.P.S
F.W.

CONCRETE 20 MPa/20

11.01
110

CONC. KERB
TYP. WHERE
SHOWN.

2/M20 ANCHOR BOLTS
REFER DRG. 9-S-004.

300
300

R10 TIES

4/Y16

200 um
POLYTHENE.

50 BEDDING
SAND.

COG 150
TYPICAL.

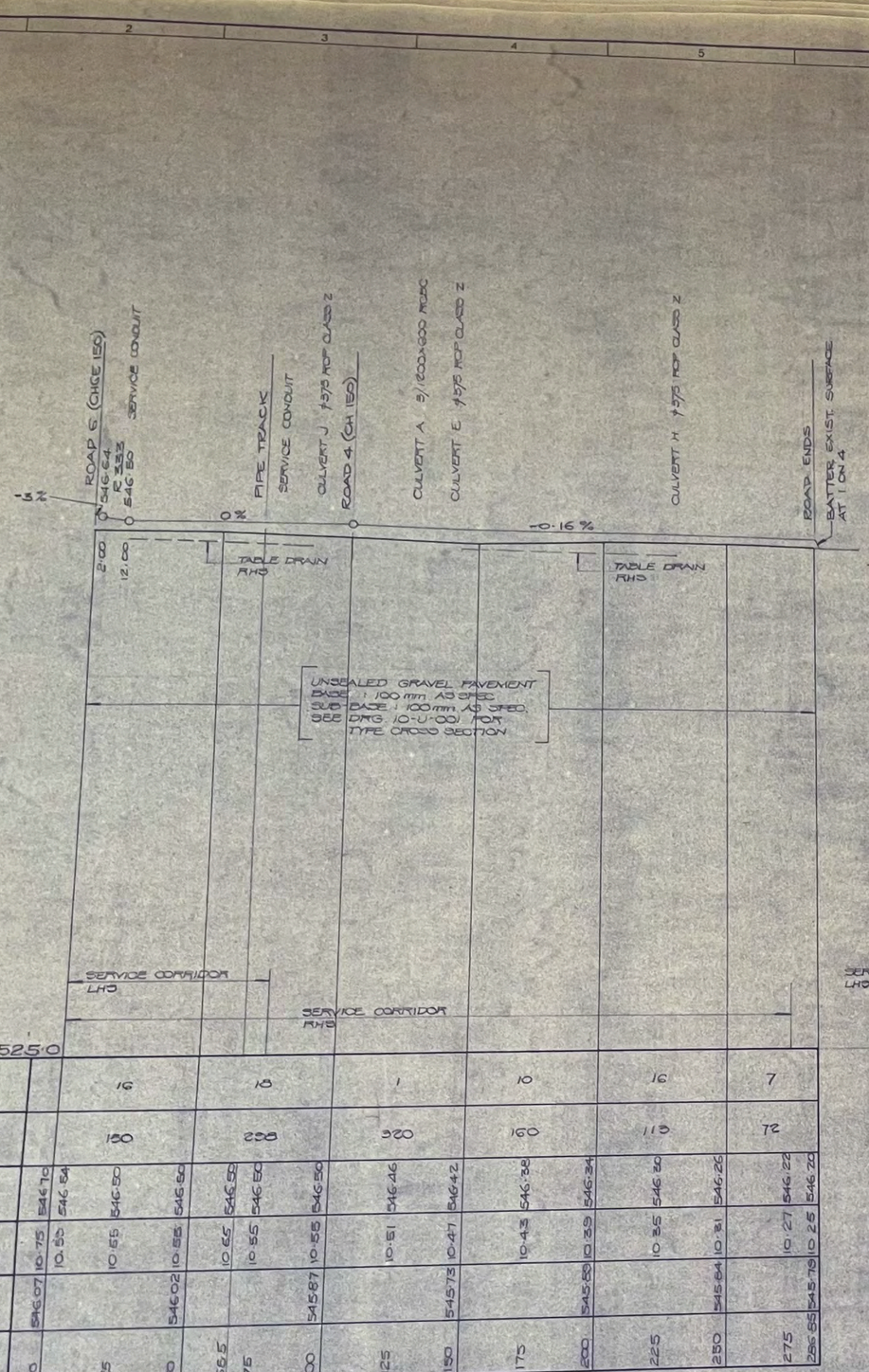
VIEW A

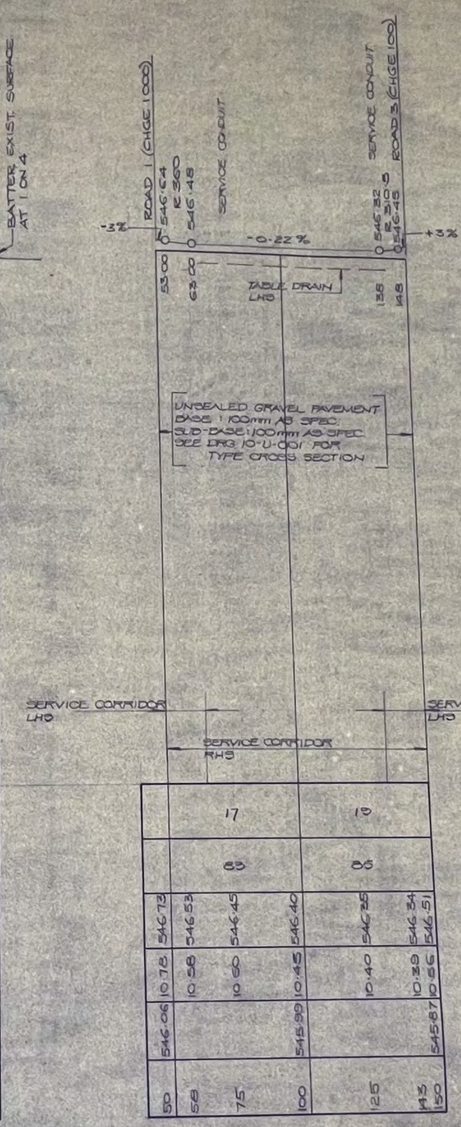
CIRCULAR CI. GRATE
REMOVEABLE

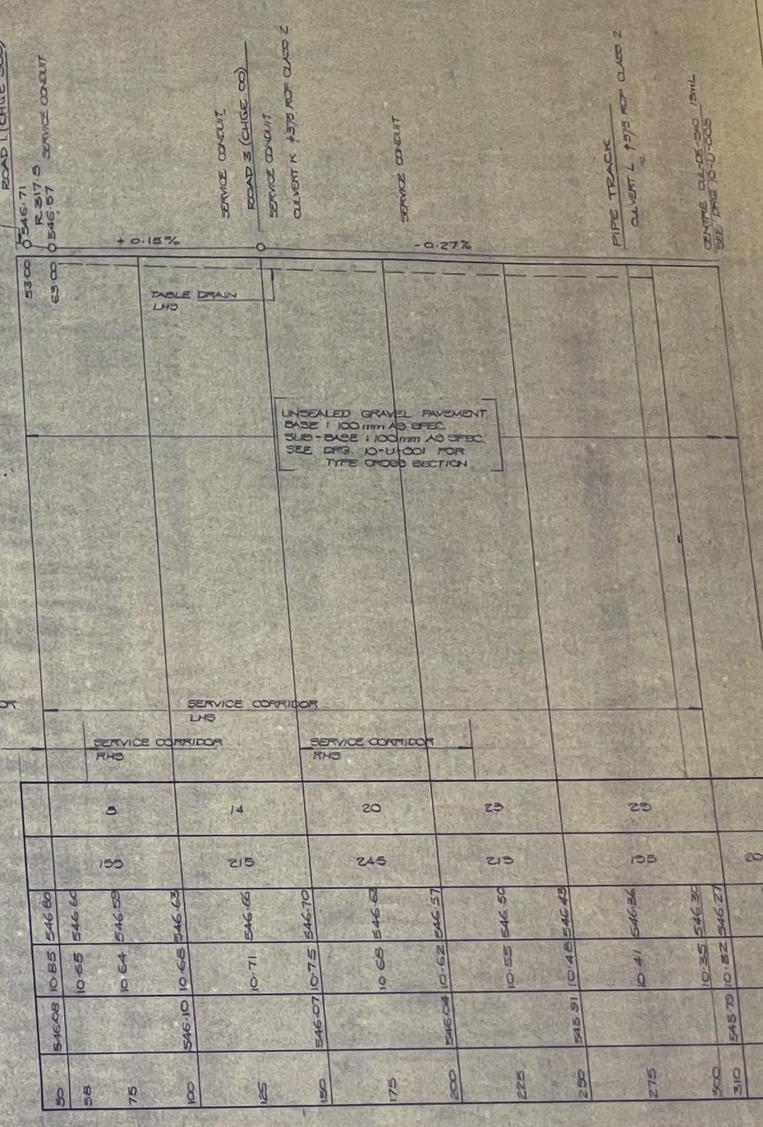
R.L. 10.912

F62
CENTRAL

Y16
Y12
Y16







ROAD 3.

ROAD 4.

ROAD 6.

- FOR CULVERT DETAILS SEE DRG. 10-U-002
- FOR TABLE DRAIN DETAILS SEE DRG. 10-U-002
- FOR SERVICE CORRIDORS SEE DRG. 10-U-001
- FOR SERVICE CONDUITS SEE DRG. 10-U-001
- FOR SITE DATUM SEE DRG. 10-U-010
- NATURAL SURFACE LEVELS INTERPOLATED FROM SURVEY DATA. REFER SPEC.
- SURVEY DATA SUPPLIED BY GEOSPECTRUM

NOTES

REFERENCE DRAWINGS

REV'N	DESCRIPTION	DATE	APPR'D
	REVISIONS		

DRAWN I. JOHNSTON
DESIGNED J. POMROY
CHECKED [signature] 17.10.84
APPROVED [signature] 10.84

JOB N° Q 735

SCALE H 1:1000; V 1:100

OILMIN N.L.
ALICE SPRINGS REFINE
ROADS 3,4 & 6
LONGITUDINAL SECTION

CROOKS MICHELL PEACOCK STEWART PTY LIMITED
ENGINEERS MANAGERS PLANNERS
324 QUEEN STREET, BRISBANE 4000
QUEENSLAND AUSTRALIA TEL. 229 1566

DRAWING
10-U-0

BREWER INDUSTRIAL SUBDIVISION
ACCESS ROAD

173° 19' 30"
730 m

263° 19' 30"
1370 m

83° 19' 30"
1370 m

353° 19' 30"
730 m

1200 HIGH STOCK FENCE TO PROPERTY BOUNDARY

FOR CATTLE GRID SEE DRG. 10-U-001

℄ ROAD 1. (N-0050·00)

PEGGED LINE - SOUTHERN PROPERTY BOUNDARY

STOCK FENCE

SECURITY FENCE

N.T. For. 1959
OCCUPATION LICENSE Nº 2015

2000 HIGH SECURITY FENCE WITH 3 BARBED EXTENSION TO PLANT AREA PERIMETER TO AS 1725 SEE DRG 10-U-002 REFER SPECIFICATION

℄ 4000 WIDE × 2000 HIGH SECURITY GATES WITH 3-BARBED EXTENSION TO AS 1725 REFER SPEC.

℄ ROAD 3. (N-0150·00)

℄ ROAD 4. (W-0370·00)

℄ ROAD 6. (W-0470·00)

℄ ROAD 2. FUTURE (W-0130·00)

OPEN DRAIN A REFER DRG 10-U-016

OPEN DRAIN B REFER DRG 10-U-016

OPEN DRAIN C REFER DRG 10-U-016

EXISTING OPEN DRAIN

WASTE WATER SEWER SEE DRG 10-U-005

EVAPORATION POND

FOR FENCE LINE SEE DRG 10-U-002

ORIGIN OF SITE GRID

N-0730·00

N-0000·00

W-0000·00

W-0470·00

W-0130·00

N0100

N0200

N0155

N0560

N0056.1

SITE DATUM (TO BE ESTABLISHED)
RL 10.000 (ASSUMED) =
RL 545.95 AHD APPROX.
(INTERPOLATED FROM STATIONS 20.000
527¢ 528. CONFIRM ON SITE.) REFER ANY DISCREPANCY TO SUPERINTENDENT

ALICE SPRINGS - TARCOOLA RAILWAY - EXISTING

| | | |

ROAD 6 (W-0470·00)

℄ ROAD 3 (N-0150·00)

ROAD 4
570·00)

2000 HIGH SECURITY FENCE WITH 3 BARBED EXTENSION TO PLANT AREA PERIMETER TO AS 1725
SEE DRG. 10-U-002
REFER SPECIFICATION

1V0035

353° 19' 30"

TP032.4

00 N0200

50 100 150 200 250 300 350 400 450

1
10-U-002

OPEN DRAIN B REFER DRG 10-U
353° 19' 30"

℄ ROAD 2 FUTURE (1V 0130)

1V0160

50m

EVAPORATION POND

50m

N0400

N0155

1V0133 00

WASTE WATER SEWER
SEE DRG 10-U-005

50 100 150 200 250

OPEN DRAIN C
REFER DRG 10-U-006
83° 19' 30"

353° 19' 30"
730 m

SECURITY FENCE STOOK FENCE

546.0

EXISTING OPEN DRAIN

ALICE SPRINGS - TARCOOLA RAILWAY - EXISTING

LEGEND :-

6 DENOTES SERVICE CONDUIT REFER TABLE DRG 10-U-001

DENOTES SET-OUT POINT FOR ORIGIN OF SITE GRID SEE DRG 10-U-010

ROAD & CUL-DE-SAC SEE DRG 10-U-003

FENCE STAR PICKETS, 3m CRS / STRAND WIRE

FOR DETAILS TO PROCESS AREA SEE DRG. 3-Q-001

CONTROL BLDG SEE DRG. 10-U-002

10-DC-082-X2-50 BEVERAGE RISING MAIN

PARKING AREA SEE DRG 10-U-004

FOR SLEEPER TYPE A SEE DRG 3-Q-004

TYPE B SLEEPERS (REFER DRG N° 3-Q-004)

WASTE WATER SEWER SEE DRG. 10-U-003

MAINTENANCE BLDG SEE DRG. 10-U-001

SERVICE CORRIDOR TYP WHERE SHOWN FOR LOCATIONS SEE DRG. 10-U-001

N.0137.00 FOR DETAILS OF EMERGENCY GENERATOR FOUNDATION REFER DRG. N° 3-Q-004.

FOR PIPE RACKS SEE DRGS 3-Q-002 TO 004

BOILER SHED SEE DRG 3-Q-002

FOR DETAILED TO UTILITIES AREA SEE DRG 3-Q-002

10U-1 API SEPARATOR SEE DRG 3-Q-003

SERVICE CONDUIT TYP WHERE SHOWN FOR LOCATIONS SEE DRG. 10-U-001

TAPER TO STD. SHOULDER OVER 10m, TYP WHERE SHOWN

ROAD

TYPE A SLEEPERS (REFER DRG. N° 3-Q-004)

TANKS AND FOUNDATIONS BY OTHERS TYP 4 PLACES

WASTE WATER SEWER SEE DRG. 10-U-003

FOR TANK FOOTINGS SEE DRG. 3-Q-004

TYPE B SLEEPERS (REFER DRG. N° 3-Q-004)

START HALF-PIPE

LOADOUT AREA SEE DRG. 3-Q-001

FOR RAIL SIDING SEE DRG. 10-U-014

SECURITY FENCE

STAKED BOUNDARY BY GEOSPECTRUM REFER DRG 10-U-002

OPEN DRAIN A REFER DRG 10-U-010

OPEN DRAIN B REFER DRG 10-U-010

OPEN DRAIN C REFER DRG 10-U-010

TO EVAPORATION POND SEE DRG 10-U-010

FOR CONSTRUCTION

- FOR DETAILS OF EXTERNAL DRAINAGE PROVISIONS REFER DRG 10-U-017

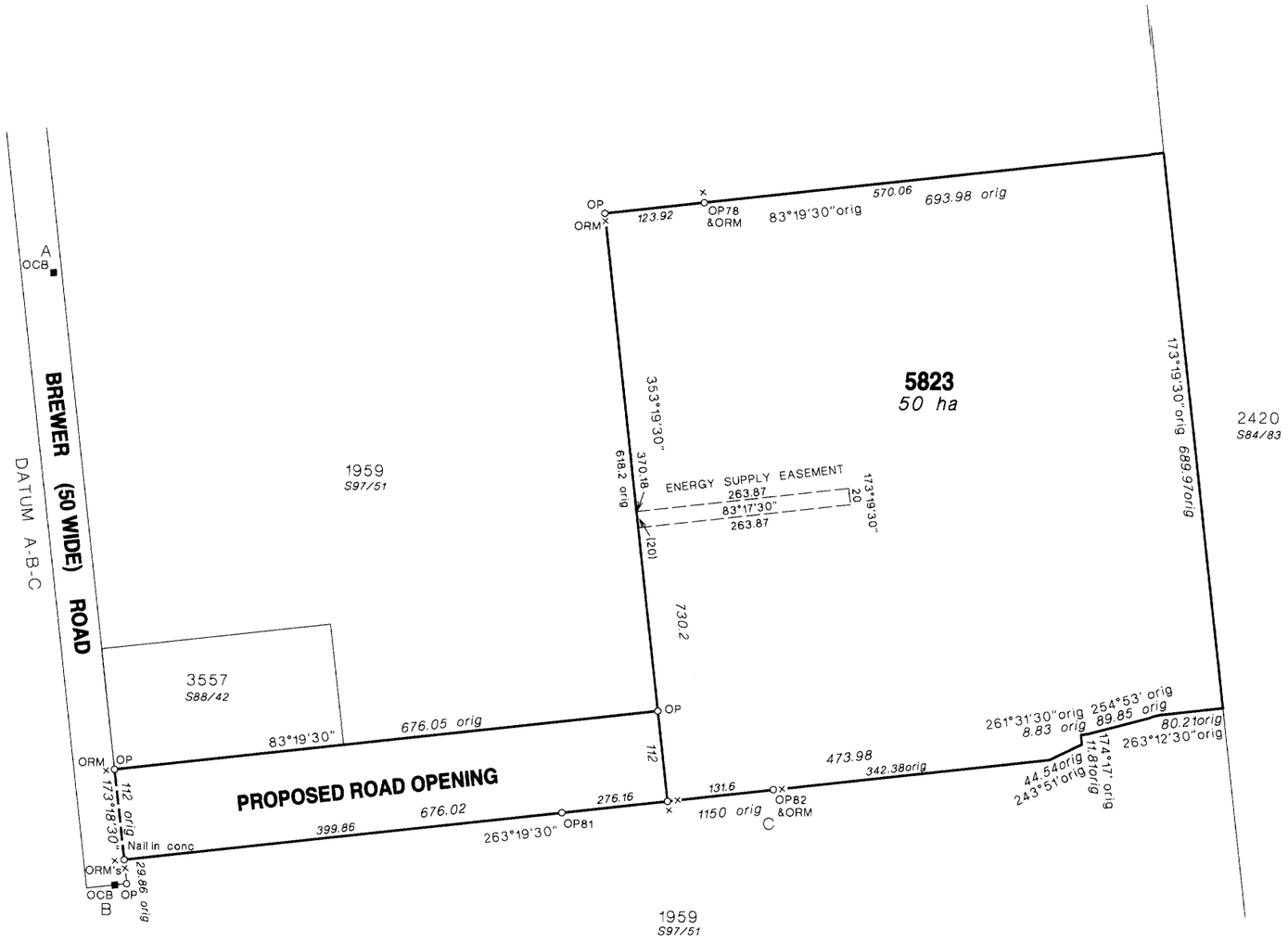
IT IS ESSENTIAL THAT EXTERNAL DRAINAGE WORKS BE CARRIED OUT

DRAWN	J. POWROY	3-84
DESIGNED	J. POWROY	3-84

OILMIN NL
ALICE SPRINGS REFINERY

Appendix E Land Titles

Supersedes part of S84/83A



Department of Lands, Planning and Environment.
Northern Territory

I, THOMAS IAN McKNIGHT, hereby certify that the survey represented on this plan was carried out by me or under my immediate supervision and was completed on 12/03/2000 and that this survey has been executed in accordance with the Licensed Surveyors Act and the Directions thereunder.

T.I. McKnight 27/04/00
Licensed Surveyor Date

SURVEY APPROVED

I.I. Gadsley 8/05/00
Delegate of the Surveyor-General Date

Notes: Reference marks are at 1 metre unless otherwise shown.
Energy Supply Easements is in favor of the Territory.
Proposed Road Opening 7.57ha

Field Book
S98/08

Drawn
TONY MARKHAM PTY 10/03/2000

Examined

Map Reference
ALICE SPRINGS 50 000
SHEET 2

True Mid Bearings

AZIMUTH
Assumed from S84/83
Observed at

LEGEND
Concrete Post
Concrete Block
Peg or Wooden Post
Reference Mark
Lockspit
Fence Post

NT PORTION 5823 & PROPOSED ROAD OPENING
SUBDVISION OF NT PORTION 3515
OWEN SPRINGS LOCALITY

SCALE 1: 4000
80 0 80 160 240
metres

S2000/002

WARNING - Damaged or creased plan will be rejected.

Appendix F Activities Associated with Point Sources of PFAS Contamination

Activities associated with PFAS contamination due to a risk of fire[30]

Clear Evidence Identified by JBS&G	Activity	Description	Area of Concern
×	Airports and aviation infrastructure	On-site firefighting	N/A
×	Aluminium production	On-site firefighting	N/A
×	Battery production	On-site firefighting	N/A
×	Bitumen production	Kerosene use and storage	N/A
×	Brewing, distilling and refining	Ethanol production	N/A
×	Coal works	Coal works	N/A
×	Dangerous goods production	Dangerous goods production	N/A
×	Explosives production	On-site firefighting	N/A
×	Food production	On-site firefighting associated with use of bulk oils and solvents	N/A
✓	Fuel exploration, assessment, production, transport and storage including petrochemicals, other fossil fuels and renewable liquid fuels	On-site firefighting, also used as a surfactant for gas well stimulation	Bulk storage and distribution of fuels
✓	General chemical storage	On-site firefighting - likely to use a range of hydrocarbons, polar solvents etc.	Chemical storage shed located on site
×	Generation of electrical power	On-site firefighting	N/A
×	Hardware retailers	Firefighting foam deluge systems	N/A
×	Mining	On-site firefighting	N/A
×	Paints, polishes, adhesives production	On-site firefighting- see also further information below	N/A
✓	Petroleum products other than fuel	On-site firefighting, potential use in processing	Historical storage of petroleum products other than fuel – crude oil.
×	Underground infrastructure including car parks and tunnels	Firefighting foam deluge systems	N/A

[30] PFAS NEMP 2.0 (Table B1)

Activities associated with PFAS contamination more broadly[31]

Clear Evidence Identified by JBS&G	Activity	Description	Area of Concern
×	Agriculture	Potentially used as an adjuvant or active ingredient in fertilisers and pesticides, firefighting foam used in the poultry industry to destroy infected flocks	N/A
×	Automotive industry including retailing, detailing and car wash facilities	Surface treatments including polishing, cleaning, stain and water protection products, lubricants, hydraulic fluids, tubing, oil pan, head gaskets, sealant, wire and cabling, fire retardant and metal plating applications	N/A
×	Aviation, aerospace and defence	As for automotive industry plus aviation-specific products, articles and activities, such as aviation hydraulic fluid	N/A
×	Battery use and disposal	Used in batteries, particularly for high-end use such as lithium-style batteries	N/A
×	Boating and marine supply industry	As for automotive industry plus marine-specific products, articles and activities, such as awnings, painting, waterproofing and sealant applications, and shipboard firefighting	N/A
×	Chrome/metal plating industry	High concentration PFAS mist suppressants used to reduce chromium exposure to workers	N/A
×	Commercial laundries and dry cleaners	Effluent from cleaning of fabrics containing or treated with PFAS	N/A
×	Construction industry	Tile coatings, stone coatings, paints, varnishes, sealants, other architectural coatings for films, facades and infrastructure, rigid foams, silicone rubber, thread sealant tapes and pastes and PPE	N/A
×	Electricity, telecommunication and information technologies	Wireless devices, hard drives, fibre optic cables, dirt-repellent coatings on glass surfaces such as smartphone screens, flame-resistant devices, fittings, coatings and wrappings, semiconductor etching, firefighting at electricity	N/A

[31] PFAS NEMP 2.0 Table B2

Clear Evidence Identified by JBS&G	Activity	Description	Area of Concern
		generation sites and in electricity distribution networks with oil-containing equipment such as transformers, reactors, large regulators, circuit breakers, pipe-type cable systems and bulk storage tanks, reported to be in high-end lithium batteries	
×	Firefighting and fire protection sales and services	Storage and disposal of large quantities of firefighting foam associated with formulation, transport, sale and servicing of firefighting and fire protection products and services including refurbishment of deluge systems and fire extinguishers at fire protection retailers, rural supply stores, council depots and outstation service centres	N/A
×	Manufacturing of building products	As for construction industry	N/A
×	Manufacturing of chemicals, fertilisers, and pesticides	Equipment and fittings including pipes, tanks and valves, use as an intermediate in the production of other substances, potentially used as an adjuvant in fertilisers and pesticides	N/A
×	Manufacturing of food, food packaging and food preparation products	Baking paper, aluminium foil, fast food wrappers, non-stick equipment including food processing facility surfaces, pipes, tanks and valves, and firefighting especially at facilities where bulk oil is used	N/A
×	Manufacturing of healthcare products	Surface protection for medical garments, small quantities in X-ray film, charged-coupled devices (CCDs), artificial blood, flexible tubing, needle coatings, denture cleaners, potentially in contact lenses	N/A
×	Manufacturing of household appliances	Cosmetics, shampoo, shaving cream, dental floss, sunscreen, nail polish, talc, lotions	N/A
×	Manufacturing of personal care products	Cosmetics, shampoo, shaving cream, dental floss, sunscreen, nail polish, talc, lotions	N/A

Clear Evidence Identified by JBS&G	Activity	Description	Area of Concern
×	Manufacturing of textiles, leather, upholstery, carpets, clothing, shoes, outdoor gear	Widespread use of fluorinated compounds to provide stain, water and fire protection	N/A
×	Manufacturing of safety gear	Widespread use of fluorinated compounds to provide stain, water and fire protection for Personal Protective Equipment (PPE) and bulletproof clothing	N/A
×	Manufacturing of paints, polishes, coatings and adhesives	Historically used in sealants, adhesive products, coatings, paint and varnishes	N/A
×	Manufacturing of paper or pulp	Used in internal and surface sizing agents for paper manufacturing	N/A
×	Printing, packaging and merchandising	Used to apply grease, oil and water resistance to packaging product, also used in inks particularly for inkjet and photo printing	N/A
×	Recovery of waste oil	Collection and processing of PFAS-containing waste oil	N/A
×	Soap and detergents production	Household goods such as shampoos and cosmetics, commercial and industrial cleaning products such as floor polishes and vehicle cleaning agents	N/A
×	Solar energy	Used in photovoltaic solar cells to repel dirt and in lithium batteries	N/A
×	Sporting goods manufacturers and suppliers and sports facilities	Ski wax, high performance textiles including outdoor clothing, water-resistant treatments	N/A
×	Waste processing and disposal	PFAS-containing solid and liquid waste and leachate in landfill, high temperature incineration, chemical and other treatment regimes	N/A
×	Waste storage – hazardous, restricted solid, liquid, clinical, asbestos waste	On- and off-site storage and/or collection of waste PFAS-containing products	N/A
×	Wastewater treatment	Inputs from domestic sewage and commercial and industrial wastewater and outputs applied to land or discharged to the environment	N/A

Appendix G Test Pit Logs

TEST PIT TP1

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE		0.2		SM	Silty SAND, red, fine to medium grained sand, compact, few gravels on surface	D	TP1_0.0-0.1	0.1	
		0.4		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	M			
		0.6					TP1_0.5-0.6	0.1	
		0.8							
		1							
		1.2							
		1.4		SM	As above, increase in compaction and reduction in moisture	D	TP1_1.4-1.5	0	
		1.6							Refusal in excavator
		1.8			Termination Depth at: 1.70 m.				
		2							
		2.2							
		2.4							
		2.6							
		2.8							

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TEST PIT TP2

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE		0.2		SM	Silty SAND, red, fine to medium grained sand, soft	D	TP2_0.0-0.1	0	
		0.4		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	M			
		0.6					TP2_0.5-0.6	0.1	
		0.8							
		1							
		1.2		SM	As above, increase in compaction and reduction in moisture	D			
		1.4					TP2_1.4-1.5	0.1	
		1.6							Refusal in excavator
		1.8			Termination Depth at: 1.60 m.				
		2							
		2.2							
		2.4							
		2.6							
		2.8							

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TEST PIT TP3

PROJECT NUMBER 65513	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME Brewer Road PSI	**DRILLING DATE** 26-Jul-23	**NORTHING** N/A
CLIENT APAS	**DRILL RIG** Excavator	**COORD SYS** GDA94_MGA_zone_53
ADDRESS 383 Brewer Road, Hugh, NT	**DRILLING METHOD** Bucket Excavation	**COORD SOURCE**
	DIMENSIONS 2 x 1 m	**LOGGED BY** RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE		0.2		SM	Silty SAND, red, fine to medium grained sand, soft, inclusion of fine roots	D	TP3_0.0-0.1	0.1	
		0.4		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	M			
		0.6					TP3_0.5-0.6	0.2	
		0.8							
		1							
		1.2							
		1.4		SM	As above, increase in compaction and reduction in moisture	D	TP3_1.4-1.5	0.1	
		1.6							
		1.8							Refusal in excavator
		2			Termination Depth at: 1.90 m.				
		2.2							
		2.4							
		2.6							
		2.8							

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TEST PIT TP4

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE		0.2		Fill	Gravelly SAND, brown-grey, fine to medium grained sand, small to large gravels, loose	D	TP4_0.0-0.1	0.1	
		0.4		SM	Silty SAND, red, fine grained sand, loose, inclusion of rocks for foundation layer	M	TP4_0.2-0.3	0	
		0.6		SM	Silty SAND, red, fine to medium grained sand, hard, soft, homogenous, increase in compaction and reduction in moisture	SM	TP4_0.5-0.6	0.1	
		0.8							
		1							
		1.2							
		1.4					TP4_1.4-1.5	0	
		1.6							Refusal in excavator
		1.8			Termination Depth at: 1.70 m.				
		2							
		2.2							
		2.4							
		2.6							
		2.8							

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TEST PIT TP5

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE				SM	Silty SAND, red, fine to medium grained sand, inclusion of roots	D	TP5_0.0-0.1	0	
		0.2		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	SM			
		0.4							
							TP5_0.5-0.6	0.2	
		0.6							
		0.8							
		1					TP5_1.0-1.1	0.1	
		1.2							
		1.4							
		1.6							
		1.8							
		2					TP5_2.0-2.1	0	
		2.2			Increase in compaction and reduction in moisture				Refusal in excavator
		2.4			Termination Depth at: 2.40 m.				
		2.6							
		2.8							

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TEST PIT TP6

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE		0.2		SM	Silty SAND, red, fine to medium grained sand, inclusion of small roots	D	TP6_0.0-0.1	0	
		0.4		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	SM	TP6_0.5-0.6	0.1	
		0.6							
		0.8			Increase in compaction and reduction in moisture				Refusal in excavator
					Termination Depth at: 0.80 m.				
		1							
		1.2							
		1.4							
		1.6							
		1.8							
		2							
		2.2							
		2.4							
		2.6							
		2.8							

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TEST PIT TP7

PROJECT NUMBER 65513	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME Brewer Road PSI	**DRILLING DATE** 26-Jul-23	**NORTHING** N/A
CLIENT APAS	**DRILL RIG** Excavator	**COORD SYS** GDA94_MGA_zone_53
ADDRESS 383 Brewer Road, Hugh, NT	**DRILLING METHOD** Bucket Excavation	**COORD SOURCE**
	DIMENSIONS 2 x 1 m	**LOGGED BY** RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE		0.2		SM	Silty SAND, red, fine to medium grained sand, inclusion of roots	D	TP7_0.0-0.1	0	
		0.4		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	SM			
		0.6					TP7_0.5-0.6	0.2	
		0.8							
		1							
		1.2							
		1.4							
		1.6					TP7_1.5-1.6	0.1	
		1.8			Increase in compaction and reduction in moisture				Refusal in excavator
		2			Termination Depth at: 1.80 m.				
		2.2							
		2.4							
		2.6							
		2.8							

TEST PIT TP8

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE		0.2		SM	Silty SAND, red, fine to medium grained sand, inclusion of small roots	D	TP8_0.0-0.1	0	
		0.4		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	SM			
		0.6							
		0.8							
		1					TP8_1.0-1.1	0.1	
		1.2							
		1.4							
		1.6			Increase in compaction and reduction in moisture				Refusal in excavator
		1.8			Termination Depth at: 1.80 m.				
		2							
		2.2							
		2.4							
		2.6							
		2.8							

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TEST PIT TP9

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE		0.2		SM	Silty SAND, red, fine to medium grained sand, loose, inclusion of roots	D	TP9_0.0-0.1	0.1	
		0.4		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	SM	TP9_0.4-0.5	0	
		0.6							
		0.8							
		1					TP_1.0-1.1	0	
		1.2			Increase in compaction and reduction in moisture				Refusal in excavator
		1.4			Termination Depth at: 1.40 m.				
		1.6							
		1.8							
		2							
		2.2							
		2.4							
		2.6							
		2.8							

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TEST PIT TP10

PROJECT NUMBER 65513	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME Brewer Road PSI	**DRILLING DATE** 26-Jul-23	**NORTHING** N/A
CLIENT APAS	**DRILL RIG** Excavator	**COORD SYS** GDA94_MGA_zone_53
ADDRESS 383 Brewer Road, Hugh, NT	**DRILLING METHOD** Bucket Excavation	**COORD SOURCE**
	DIMENSIONS 2 x 1 m	**LOGGED BY** RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE				SM	Silty SAND, red, fine to medium grained sand, loose, inclusion of roots	D	TP10_0.0-0.1	0.1	
		0.2		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	SM			
		0.4					TP10_0.4-0.5	0.2	
		0.6							
		0.8		SM	Silty SAND, tending sandstone at end of hole, red, fine to medium grained sand, hard, soft, homogenous, increase in compaction and reduction in moisture	D			
		1					TP10_1.0-1.1	0.2	
		1.2							
		1.4							Refusal in excavator
		1.6			Termination Depth at: 1.50 m.				
		1.8							
		2							
		2.2							
		2.4							
		2.6							
		2.8							

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TEST PIT TP11

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE		0.2		SM	Silty SAND, red, fine to medium grained sand, loose, inclusion of roots	D	TP11_0.0-0.1	0.1	
				SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	SM			
		0.4					TP11_0.4-0.5	0.2	QC102 & QC103
		0.6							
		0.8		SM	Silty SAND, tending sandstone red at end of hole, fine to medium grained sand, hard, soft, homogenous, increase in compaction and reduction in moisture	D			
		1					TP11_1.0-1.1	0.1	
		1.2							Refusal in excavator
					Termination Depth at: 1.20 m.				
		1.4							
		1.6							
		1.8							
		2							
		2.2							
		2.4							
		2.6							
		2.8							

Disclaimer This log is intended for environmental not geotechnical purposes.
produced by ESlog.ESdat.net on 09 Aug 2023

TEST PIT TP12

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE		0.2		SM	Silty SAND, red, fine to medium grained sand, inclusion of small roots	D	TP12_0.0-0.1	0	
		0.4		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	SM			
		0.6					TP12_0.5-0.6	0.1	
		0.8							
		1					TP12_1.0-1.1	0	
		1.2			Increase in compaction and reduction in moisture				
		1.4							Refusal in excavator
		1.6			Termination Depth at: 1.40 m.				
		1.8							
		2							
		2.2							
		2.4							
		2.6							
		2.8							

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TEST PIT TP13

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE				SM	Silty SAND, red, fine to medium grained sand, loose	D	TP13_0.0-0.1	0.1	
		0.2		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	SM			
		0.4							
		0.6							
		0.8							
		1					TP13_1.0-1.1	0.1	
		1.2							
		1.4							
		1.6			Increase in compaction and reduction in moisture				Refusal in excavator
		1.8			Termination Depth at: 1.80 m.				
		2							
		2.2							
		2.4							
		2.6							
		2.8							

Disclaimer This log is intended for environmental not geotechnical purposes.
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TEST PIT TP14

PROJECT NUMBER 65513
PROJECT NAME Brewer Road PSI
CLIENT APAS
ADDRESS 383 Brewer Road, Hugh, NT

DRILLING COMPANY
DRILLING DATE 26-Jul-23
DRILL RIG Excavator
DRILLING METHOD Bucket Excavation
DIMENSIONS 2 x 1 m

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_53
COORD SOURCE
LOGGED BY RS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
BE				SM	Silty SAND, red, fine to medium grained sand, loose	D	TP14_0.0-0.1	0	
		0.2		SM	Silty SAND, red, fine to medium grained sand, loose, soft, homogenous	SM			
		0.4					TP14_0.5-0.6	0.1	
		0.6							
		0.8							
		1					TP14_1.0-1.1	0.1	
		1.2			Increase in compaction and reduction in moisture				Refusal in excavator
		1.4			Termination Depth at: 1.40 m.				
		1.6							
		1.8							
		2							
		2.2							
		2.4							
		2.6							
		2.8							

Disclaimer This log is intended for environmental not geotechnical purposes.
produced by ESlog.ESdat.net on 09 Aug 2023

Appendix H Work Instruction for Evaporation Pond Sampling

65513 Work Instruction: Evaporation Ponds Soil Sampling, Brewer Road, Hugh

The following work instruction is intended for APAS and/or Central to undertake soil sampling of the evaporation ponds (see **Figure 2**) at the Brewer Road site.

JBS&G will provide the following to facilitate the collection of samples:

- Laboratory provided sampling vessels:
  - Glass jar and white plastic tub – both to be filled at each sampling location;
- Disposable nitrile gloves – new gloves to be used for each location (prevention of cross contamination);
- Eskies for transport to laboratory including esky labels:
  - Consignment notes for courier will be required – we can provide these as required;
- Chain of custody (COC) form – analytical suite pre-filled, sample IDs and sampling date will need to be added.

Any assistance required of issues while onsite, please call Kylie on 0405 382 958.

Soil Sampling Methodology

The below methodology should be adhered to when collecting samples**.**

Table 1. Soil Sampling Methodology

Task	Detail
Service Clearance	• No service clearance
Soil Sampling	• The soil encountered will be photographed to allow JBS&G to describe the lithology in accordance with the Unified Soil Classification System (USCS); o Where distinct layers are observed, soil samples from each layer should be discretely sampled and *no mixing* of layers should be undertaken; • New, clean, disposable gloves should be used for the collection of each sample; • Pre-fill esky's with ice (*no ice bricks to be used);* • Soil samples are to be collected directly into clean acid washed sample jars provided by the laboratory and immediately placed on ice for storage and transport: o Samples are to be collected by a shovel or trowel taking care to not intersect or interfere any artificial or clay lining at the base of the pond: – Gently clear the surface of the sampling location first with shovel/trowel; – Advance shovel/trowel into the ground to a maximum depth of 20 cm and extract a clod; – Place beside sampling location, photograph and immediately place in sample jars; – Fill *both a glass jar AND a plastic tub* for each location. *Ensure* the sample vessel is filled entirely with no space remaining; – Securely fasten lid; – Label sample vessels accordingly (see below); – Place immediately into an ice-filled esky; o *Two surface soil samples* (within upper 20 cm) are to be collected from each pond:

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Task	Detail
	– Chose two to three locations in each pond that provide a spread across the pond surface and/or target interesting pond features (staining, different soil type, etc): Suggested locations are provided in **Figure 2**, below; – Any number of samples can be collected, 10 will be analysed; • Sample labels should be according to the following convention: o EVAP_X_depth: for example, a sample from the surface 10cm from evaporation pond 1 should have the following label: – EVAP_1_0-0.1 • Populate provided COC with sample names, date of sampling and number and type of vessels (i.e.,1 jar, 1 tub): o *Do not* populate analytical suite sample requirement – JBS&G will finalise COC based on observations reported by the sampler re contamination; o Share a copy immediately with JBS&G; • Facilitate transport of samples to Eurofins in Brisbane: o Check ice is still frozen and drain any ice melt – if necessary, add additional ice and seal esky; – If transporting via courier, complete a TOLL consignment note for the delivery, stick the blue label provided by the Laboratory with the receiver's address (ALS Brisbane: 2 Byth Street, Stafford, QLD, 4053) on the esky(s) and drop esky(s) to the Toll Depot in Alice Springs located at: 21 Power Street, Braitling, NT, 0870. – Otherwise, appropriately label and check in as personal baggage on flight to Brisbane.

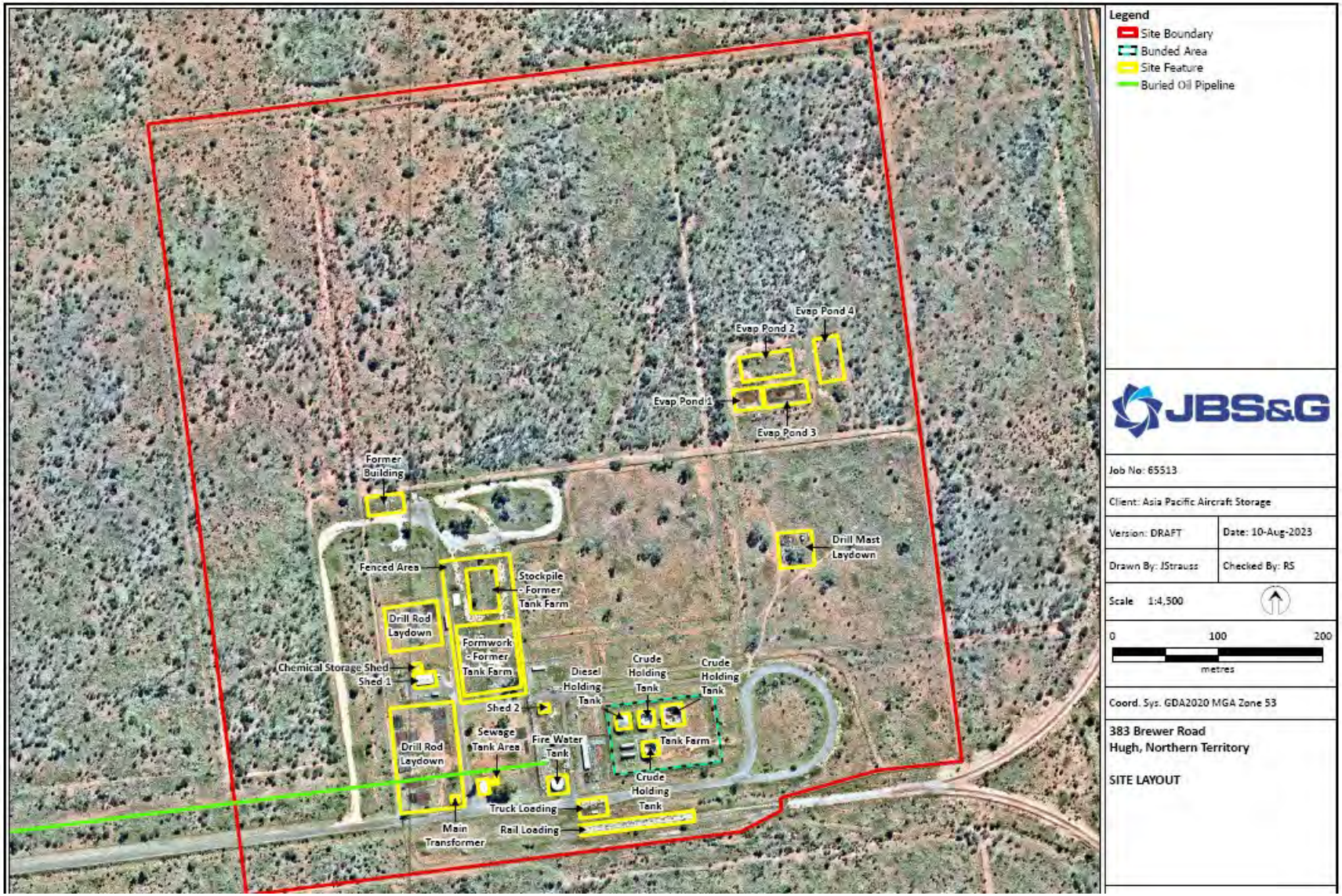


Figure 1: Site Layout

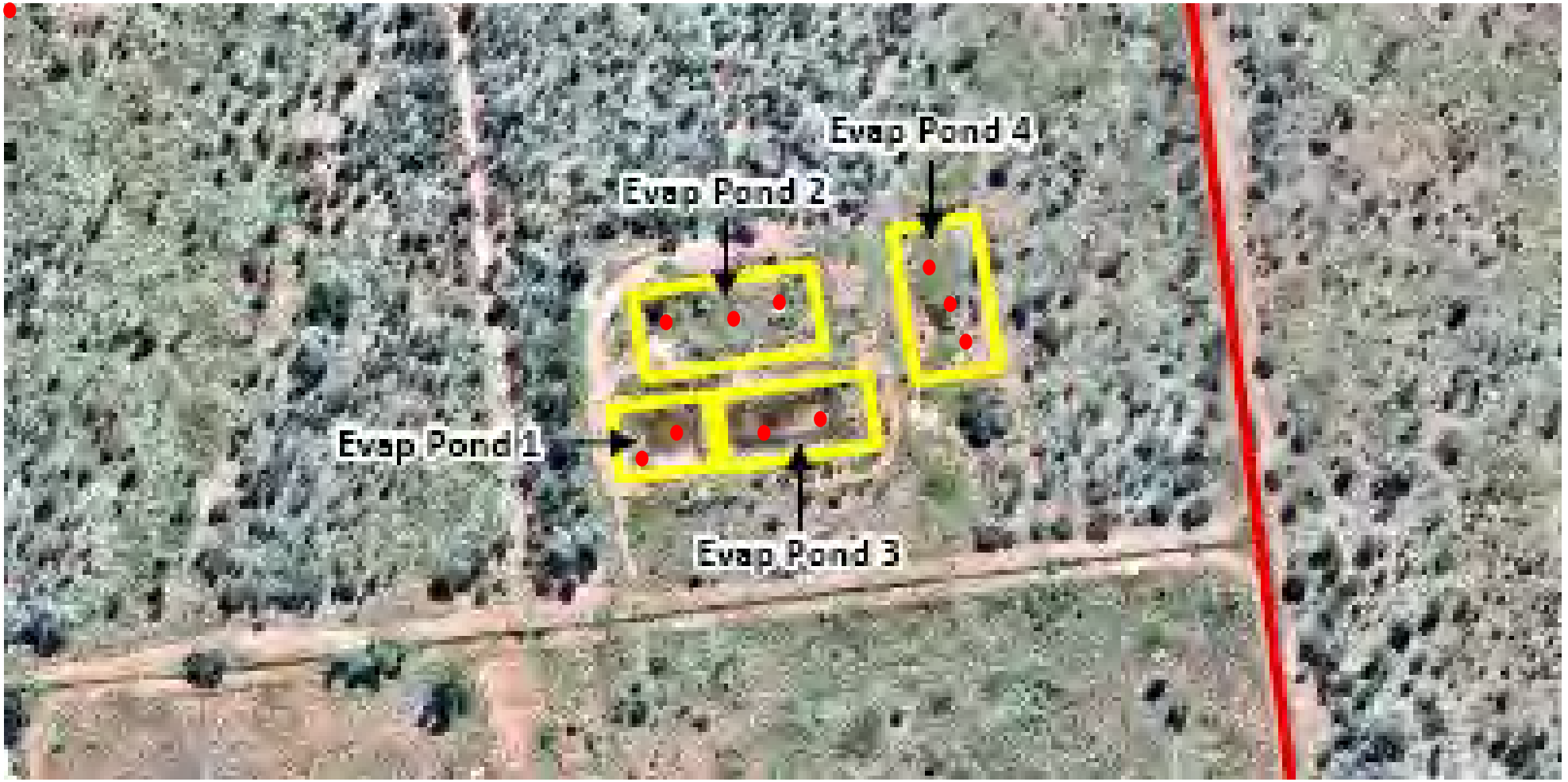
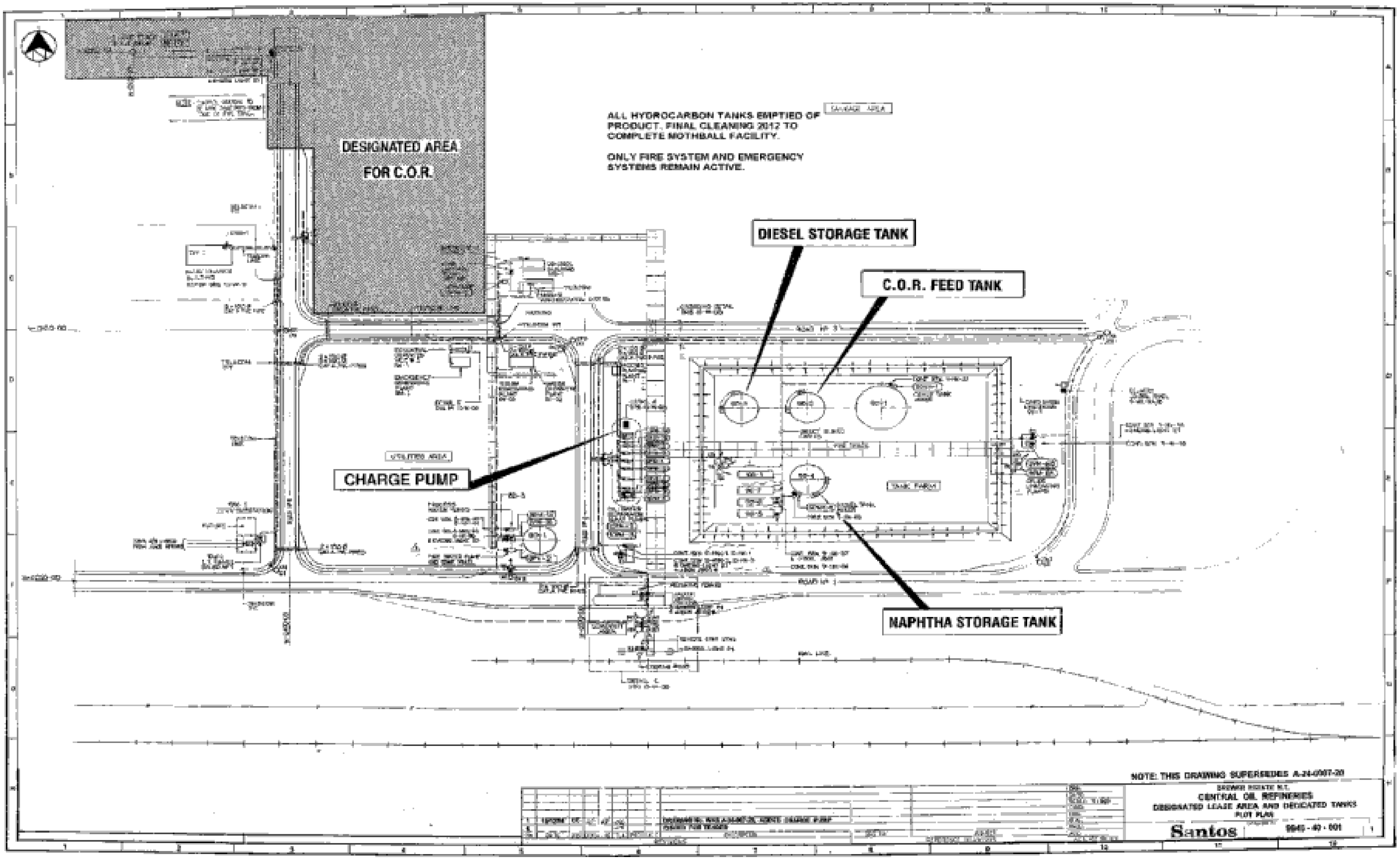


Figure 2 Suggested sampling locations from evaporation ponds

Appendix I Brewer Estate Layout Plans – FEMP (2017)

Appendix 6 Brewer Estate Layout Plans



Appendix J Calibration Certificate

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-111090

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm		
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Diffusion mode Aspirated mode

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		102.7ppm Isobutylene	NIST	BR226		102.7ppm Isobutylene

Calibrated by: Morgan Shelton

Calibration date: 24/07/2023

Next calibration due: 20/01/2024

Appendix K Laboratory Documentation

Chain of Custody

JBS&G

PROJECT NO.: 65513	LABORATORY BATCH NO.:
PROJECT NAME: APAS DSI	SAMPLERS:
DATE NEEDED BY: Standard TAT	QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) rschofield@jbsg.com.au; (3) kbradley@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Samples due to arrive at Brisbane Eurofins on 28/07/2023
Consignment no: 00903X1B7V

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	B5	PFAS Extended Suite	B15	B11C	B11E	B19A	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: Analysis Suite Code Breakdown on Back of COC
FRAG_01	S	26/7/23		Asb bag								X		
TP1_0.0-0.1	S	26/7/23		J, P, ASB		X	X	X					X	
TP1_0.5-0.6	S	26/7/23		J, P										
TP1_1.4-1.5	S	26/7/23		J										
TP2_0.0-0.1	S	26/7/23		J, P, ASB		X		X					X	
TP2_0.5-0.6	S	26/7/23		J, P										
TP2_1.4-1.5	S	26/7/23		J										
TP3_0.0-0.1	S	26/7/23		J, P		X	X	X						
TP3_0.5-0.6	S	26/7/23		J, P		X								
TP3_1.4-1.5	S	26/7/23		J										
TP4_0.0-0.1	S	26/7/23		J, P, ASB									X	
TP4_0.2-0.3	S	26/7/23		J, P, ASB		X	X						X	
TP4_0.5-0.6	S	26/7/23		J										
TP4_1.4-1.5	S	26/7/23		J										
TP5_0.0-0.1	S	26/7/23		J		X		X						
TP5_0.5-0.6	S	26/7/23		J, P			X							
TP5_2.0-2.1	S	26/7/23		J		X								

Date/Time: 28/7 9am
Chilled: Y / N
Temp: 1.6
Correction Factor:
Final Temp:

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE: OF: JBS&G	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: DATE: OF:	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE: OF:	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

NOTES:

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Chain of Custody

JBS&G

PROJECT NO.: 65513	LABORATORY BATCH NO.:
PROJECT NAME: APAS DSI	SAMPLERS:
DATE NEEDED BY: Standard TAT	QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) rschofield@jbsg.com.au; (3) kbradley@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	B5	PFAS Extended Suite	B15	B11C	B11E	B19A				B1								TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: Analysis Suite Code Breakdown on Back of COC
TP6_0.0-0.1	S	26/7/23		J, P				X																	
TP6_0.5-0.6	S	26/7/23		J, P		X																			
TP7_0.0-0.1	S	26/7/23		J, P				X																	
TP7_0.5-0.6	S	26/7/23		J		X	X																		
TP7_1.5-1.6	S	26/7/23		J, P					X	X	X														
TP8_0.0-0.1	S	26/7/23		J, P		X		X																	
TP8_1.0-1.1	S	26/7/23		J, P		X	X																		
TP12_0.0-0.1	S	26/7/23		J, P		X	X	X																	
TP12_0.5-1.0	S	26/7/23		J, P																					
TP12_1.0-1.1	S	26/7/23		J																					
TP13_0.0-0.1	S	26/7/23		J, P		X		X																	
TP13_1.0-1.1	S	26/7/23		J, P																					
TP14_0.0-0.1	S	26/7/23		J, P		X																			
TP14_0.5-0.6	S	26/7/23		J, P																					
TP14_1.0-1.1	S	26/7/23		J																					
QC101	W	26/7/23		Vials											X										

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: OF:	COOLER TEMP ..... deg C
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF:	TRANSPORT CO	OF:	COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

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Chain of Custody

JBS&G

PROJECT NO.: 65513	LABORATORY BATCH NO.:
PROJECT NAME: APAS DSI	SAMPLERS:
DATE NEEDED BY: Standard TAT	QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) rschofield@jbsg.com.au; (3) kbradley@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	B5	PFAS Extended Suite	B15	B11C	B11E	B19A	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: Analysis Suite Code Breakdown on Back of COC
TP9_0.0-0.1	S	27/7/23		J, P		X			X	X	X			
TP9_0.4-0.5	S	27/7/23		J, P										
TP9_1.0-1.1	S	27/7/23		J, P		X	X		X	X	X			
TP10_0.0-0.1	S	27/7/23		J, P		X			X	X	X			
TP10_0.4-0.5	S	27/7/23		J, P			X							
TP10_1.0-1.1	S	27/7/23		J, P		X			X	X	X			
TP11_0.0-0.1	S	27/7/23		J, P				X	X	X	X			
TP11_0.4-0.5	S	27/7/23		J, P		X	X							
QC102	S	27/7/23		J, P		X	X							
TP11_1.0-1.1	S	27/7/23		J, P		X			X	X	X			

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: OF:	COOLER TEMP ..... deg C
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF:	TRANSPORT CO	OF:	COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

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Chain of Custody

JBS&G

PROJECT NO.: 65513	LABORATORY BATCH NO.:
PROJECT NAME: APAS DSI	SAMPLERS:
DATE NEEDED BY: Standard TAT	QC LEVEL: NEPM (2013)
PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113	
SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) rschofield@jbsg.com.au; (3) kbradley@jbsg.com.au	

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Please forward to ALS for analysis

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	TRH/BTEXN/Metals	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: Analysis Suite Code Breakdown on Back of COC
QC103	S			J, P		X			

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: OF:	COOLER TEMP ..... deg C
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF:	TRANSPORT CO	OF:	COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

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eurofins | Environment Testing

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Geelong
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Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
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Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091
NATA# 1261 Site# 25466

Brisbane
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Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

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NZBN: 9429046024954

Auckland
35 O'Rorke Road
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Auckland 1061
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IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: +64 3 343 5201
IANZ# 1290

Sample Receipt Advice

Company name:	JBS & G Australia (QLD) P/L
Contact name:	Rebecca Schofield
Project name:	APAS DSI
Project ID:	65513
Turnaround time:	5 Day
Date/Time received	Jul 28, 2023 9:00 AM
Eurofins reference	1011929

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 1.6 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Alana Wadsworth on phone : 0499 810 009 or by email: AlanaWadsworth@eurofins.com

Results will be delivered electronically via email to Rebecca Schofield - rschofield@jbsg.com.au.

Note: A copy of these results will also be delivered to the general JBS & G Australia (QLD) P/L email address.

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
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Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

Canberra
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Mitchell
ACT 2911
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NATA# 1261 Site# 25466

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Company Name: JBS & G Australia (QLD) P/L
Address: Level 3, Turbot Street
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QLD 4000

Project Name: APAS DSI
Project ID: 65513

Order No.: N/A
Report #: 1011929
Phone: 07 3181 5738
Fax:

Received: Jul 28, 2023 9:00 AM
Due: Aug 4, 2023
Priority: 5 Day
Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
External Laboratory																	
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**												
1	TP1_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064651	X			X		X	X				X	
2	TP2_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064652	X			X		X	X					
3	TP3_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064653				X		X	X				X	
4	TP3_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064654						X	X					
5	TP4_0.2-0.3	Jul 26, 2023		Soil	B23-JI0064655	X					X	X				X	
6	TP5_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064656				X		X	X					
7	TP5_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064657						X					X	
8	TP5_2.0-2.1	Jul 26, 2023		Soil	B23-JI0064658						X	X					
9	TP6_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064659				X		X						
10	TP6_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064660						X	X					
11	TP7_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064661				X		X						

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Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
12	TP7_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064662						X	X				X	
13	TP7_1.5-1.6	Jul 26, 2023		Soil	B23-JI0064663					X				X	X		X
14	TP8_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064664				X		X	X					
15	TP8_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064665						X	X				X	
16	TP12_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064666				X		X	X				X	
17	TP13_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064667				X		X	X					
18	TP14_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064668						X	X					
19	QC101	Jul 26, 2023		Water	B23-JI0064669								X				
20	TP9_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064670						X	X		X	X		X
21	TP9_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064671						X	X		X	X	X	X
22	TP10_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064672						X	X		X	X		X
23	TP10_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064673						X					X	
24	TP10_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064674						X	X		X	X		X
25	TP11_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064675				X		X			X	X		X

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Project ID: 65513

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Phone: 07 3181 5738
Fax:

Received: Jul 28, 2023 9:00 AM
Due: Aug 4, 2023
Priority: 5 Day
Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
26	TP11_0.4-0.5	Jul 27, 2023		Soil	B23-Jl0064676						X	X				X	
27	QC102	Jul 27, 2023		Soil	B23-Jl0064677						X	X				X	
28	TP11_1.0-1.1	Jul 27, 2023		Soil	B23-Jl0064678						X	X		X	X		X
29	FRAG_01	Jul 26, 2023		Building Materials	B23-Jl0064679		X										
30	TP1_0.5-0.6	Jul 26, 2023		Soil	B23-Jl0064680			X									
31	TP1_1.4-1.5	Jul 26, 2023		Soil	B23-Jl0064681			X									
32	TP2_0.5-0.6	Jul 26, 2023		Soil	B23-Jl0064682			X									
33	TP2_1.4-1.5	Jul 26, 2023		Soil	B23-Jl0064683			X									
34	TP3_1.4-1.5	Jul 26, 2023		Soil	B23-Jl0064684			X									
35	TP4_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064685	X											
36	TP4_0.5-0.6	Jul 26, 2023		Soil	B23-Jl0064686			X									
37	TP4_1.4-1.5	Jul 26, 2023		Soil	B23-Jl0064687			X									
38	TP12_0.5-0.6	Jul 26, 2023		Soil	B23-Jl0064688			X									

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Received: Jul 28, 2023 9:00 AM
Due: Aug 4, 2023
Priority: 5 Day
Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
39	TP12_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064689			X									
40	TP13_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064690			X									
41	TP14_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064691			X									
42	TP14_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064692			X									
43	TP9_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064693			X									
Test Counts						4	1	13	10	27	27	21	1	7	7	11	7

Certificate of Analysis

JBS & G Australia (QLD) P/L
Level 3, Turbot Street
Brisbane
QLD 4000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention:	Rebecca Schofield
Report	1011929-AID-V2
Project Name	APAS DSI
Project ID	65513
Received Date	Jul 28, 2023
Date Reported	Aug 15, 2023

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Project Name APAS DSI
Project ID 65513
Date Sampled Jul 26, 2023
Report 1011929-AID-V2

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP1_0.0-0.1	23-Jl0064651	Jul 26, 2023	Approximate Sample 172g Sample consisted of: Red-brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP2_0.0-0.1	23-Jl0064652	Jul 26, 2023	Approximate Sample 315g Sample consisted of: Red-brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP4_0.2-0.3	23-Jl0064655	Jul 26, 2023	Approximate Sample 399g Sample consisted of: Brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
FRAG_01	23-Jl0064679	Jul 26, 2023	Approximate Sample 3g / 50x20x2mm Sample consisted of: Blue hard fibrous material	Chrysotile asbestos detected.
TP4_0.0-0.1	23-Jl0064685	Jul 26, 2023	Approximate Sample 345g Sample consisted of: Red-brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Aug 04, 2023	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Aug 04, 2023	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Aug 04, 2023	Indefinite

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Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail	Asbestos - AS4964	Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Phosphorus	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254					X	X	X	X	X	X	X	X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217	X	X	X												
Brisbane Laboratory - NATA # 1261 Site # 20794				X		X	X	X	X	X	X		X	X	
External Laboratory															

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID												
1	TP1_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064651	X					X		X	X				X		
2	TP2_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064652		X				X		X	X						
3	TP3_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064653						X		X	X				X		
4	TP3_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064654								X	X						
5	TP4_0.2-0.3	Jul 26, 2023		Soil	B23-JI0064655		X						X	X				X		
6	TP5_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064656						X		X	X						
7	TP5_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064657								X					X		
8	TP5_2.0-2.1	Jul 26, 2023		Soil	B23-JI0064658								X	X						
9	TP6_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064659						X		X							
10	TP6_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064660								X	X						
11	TP7_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064661						X		X							

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Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

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IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: JBS & G Australia (QLD) P/L
Address: Level 3, Turbot Street
Brisbane
QLD 4000

Project Name: APAS DSI
Project ID: 65513

Order No.: N/A
Report #: 1011929
Phone: 07 3181 5738
Fax:

Received: Jul 28, 2023 9:00 AM
Due: Aug 4, 2023
Priority: 5 Day
Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Asbestos - AS4964	Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Phosphorus	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254										X	X	X	X	X	X	X	X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X												
Brisbane Laboratory - NATA # 1261 Site # 20794									X		X	X	X	X	X	X		X	X	
12	TP7_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064662								X	X				X		
13	TP7_1.5-1.6	Jul 26, 2023		Soil	B23-JI0064663							X					X		X	X
14	TP8_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064664						X		X	X						
15	TP8_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064665								X	X				X		
16	TP12_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064666						X		X	X				X		
17	TP13_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064667						X		X	X						
18	TP14_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064668								X	X						
19	QC101	Jul 26, 2023		Water	B23-JI0064669										X					
20	TP9_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064670					X			X	X		X	X			X
21	TP9_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064671					X			X	X		X	X	X		X
22	TP10_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064672					X			X	X		X	X			X
23	TP10_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064673								X					X		
24	TP10_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064674					X			X	X		X	X			X
25	TP11_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064675					X	X		X			X	X			X

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Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

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Project ID: 65513

Order No.: N/A
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Phone: 07 3181 5738
Fax:

Received: Jul 28, 2023 9:00 AM
Due: Aug 4, 2023
Priority: 5 Day
Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Asbestos - AS4964	Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Phosphorus	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254										X	X	X	X	X	X	X	X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X												
Brisbane Laboratory - NATA # 1261 Site # 20794									X		X	X	X	X	X	X		X	X	
26	TP11_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064676								X	X				X		
27	QC102	Jul 27, 2023		Soil	B23-JI0064677								X	X				X		
28	TP11_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064678					X			X	X		X	X			X
29	FRAG_01	Jul 26, 2023		Building Materials	B23-JI0064679			X												
30	TP1_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064680				X											
31	TP1_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064681				X											
32	TP2_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064682				X											
33	TP2_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064683				X											
34	TP3_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064684				X											
35	TP4_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064685		X													
36	TP4_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064686				X											
37	TP4_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064687				X											
38	TP12_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064688				X											

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
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Melbourne Laboratory - NATA # 1261 Site # 1254										X	X	X	X	X	X	X	X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X												
Brisbane Laboratory - NATA # 1261 Site # 20794									X		X	X	X	X	X	X		X	X	
39	TP12_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064689				X											
40	TP13_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064690				X											
41	TP14_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064691				X											
42	TP14_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064692				X											
43	TP9_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064693				X											
Test Counts						1	3	1	13	6	10	27	27	21	1	6	7	11	1	7

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (**% w/w**)
F/fld	Airborne fibre filter loading as Fibres (**N**) per Fields counted (**n**)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (**C**)
g, kg	Mass, e.g. of whole sample (**M**) or asbestos-containing find within the sample (**m**)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (**V = r x t**)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (**r**)
min	Time (**t**), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$

Asbestos Content (as asbestos): $\%\, w/w = \frac{(m \times P_A)}{M}$

Weighted Average (of asbestos): $\%_{WA} = \sum \frac{(m \times P_A)_x}{x}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to “non-bonded / friable”.
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w)**.
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
Sampling	Unless otherwise stated Eurofins are not responsible for sampling equipment or the sampling process.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

This report has been revised (V2) to include phosphorus results for samples JI0064670, 71, 72, 74, 75 and 78.

23-JI0064652, 23-JI0064655 and 23-JI0064685: Samples received were less than the nominal 500mL as recommended in Section 4.10 of the NEPM Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

Sample Integrity

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

Asbestos Counter/Identifier:

Sayeed Abu	Senior Analyst-Asbestos

Authorised by:

Laxman Dias	Senior Analyst-Asbestos



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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JBS & G Australia (QLD) P/L
Level 3, Turbot Street
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QLD 4000

NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Rebecca Schofield**

Report **1011929-S-V2**
Project name APAS DSI
Project ID 65513
Received Date Jul 28, 2023

Client Sample ID			**TP1_0.0-0.1**	**TP2_0.0-0.1**	**TP3_0.0-0.1**	**TP3_0.5-0.6**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**B23-JI0064651**	**B23-JI0064652**	**B23-JI0064653**	**B23-JI0064654**
Date Sampled			**Jul 26, 2023**	**Jul 26, 2023**	**Jul 26, 2023**	**Jul 26, 2023**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	57
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	57
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	97	107	106	95
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-

Client Sample ID			TP1_0.0-0.1	TP2_0.0-0.1	TP3_0.0-0.1	TP3_0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064651	B23-JI0064652	B23-JI0064653	B23-JI0064654
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Toxaphene	0.5	mg/kg	n/a	n/a	n/a	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	100	102		-
Tetrachloro-m-xylene (surr.)	1	%	109	90		-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Coumaphos	2	mg/kg	< 2	< 2	< 2	-
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Monocrotophos	2	mg/kg	< 2	< 2	< 2	-
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Omethoate	2	mg/kg	< 2	< 2	< 2	-
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Triphenylphosphate (surr.)	1	%	112	103	133	-

Client Sample ID			TP1_0.0-0.1	TP2_0.0-0.1	TP3_0.0-0.1	TP3_0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064651	B23-JI0064652	B23-JI0064653	B23-JI0064654
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	100	102		-
Tetrachloro-m-xylene (surr.)	1	%	109	90		-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	100
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	14	13	13	16
Copper	5	mg/kg	6.0	< 5	5.4	5.8
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	12	11	11	11
Sample Properties						
% Moisture	1	%	5.0	1.6	2.2	4.0
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	-	< 5	-
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	-	< 5	-
13C4-PFBA (surr.)	1	%	91	-	93	-
13C5-PFPeA (surr.)	1	%	79	-	76	-
13C5-PFHxA (surr.)	1	%	89	-	82	-
13C4-PFHpA (surr.)	1	%	89	-	96	-
13C8-PFOA (surr.)	1	%	95	-	90	-
13C5-PFNA (surr.)	1	%	93	-	92	-
13C6-PFDA (surr.)	1	%	90	-	94	-
13C2-PFUnDA (surr.)	1	%	103	-	96	-
13C2-PFDoDA (surr.)	1	%	85	-	84	-
13C2-PFTeDA (surr.)	1	%	130	-	124	-

Client Sample ID			TP1_0.0-0.1	TP2_0.0-0.1	TP3_0.0-0.1	TP3_0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064651	B23-JI0064652	B23-JI0064653	B23-JI0064654
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	-	< 5	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	-	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	-	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	-	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	-	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	-	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	-	< 10	-
13C8-FOSA (surr.)	1	%	101	-	101	-
D3-N-MeFOSA (surr.)	1	%	107	-	104	-
D5-N-EtFOSA (surr.)	1	%	110	-	100	-
D7-N-MeFOSE (surr.)	1	%	106	-	105	-
D9-N-EtFOSE (surr.)	1	%	130	-	125	-
D5-N-EtFOSAA (surr.)	1	%	91	-	89	-
D3-N-MeFOSAA (surr.)	1	%	100	-	99	-
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	-	[N09]12	-
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	-	< 5	-
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	-	< 5	-
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]11	-	< 5	-
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	-	< 5	-
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]150	-	[N09]840	-
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	-	< 5	-
13C3-PFBS (surr.)	1	%	88	-	90	-
18O2-PFHxS (surr.)	1	%	125	-	125	-
13C8-PFOS (surr.)	1	%	102	-	126	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	-	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	-	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	-	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	-	< 5	-
13C2-4:2 FTSA (surr.)	1	%	88	-	95	-
13C2-6:2 FTSA (surr.)	1	%	94	-	89	-
13C2-8:2 FTSA (surr.)	1	%	78	-	70	-
13C2-10:2 FTSA (surr.)	1	%	98	-	94	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	161	-	840	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	150	-	840	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	161	-	840	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	161	-	840	-
Sum of PFASs (n=30)*	50	ug/kg	161	-	852	-

Client Sample ID			TP4_0.2-0.3	TP5_0.0-0.1	TP5_0.5-0.6	TP5_2.0-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064655	B23-JI0064656	B23-JI0064657	B23-JI0064658
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	-	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	-	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	-	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	99	94	-	94
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	< 20
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	-
a-HCH	0.05	mg/kg	-	< 0.05	-	-
Aldrin	0.05	mg/kg	-	< 0.05	-	-
b-HCH	0.05	mg/kg	-	< 0.05	-	-
d-HCH	0.05	mg/kg	-	< 0.05	-	-
Dieldrin	0.05	mg/kg	-	< 0.05	-	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	-
Endrin	0.05	mg/kg	-	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-	-
g-HCH (Lindane)	0.05	mg/kg	-	< 0.05	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.05	mg/kg	-	< 0.05	-	-
Toxaphene	0.5	mg/kg	-	n/a	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	84	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	85	-	-

Client Sample ID			TP4_0.2-0.3	TP5_0.0-0.1	TP5_0.5-0.6	TP5_2.0-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064655	B23-JI0064656	B23-JI0064657	B23-JI0064658
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	-	-
Bolstar	0.2	mg/kg	-	< 0.2	-	-
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	-	-
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-	-
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	-	-
Coumaphos	2	mg/kg	-	< 2	-	-
Demeton-S	0.2	mg/kg	-	< 0.2	-	-
Demeton-O	0.2	mg/kg	-	< 0.2	-	-
Diazinon	0.2	mg/kg	-	< 0.2	-	-
Dichlorvos	0.2	mg/kg	-	< 0.2	-	-
Dimethoate	0.2	mg/kg	-	< 0.2	-	-
Disulfoton	0.2	mg/kg	-	< 0.2	-	-
EPN	0.2	mg/kg	-	< 0.2	-	-
Ethion	0.2	mg/kg	-	< 0.2	-	-
Ethoprop	0.2	mg/kg	-	< 0.2	-	-
Ethyl parathion	0.2	mg/kg	-	< 0.2	-	-
Fenitrothion	0.2	mg/kg	-	< 0.2	-	-
Fensulfothion	0.2	mg/kg	-	< 0.2	-	-
Fenthion	0.2	mg/kg	-	< 0.2	-	-
Malathion	0.2	mg/kg	-	< 0.2	-	-
Merphos	0.2	mg/kg	-	< 0.2	-	-
Methyl parathion	0.2	mg/kg	-	< 0.2	-	-
Mevinphos	0.2	mg/kg	-	< 0.2	-	-
Monocrotophos	2	mg/kg	-	< 2	-	-
Naled	0.2	mg/kg	-	< 0.2	-	-
Omethoate	2	mg/kg	-	< 2	-	-
Phorate	0.2	mg/kg	-	< 0.2	-	-
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	-	-
Pyrazophos	0.2	mg/kg	-	< 0.2	-	-
Ronnel	0.2	mg/kg	-	< 0.2	-	-
Terbufos	0.2	mg/kg	-	< 0.2	-	-
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	-	-
Tokuthion	0.2	mg/kg	-	< 0.2	-	-
Trichloronate	0.2	mg/kg	-	< 0.2	-	-
Triphenylphosphate (surr.)	1	%	-	115	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1232	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1242	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1248	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1254	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1260	0.1	mg/kg	-	< 0.1	-	-
Total PCB*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	84	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	85	-	-

Client Sample ID			TP4_0.2-0.3	TP5_0.0-0.1	TP5_0.5-0.6	TP5_2.0-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064655	B23-JI0064656	B23-JI0064657	B23-JI0064658
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	-	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	-	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	< 100
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	-	< 2
Cadmium	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Chromium	5	mg/kg	22	12	-	13
Copper	5	mg/kg	19	5.2	-	< 5
Lead	5	mg/kg	5.7	< 5	-	< 5
Nickel	5	mg/kg	9.3	< 5	-	< 5
Zinc	5	mg/kg	20	18	-	8.6
Sample Properties						
% Moisture	1	%	2.8	5.1	1.7	6.5
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	-	< 5	-
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	-	< 5	-
13C4-PFBA (surr.)	1	%	92	-	89	-
13C5-PFPeA (surr.)	1	%	84	-	82	-
13C5-PFHxA (surr.)	1	%	95	-	94	-
13C4-PFHpA (surr.)	1	%	96	-	101	-
13C8-PFOA (surr.)	1	%	105	-	103	-
13C5-PFNA (surr.)	1	%	101	-	98	-
13C6-PFDA (surr.)	1	%	108	-	107	-
13C2-PFUnDA (surr.)	1	%	107	-	106	-
13C2-PFDoDA (surr.)	1	%	92	-	93	-
13C2-PFTeDA (surr.)	1	%	138	-	135	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	-	< 5	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	-	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	-	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	-	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	-	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	-	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	-	< 10	-
13C8-FOSA (surr.)	1	%	108	-	107	-
D3-N-MeFOSA (surr.)	1	%	114	-	115	-

Client Sample ID			TP4_0.2-0.3	TP5_0.0-0.1	TP5_0.5-0.6	TP5_2.0-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064655	B23-JI0064656	B23-JI0064657	B23-JI0064658
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSA (surr.)	1	%	109	-	106	-
D7-N-MeFOSE (surr.)	1	%	109	-	107	-
D9-N-EtFOSE (surr.)	1	%	135	-	131	-
D5-N-EtFOSAA (surr.)	1	%	95	-	96	-
D3-N-MeFOSAA (surr.)	1	%	105	-	103	-
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	-	< 5	-
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	-	< 5	-
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	-	< 5	-
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	-	< 5	-
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]23	-	[N09]10	-
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	-	< 5	-
13C3-PFBS (surr.)	1	%	101	-	95	-
18O2-PFHxS (surr.)	1	%	141	-	137	-
13C8-PFOS (surr.)	1	%	135	-	137	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	-	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	-	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	-	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	-	< 5	-
13C2-4:2 FTSA (surr.)	1	%	107	-	93	-
13C2-6:2 FTSA (surr.)	1	%	104	-	91	-
13C2-8:2 FTSA (surr.)	1	%	96	-	88	-
13C2-10:2 FTSA (surr.)	1	%	97	-	100	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	23	-	10	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	23	-	10	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	23	-	10	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	23	-	10	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	< 50	-

Client Sample ID			TP6_0.0-0.1	TP6_0.5-0.6	TP7_0.0-0.1	TP7_0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064659	B23-JI0064660	B23-JI0064661	B23-JI0064662
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	< 50	-	< 50
TRH C29-C36	50	mg/kg	-	< 50	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	< 50	-	< 50

Client Sample ID			TP6_0.0-0.1	TP6_0.5-0.6	TP7_0.0-0.1	TP7_0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064659	B23-JI0064660	B23-JI0064661	B23-JI0064662
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	100	-	95
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	-	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	< 50
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	-	< 20
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Toxaphene	0.5	mg/kg	n/a	-	n/a	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	81	-	136	-
Tetrachloro-m-xylene (surr.)	1	%	90	-	118	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Bolstar	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Coumaphos	2	mg/kg	< 2	-	< 2	-
Demeton-S	0.2	mg/kg	< 0.2	-	< 0.2	-
Demeton-O	0.2	mg/kg	< 0.2	-	< 0.2	-

Client Sample ID			TP6_0.0-0.1	TP6_0.5-0.6	TP7_0.0-0.1	TP7_0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064659	B23-JI0064660	B23-JI0064661	B23-JI0064662
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Diazinon	0.2	mg/kg	< 0.2	-	< 0.2	-
Dichlorvos	0.2	mg/kg	< 0.2	-	< 0.2	-
Dimethoate	0.2	mg/kg	< 0.2	-	< 0.2	-
Disulfoton	0.2	mg/kg	< 0.2	-	< 0.2	-
EPN	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethion	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethoprop	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fenitrothion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fensulfothion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fenthion	0.2	mg/kg	< 0.2	-	< 0.2	-
Malathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Merphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Methyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Mevinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Monocrotophos	2	mg/kg	< 2	-	< 2	-
Naled	0.2	mg/kg	< 0.2	-	< 0.2	-
Omethoate	2	mg/kg	< 2	-	< 2	-
Phorate	0.2	mg/kg	< 0.2	-	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Pyrazophos	0.2	mg/kg	< 0.2	-	< 0.2	-
Ronnel	0.2	mg/kg	< 0.2	-	< 0.2	-
Terbufos	0.2	mg/kg	< 0.2	-	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Tokuthion	0.2	mg/kg	< 0.2	-	< 0.2	-
Trichloronate	0.2	mg/kg	< 0.2	-	< 0.2	-
Triphenylphosphate (surr.)	1	%	83	-	145	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1232	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1242	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1260	0.1	mg/kg	< 0.1	-	< 0.1	-
Total PCB*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	81	-	136	-
Tetrachloro-m-xylene (surr.)	1	%	90	-	118	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	< 100
Heavy Metals						
Arsenic	2	mg/kg	-	2.7	-	< 2
Cadmium	0.5	mg/kg	-	< 0.5	-	< 0.5
Chromium	5	mg/kg	-	27	-	17
Copper	5	mg/kg	-	10	-	< 5
Lead	5	mg/kg	-	8.6	-	< 5

Client Sample ID			TP6_0.0-0.1	TP6_0.5-0.6	TP7_0.0-0.1	TP7_0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064659	B23-JI0064660	B23-JI0064661	B23-JI0064662
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Nickel	5	mg/kg	-	11	-	< 5
Zinc	5	mg/kg	-	24	-	11
Sample Properties						
% Moisture	1	%	1.3	6.2	1.1	2.9
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	-	-	-	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	-	-	-	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	-	-	-	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	-	-	-	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	-	-	-	< 5
13C4-PFBA (surr.)	1	%	-	-	-	91
13C5-PFPeA (surr.)	1	%	-	-	-	77
13C5-PFHxA (surr.)	1	%	-	-	-	83
13C4-PFHpA (surr.)	1	%	-	-	-	90
13C8-PFOA (surr.)	1	%	-	-	-	92
13C5-PFNA (surr.)	1	%	-	-	-	89
13C6-PFDA (surr.)	1	%	-	-	-	101
13C2-PFUnDA (surr.)	1	%	-	-	-	101
13C2-PFDoDA (surr.)	1	%	-	-	-	85
13C2-PFTeDA (surr.)	1	%	-	-	-	125
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	-	-	-	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	-	-	-	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	-	-	-	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	-	-	-	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	-	-	-	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	-	-	-	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	-	-	-	< 10
13C8-FOSA (surr.)	1	%	-	-	-	100
D3-N-MeFOSA (surr.)	1	%	-	-	-	100
D5-N-EtFOSA (surr.)	1	%	-	-	-	103
D7-N-MeFOSE (surr.)	1	%	-	-	-	100
D9-N-EtFOSE (surr.)	1	%	-	-	-	125
D5-N-EtFOSAA (surr.)	1	%	-	-	-	92
D3-N-MeFOSAA (surr.)	1	%	-	-	-	98
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	-	-	-	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	-	-	-	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	-	-	-	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	-	-	-	< 5

Client Sample ID			TP6_0.0-0.1	TP6_0.5-0.6	TP7_0.0-0.1	TP7_0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064659	B23-JI0064660	B23-JI0064661	B23-JI0064662
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	-	-	-	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	-	-	-	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	-	-	-	[N09]5.8
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	-	-	-	< 5
13C3-PFBS (surr.)	1	%	-	-	-	89
18O2-PFHxS (surr.)	1	%	-	-	-	121
13C8-PFOS (surr.)	1	%	-	-	-	139
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	-	-	-	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	-	-	-	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	-	-	-	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	-	-	-	< 5
13C2-4:2 FTSA (surr.)	1	%	-	-	-	87
13C2-6:2 FTSA (surr.)	1	%	-	-	-	92
13C2-8:2 FTSA (surr.)	1	%	-	-	-	64
13C2-10:2 FTSA (surr.)	1	%	-	-	-	89
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	-	-	5.8
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	-	-	5.8
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	-	-	5.8
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	-	-	< 10
Sum of PFASs (n=30)*	50	ug/kg	-	-	-	< 50

Client Sample ID			TP7_1.5-1.6	TP8_0.0-0.1	TP8_1.0-1.1	TP12_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064663	B23-JI0064664	B23-JI0064665	B23-JI0064666
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	-	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	-	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	-	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	-	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	101	96	100

Client Sample ID			TP7_1.5-1.6	TP8_0.0-0.1	TP8_1.0-1.1	TP12_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064663	B23-JI0064664	B23-JI0064665	B23-JI0064666
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	-	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	< 20	< 20
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	< 0.05
a-HCH	0.05	mg/kg	-	< 0.05	-	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
b-HCH	0.05	mg/kg	-	< 0.05	-	< 0.05
d-HCH	0.05	mg/kg	-	< 0.05	-	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	-	< 0.05
g-HCH (Lindane)	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	< 0.05
Methoxychlor	0.05	mg/kg	-	< 0.05	-	< 0.05
Toxaphene	0.5	mg/kg	-	n/a	-	n/a
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	85	-	53
Tetrachloro-m-xylene (surr.)	1	%	-	88	-	91
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.2
Bolstar	0.2	mg/kg	-	< 0.2	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.2
Coumaphos	2	mg/kg	-	< 2	-	< 2
Demeton-S	0.2	mg/kg	-	< 0.2	-	< 0.2
Demeton-O	0.2	mg/kg	-	< 0.2	-	< 0.2
Diazinon	0.2	mg/kg	-	< 0.2	-	< 0.2
Dichlorvos	0.2	mg/kg	-	< 0.2	-	< 0.2
Dimethoate	0.2	mg/kg	-	< 0.2	-	< 0.2
Disulfoton	0.2	mg/kg	-	< 0.2	-	< 0.2
EPN	0.2	mg/kg	-	< 0.2	-	< 0.2
Ethion	0.2	mg/kg	-	< 0.2	-	< 0.2
Ethoprop	0.2	mg/kg	-	< 0.2	-	< 0.2
Ethyl parathion	0.2	mg/kg	-	< 0.2	-	< 0.2

Client Sample ID			TP7_1.5-1.6	TP8_0.0-0.1	TP8_1.0-1.1	TP12_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064663	B23-JI0064664	B23-JI0064665	B23-JI0064666
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Fenitrothion	0.2	mg/kg	-	< 0.2	-	< 0.2
Fensulfothion	0.2	mg/kg	-	< 0.2	-	< 0.2
Fenthion	0.2	mg/kg	-	< 0.2	-	< 0.2
Malathion	0.2	mg/kg	-	< 0.2	-	< 0.2
Merphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Methyl parathion	0.2	mg/kg	-	< 0.2	-	< 0.2
Mevinphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Monocrotophos	2	mg/kg	-	< 2	-	< 2
Naled	0.2	mg/kg	-	< 0.2	-	< 0.2
Omethoate	2	mg/kg	-	< 2	-	< 2
Phorate	0.2	mg/kg	-	< 0.2	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.2
Pyrazophos	0.2	mg/kg	-	< 0.2	-	< 0.2
Ronnel	0.2	mg/kg	-	< 0.2	-	< 0.2
Terbufos	0.2	mg/kg	-	< 0.2	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Tokuthion	0.2	mg/kg	-	< 0.2	-	< 0.2
Trichloronate	0.2	mg/kg	-	< 0.2	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	132	-	130
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	< 0.1	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	< 0.1	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	< 0.1	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	< 0.1	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	< 0.1	-	< 0.1
Total PCB*	0.1	mg/kg	-	< 0.1	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	85	-	53
Tetrachloro-m-xylene (surr.)	1	%	-	88	-	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	-	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	-	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	-	< 2	< 2	< 2
Cadmium	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	-	13	17	17
Copper	5	mg/kg	-	5.7	< 5	34
Lead	5	mg/kg	-	< 5	< 5	5.5
Nickel	5	mg/kg	-	< 5	< 5	6.8
Zinc	5	mg/kg	-	12	8.9	24
Sample Properties						
% Moisture	1	%	2.5	1.5	4.8	1.7

Client Sample ID			TP7_1.5-1.6	TP8_0.0-0.1	TP8_1.0-1.1	TP12_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064663	B23-JI0064664	B23-JI0064665	B23-JI0064666
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	-	-	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	-	-	< 5	< 5
13C4-PFBA (surr.)	1	%	-	-	85	95
13C5-PFPeA (surr.)	1	%	-	-	81	80
13C5-PFHxA (surr.)	1	%	-	-	98	86
13C4-PFHpA (surr.)	1	%	-	-	98	93
13C8-PFOA (surr.)	1	%	-	-	110	95
13C5-PFNA (surr.)	1	%	-	-	98	94
13C6-PFDA (surr.)	1	%	-	-	108	104
13C2-PFUnDA (surr.)	1	%	-	-	113	106
13C2-PFDoDA (surr.)	1	%	-	-	94	85
13C2-PFTeDA (surr.)	1	%	-	-	147	131
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	-	-	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	-	-	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	-	-	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	-	-	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	-	-	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	-	-	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	-	-	< 10	< 10
13C8-FOSA (surr.)	1	%	-	-	107	108
D3-N-MeFOSA (surr.)	1	%	-	-	118	110
D5-N-EtFOSA (surr.)	1	%	-	-	111	101
D7-N-MeFOSE (surr.)	1	%	-	-	102	106
D9-N-EtFOSE (surr.)	1	%	-	-	130	126
D5-N-EtFOSAA (surr.)	1	%	-	-	98	95
D3-N-MeFOSAA (surr.)	1	%	-	-	103	104
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	-	-	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	-	-	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	-	-	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	-	-	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	-	-	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	-	-	< 5	< 5
13C3-PFBS (surr.)	1	%	-	-	103	94

Client Sample ID			TP7_1.5-1.6	TP8_0.0-0.1	TP8_1.0-1.1	TP12_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064663	B23-JI0064664	B23-JI0064665	B23-JI0064666
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 26, 2023	Jul 26, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
18O2-PFHxS (surr.)	1	%	-	-	140	127
13C8-PFOS (surr.)	1	%	-	-	148	144
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	-	-	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	-	-	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	-	-	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	-	-	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	-	-	92	102
13C2-6:2 FTSA (surr.)	1	%	-	-	84	105
13C2-8:2 FTSA (surr.)	1	%	-	-	71	72
13C2-10:2 FTSA (surr.)	1	%	-	-	103	99
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	-	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	-	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	-	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	-	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	-	-	< 50	< 50
Chloride (1:5 aqueous extract)	5	mg/kg	10	-	-	-
Nitrate & Nitrite (as N)	5	mg/kg	< 5	-	-	-
Nitrate (as N)	5	mg/kg	< 5	-	-	-
Nitrite (as N)	5	mg/kg	< 5	-	-	-
Sulphate as SO4 (1:5 aqueous extract)	10	mg/kg	15	-	-	-
Total Kjeldahl Nitrogen (as N)	10	mg/kg	85	-	-	-
Total Nitrogen (as N)*	10	mg/kg	85	-	-	-
Phosphorus	5	mg/kg	65	-	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/kg	54	-	-	-
Carbonate Alkalinity (as CaCO3)	20	mg/kg	< 20	-	-	-
Hydroxide Alkalinity (as CaCO3)	20	mg/kg	< 20	-	-	-
Total Alkalinity (as CaCO3)	50	mg/kg	54	-	-	-
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	5	mg/kg	730	-	-	-
Magnesium	5	mg/kg	1600	-	-	-
Potassium	5	mg/kg	1600	-	-	-
Sodium	5	mg/kg	98	-	-	-

Client Sample ID			TP13_0.0-0.1	TP14_0.0-0.1	TP9_0.0-0.1	TP9_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064667	B23-JI0064668	B23-JI0064670	B23-JI0064671
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	101	99	95	97
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
a-HCH	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-HCH	0.05	mg/kg	< 0.05	-	-	-
d-HCH	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.05	mg/kg	< 0.05	-	-	-
Toxaphene	0.5	mg/kg	n/a	-	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	84	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	100	-	-	-

Client Sample ID			TP13_0.0-0.1	TP14_0.0-0.1	TP9_0.0-0.1	TP9_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064667	B23-JI0064668	B23-JI0064670	B23-JI0064671
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Bolstar	0.2	mg/kg	< 0.2	-	-	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	-	-
Coumaphos	2	mg/kg	< 2	-	-	-
Demeton-S	0.2	mg/kg	< 0.2	-	-	-
Demeton-O	0.2	mg/kg	< 0.2	-	-	-
Diazinon	0.2	mg/kg	< 0.2	-	-	-
Dichlorvos	0.2	mg/kg	< 0.2	-	-	-
Dimethoate	0.2	mg/kg	< 0.2	-	-	-
Disulfoton	0.2	mg/kg	< 0.2	-	-	-
EPN	0.2	mg/kg	< 0.2	-	-	-
Ethion	0.2	mg/kg	< 0.2	-	-	-
Ethoprop	0.2	mg/kg	< 0.2	-	-	-
Ethyl parathion	0.2	mg/kg	< 0.2	-	-	-
Fenitrothion	0.2	mg/kg	< 0.2	-	-	-
Fensulfothion	0.2	mg/kg	< 0.2	-	-	-
Fenthion	0.2	mg/kg	< 0.2	-	-	-
Malathion	0.2	mg/kg	< 0.2	-	-	-
Merphos	0.2	mg/kg	< 0.2	-	-	-
Methyl parathion	0.2	mg/kg	< 0.2	-	-	-
Mevinphos	0.2	mg/kg	< 0.2	-	-	-
Monocrotophos	2	mg/kg	< 2	-	-	-
Naled	0.2	mg/kg	< 0.2	-	-	-
Omethoate	2	mg/kg	< 2	-	-	-
Phorate	0.2	mg/kg	< 0.2	-	-	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Pyrazophos	0.2	mg/kg	< 0.2	-	-	-
Ronnel	0.2	mg/kg	< 0.2	-	-	-
Terbufos	0.2	mg/kg	< 0.2	-	-	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	-	-
Tokuthion	0.2	mg/kg	< 0.2	-	-	-
Trichloronate	0.2	mg/kg	< 0.2	-	-	-
Triphenylphosphate (surr.)	1	%	94	-	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1232	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1242	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1248	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1254	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1260	0.1	mg/kg	< 0.1	-	-	-
Total PCB*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	84	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	100	-	-	-

Client Sample ID			TP13_0.0-0.1	TP14_0.0-0.1	TP9_0.0-0.1	TP9_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064667	B23-JI0064668	B23-JI0064670	B23-JI0064671
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	11	13	14	13
Copper	5	mg/kg	< 5	< 5	5.1	< 5
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	6.6	18	12	8.1
Sample Properties						
% Moisture	1	%	3.0	< 1	1.3	4.1
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	-	-	-	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	-	-	-	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	-	-	-	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	-	-	-	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	-	-	-	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	-	-	-	< 5
13C4-PFBA (surr.)	1	%	-	-	-	93
13C5-PFPeA (surr.)	1	%	-	-	-	81
13C5-PFHxA (surr.)	1	%	-	-	-	91
13C4-PFHpA (surr.)	1	%	-	-	-	90
13C8-PFOA (surr.)	1	%	-	-	-	93
13C5-PFNA (surr.)	1	%	-	-	-	94
13C6-PFDA (surr.)	1	%	-	-	-	103
13C2-PFUnDA (surr.)	1	%	-	-	-	106
13C2-PFDoDA (surr.)	1	%	-	-	-	86
13C2-PFTeDA (surr.)	1	%	-	-	-	132
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	-	-	-	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	-	-	-	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	-	-	-	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	-	-	-	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	-	-	-	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	-	-	-	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	-	-	-	< 10
13C8-FOSA (surr.)	1	%	-	-	-	107
D3-N-MeFOSA (surr.)	1	%	-	-	-	109

Client Sample ID			TP13_0.0-0.1	TP14_0.0-0.1	TP9_0.0-0.1	TP9_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064667	B23-JI0064668	B23-JI0064670	B23-JI0064671
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSA (surr.)	1	%	-	-	-	105
D7-N-MeFOSE (surr.)	1	%	-	-	-	105
D9-N-EtFOSE (surr.)	1	%	-	-	-	126
D5-N-EtFOSAA (surr.)	1	%	-	-	-	96
D3-N-MeFOSAA (surr.)	1	%	-	-	-	101
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	-	-	-	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	-	-	-	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	-	-	-	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	-	-	-	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	-	-	-	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	-	-	-	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	-	-	-	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	-	-	-	< 5
13C3-PFBS (surr.)	1	%	-	-	-	94
18O2-PFHxS (surr.)	1	%	-	-	-	125
13C8-PFOS (surr.)	1	%	-	-	-	138
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	-	-	-	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	-	-	-	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	-	-	-	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	-	-	-	< 5
13C2-4:2 FTSA (surr.)	1	%	-	-	-	108
13C2-6:2 FTSA (surr.)	1	%	-	-	-	113
13C2-8:2 FTSA (surr.)	1	%	-	-	-	69
13C2-10:2 FTSA (surr.)	1	%	-	-	-	98
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	-	-	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	-	-	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	-	-	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	-	-	< 10
Sum of PFASs (n=30)*	50	ug/kg	-	-	-	< 50
Chloride (1:5 aqueous extract)	5	mg/kg	-	-	6.5	6.6
Nitrate & Nitrite (as N)	5	mg/kg	-	-	< 5	< 5
Nitrate (as N)	5	mg/kg	-	-	< 5	< 5
Nitrite (as N)	5	mg/kg	-	-	< 5	< 5
Sulphate as SO4 (1:5 aqueous extract)	10	mg/kg	-	-	< 50	59
Total Kjeldahl Nitrogen (as N)	10	mg/kg	-	-	270	140
Total Nitrogen (as N)*	10	mg/kg	-	-	270	140
Phosphorus	5	mg/kg	-	-	100	80
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/kg	-	-	38	46
Carbonate Alkalinity (as CaCO3)	20	mg/kg	-	-	< 20	< 20
Hydroxide Alkalinity (as CaCO3)	20	mg/kg	-	-	< 20	< 20
Total Alkalinity (as CaCO3)	50	mg/kg	-	-	< 50	< 50

Client Sample ID			TP13_0.0-0.1	TP14_0.0-0.1	TP9_0.0-0.1	TP9_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064667	B23-JI0064668	B23-JI0064670	B23-JI0064671
Date Sampled			Jul 26, 2023	Jul 26, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit				
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	5	mg/kg	-	-	350	430
Magnesium	5	mg/kg	-	-	710	910
Potassium	5	mg/kg	-	-	1200	1300
Sodium	5	mg/kg	-	-	< 10	68

Client Sample ID			TP10_0.0-0.1	TP10_0.4-0.5	TP10_1.0-1.1	TP11_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064672	B23-JI0064673	B23-JI0064674	B23-JI0064675
Date Sampled			Jul 27, 2023	Jul 27, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	< 50	-	< 50	-
TRH C29-C36	50	mg/kg	< 50	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	96	-	100	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-HCH	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-HCH	0.05	mg/kg	-	-	-	< 0.05
d-HCH	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-HCH (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05

Client Sample ID			TP10_0.0-0.1	TP10_0.4-0.5	TP10_1.0-1.1	TP11_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064672	B23-JI0064673	B23-JI0064674	B23-JI0064675
Date Sampled			Jul 27, 2023	Jul 27, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	0.5	mg/kg	-	-	-	n/a
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	104
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	63
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Bolstar	0.2	mg/kg	-	-	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	-	-	< 0.2
Coumaphos	2	mg/kg	-	-	-	< 2
Demeton-S	0.2	mg/kg	-	-	-	< 0.2
Demeton-O	0.2	mg/kg	-	-	-	< 0.2
Diazinon	0.2	mg/kg	-	-	-	< 0.2
Dichlorvos	0.2	mg/kg	-	-	-	< 0.2
Dimethoate	0.2	mg/kg	-	-	-	< 0.2
Disulfoton	0.2	mg/kg	-	-	-	< 0.2
EPN	0.2	mg/kg	-	-	-	< 0.2
Ethion	0.2	mg/kg	-	-	-	< 0.2
Ethoprop	0.2	mg/kg	-	-	-	< 0.2
Ethyl parathion	0.2	mg/kg	-	-	-	< 0.2
Fenitrothion	0.2	mg/kg	-	-	-	< 0.2
Fensulfothion	0.2	mg/kg	-	-	-	< 0.2
Fenthion	0.2	mg/kg	-	-	-	< 0.2
Malathion	0.2	mg/kg	-	-	-	< 0.2
Merphos	0.2	mg/kg	-	-	-	< 0.2
Methyl parathion	0.2	mg/kg	-	-	-	< 0.2
Mevinphos	0.2	mg/kg	-	-	-	< 0.2
Monocrotophos	2	mg/kg	-	-	-	< 2
Naled	0.2	mg/kg	-	-	-	< 0.2
Omethoate	2	mg/kg	-	-	-	< 2
Phorate	0.2	mg/kg	-	-	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Pyrazophos	0.2	mg/kg	-	-	-	< 0.2
Ronnel	0.2	mg/kg	-	-	-	< 0.2
Terbufos	0.2	mg/kg	-	-	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	-	-	< 0.2
Tokuthion	0.2	mg/kg	-	-	-	< 0.2
Trichloronate	0.2	mg/kg	-	-	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	-	-	77

Client Sample ID			TP10_0.0-0.1	TP10_0.4-0.5	TP10_1.0-1.1	TP11_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064672	B23-JI0064673	B23-JI0064674	B23-JI0064675
Date Sampled			Jul 27, 2023	Jul 27, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	104
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	63
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	-
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	< 2	-
Cadmium	0.5	mg/kg	< 0.5	-	< 0.5	-
Chromium	5	mg/kg	17	-	17	-
Copper	5	mg/kg	5.8	-	5.0	-
Lead	5	mg/kg	< 5	-	< 5	-
Nickel	5	mg/kg	< 5	-	< 5	-
Zinc	5	mg/kg	13	-	9.4	-
Sample Properties						
% Moisture	1	%	3.1	3.4	2.5	4.0
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	-	< 5	-	-
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	-	< 5	-	-
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	-	< 5	-	-
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	-	< 5	-	-
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	-	< 5	-	-
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	-	< 5	-	-
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	-	< 5	-	-
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	-	< 5	-	-
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	-	< 5	-	-
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	-	< 5	-	-
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	-	< 5	-	-
13C4-PFBA (surr.)	1	%	-	89	-	-
13C5-PFPeA (surr.)	1	%	-	81	-	-
13C5-PFHxA (surr.)	1	%	-	88	-	-
13C4-PFHpA (surr.)	1	%	-	100	-	-
13C8-PFOA (surr.)	1	%	-	100	-	-
13C5-PFNA (surr.)	1	%	-	98	-	-
13C6-PFDA (surr.)	1	%	-	104	-	-
13C2-PFUnDA (surr.)	1	%	-	105	-	-
13C2-PFDoDA (surr.)	1	%	-	90	-	-
13C2-PFTeDA (surr.)	1	%	-	140	-	-

Client Sample ID			TP10_0.0-0.1	TP10_0.4-0.5	TP10_1.0-1.1	TP11_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064672	B23-JI0064673	B23-JI0064674	B23-JI0064675
Date Sampled			Jul 27, 2023	Jul 27, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	-	< 5	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	-	< 5	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	-	< 5	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	-	< 5	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	-	< 5	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	-	< 10	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	-	< 10	-	-
13C8-FOSA (surr.)	1	%	-	107	-	-
D3-N-MeFOSA (surr.)	1	%	-	114	-	-
D5-N-EtFOSA (surr.)	1	%	-	107	-	-
D7-N-MeFOSE (surr.)	1	%	-	99	-	-
D9-N-EtFOSE (surr.)	1	%	-	133	-	-
D5-N-EtFOSAA (surr.)	1	%	-	91	-	-
D3-N-MeFOSAA (surr.)	1	%	-	98	-	-
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	-	< 5	-	-
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	-	< 5	-	-
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	-	< 5	-	-
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	-	< 5	-	-
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	-	< 5	-	-
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	-	< 5	-	-
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	-	< 5	-	-
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	-	< 5	-	-
13C3-PFBS (surr.)	1	%	-	93	-	-
18O2-PFHxS (surr.)	1	%	-	139	-	-
13C8-PFOS (surr.)	1	%	-	144	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	-	< 5	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	-	< 10	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	-	< 5	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	-	< 5	-	-
13C2-4:2 FTSA (surr.)	1	%	-	90	-	-
13C2-6:2 FTSA (surr.)	1	%	-	101	-	-
13C2-8:2 FTSA (surr.)	1	%	-	79	-	-
13C2-10:2 FTSA (surr.)	1	%	-	95	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	< 5	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	< 5	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	< 5	-	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	< 10	-	-
Sum of PFASs (n=30)*	50	ug/kg	-	< 50	-	-

Client Sample ID			TP10_0.0-0.1	TP10_0.4-0.5	TP10_1.0-1.1	TP11_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064672	B23-JI0064673	B23-JI0064674	B23-JI0064675
Date Sampled			Jul 27, 2023	Jul 27, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit				
Chloride (1:5 aqueous extract)	5	mg/kg	9.4	-	< 5	6.0
Nitrate & Nitrite (as N)	5	mg/kg	< 5	-	< 5	< 5
Nitrate (as N)	5	mg/kg	< 5	-	< 5	< 5
Nitrite (as N)	5	mg/kg	< 5	-	< 5	< 5
Sulphate as SO4 (1:5 aqueous extract)	10	mg/kg	< 10	-	11	11
Total Kjeldahl Nitrogen (as N)	10	mg/kg	250	-	130	380
Total Nitrogen (as N)*	10	mg/kg	250	-	130	380
Phosphorus	5	mg/kg	110	-	60	140
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/kg	32	-	36	36
Carbonate Alkalinity (as CaCO3)	20	mg/kg	< 20	-	< 20	< 20
Hydroxide Alkalinity (as CaCO3)	20	mg/kg	< 20	-	< 20	< 20
Total Alkalinity (as CaCO3)	50	mg/kg	< 50	-	< 50	< 50
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	5	mg/kg	490	-	280	580
Magnesium	5	mg/kg	800	-	610	990
Potassium	5	mg/kg	1200	-	880	1500
Sodium	5	mg/kg	< 10	-	19	< 10

Client Sample ID			TP11_0.4-0.5	QC102	TP11_1.0-1.1
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064676	B23-JI0064677	B23-JI0064678
Date Sampled			Jul 27, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	99	101	96
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100

Client Sample ID			TP11_0.4-0.5	QC102	TP11_1.0-1.1
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064676	B23-JI0064677	B23-JI0064678
Date Sampled			Jul 27, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit			
Heavy Metals					
Arsenic	2	mg/kg	< 2	< 2	2.0
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	18	17	23
Copper	5	mg/kg	5.3	5.0	8.6
Lead	5	mg/kg	< 5	< 5	6.6
Nickel	5	mg/kg	< 5	< 5	8.2
Zinc	5	mg/kg	10	9.2	18
Sample Properties					
% Moisture	1	%	2.8	2.9	4.6
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	-
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	-
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	-
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	-
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	-
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	-
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	-
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	-
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	-
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	-
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	-
13C4-PFBA (surr.)	1	%	92	92	-
13C5-PFPeA (surr.)	1	%	81	83	-
13C5-PFHxA (surr.)	1	%	91	93	-
13C4-PFHpA (surr.)	1	%	94	94	-
13C8-PFOA (surr.)	1	%	100	108	-
13C5-PFNA (surr.)	1	%	98	97	-
13C6-PFDA (surr.)	1	%	104	108	-
13C2-PFUnDA (surr.)	1	%	110	108	-
13C2-PFDoDA (surr.)	1	%	94	90	-
13C2-PFTeDA (surr.)	1	%	141	139	-
Perfluoroalkyl sulfonamido substances					
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	-
13C8-FOSA (surr.)	1	%	111	106	-
D3-N-MeFOSA (surr.)	1	%	120	117	-
D5-N-EtFOSA (surr.)	1	%	110	108	-
D7-N-MeFOSE (surr.)	1	%	116	110	-
D9-N-EtFOSE (surr.)	1	%	127	126	-
D5-N-EtFOSAA (surr.)	1	%	97	96	-
D3-N-MeFOSAA (surr.)	1	%	102	100	-

Client Sample ID			TP11_0.4-0.5	QC102	TP11_1.0-1.1
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			B23-JI0064676	B23-JI0064677	B23-JI0064678
Date Sampled			Jul 27, 2023	Jul 27, 2023	Jul 27, 2023
Test/Reference	LOR	Unit			
Perfluoroalkyl sulfonic acids (PFSAs)					
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	-
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	-
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	-
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	-
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	-
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	-
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	-
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	-
13C3-PFBS (surr.)	1	%	100	99	-
18O2-PFHxS (surr.)	1	%	131	136	-
13C8-PFOS (surr.)	1	%	144	149	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	-
13C2-4:2 FTSA (surr.)	1	%	103	92	-
13C2-6:2 FTSA (surr.)	1	%	101	103	-
13C2-8:2 FTSA (surr.)	1	%	69	73	-
13C2-10:2 FTSA (surr.)	1	%	99	100	-
PFASs Summations					
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	-
Chloride (1:5 aqueous extract)	5	mg/kg	-	-	< 5
Nitrate & Nitrite (as N)	5	mg/kg	-	-	< 5
Nitrate (as N)	5	mg/kg	-	-	< 5
Nitrite (as N)	5	mg/kg	-	-	< 5
Sulphate as SO4 (1:5 aqueous extract)	10	mg/kg	-	-	49
Total Kjeldahl Nitrogen (as N)	10	mg/kg	-	-	160
Total Nitrogen (as N)*	10	mg/kg	-	-	160
Phosphorus	5	mg/kg	-	-	93
Alkalinity (speciated)					
Bicarbonate Alkalinity (as CaCO3)	20	mg/kg	-	-	49
Carbonate Alkalinity (as CaCO3)	20	mg/kg	-	-	< 20
Hydroxide Alkalinity (as CaCO3)	20	mg/kg	-	-	< 20
Total Alkalinity (as CaCO3)	50	mg/kg	-	-	< 50
Eurofins Suite B11C: Na/K/Ca/Mg					
Calcium	5	mg/kg	-	-	710
Magnesium	5	mg/kg	-	-	1900
Potassium	5	mg/kg	-	-	2100
Sodium	5	mg/kg	-	-	67

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Brisbane	Jul 31, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Brisbane	Jul 31, 2023	14 Days
- Method: USEPA SW846 8260			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Jul 31, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins Suite B5			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Jul 31, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M7	Brisbane	Jul 31, 2023	180 Days
- Method: USEPA 6010/6020 Heavy Metals			
Organochlorine Pesticides	Brisbane	Jul 31, 2023	14 Days
- Method: LTM-ORG-2220 OCP and PCB in Soil and Water (USEPA 8270)			
Organophosphorus Pesticides	Brisbane	Jul 31, 2023	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8270)			
Polychlorinated Biphenyls	Melbourne	Aug 02, 2023	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
% Moisture	Brisbane	Jul 28, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Jul 31, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Jul 31, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	Jul 31, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Jul 31, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride (1:5 aqueous extract)	Melbourne	Aug 02, 2023	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Sulphate as SO4 (1:5 aqueous extract)	Melbourne	Aug 02, 2023	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser (1:5 extract)			
Alkalinity (speciated)	Melbourne	Aug 02, 2023	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N)	Melbourne	Aug 02, 2023	28 Days
- Method: LTM-INO-4350 Determination of NO2, NO3, NOx in Water by Discrete Analyser			
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrate (as N)	Melbourne	Aug 02, 2023	28 Days
- Method: LTM-INO-4350 Determination of NO2, NO3, NOx in Water by Discrete Analyser			
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrite (as N)	Melbourne	Aug 02, 2023	28 Days
- Method: LTM-INO-4350 Determination of NO2, NO3, NOx in Water by Discrete Analyser			
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Total Kjeldahl Nitrogen (as N)	Melbourne	Aug 02, 2023	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Eurofins Suite B19A: Total N (TKN, NOx), Total P			
Phosphorus	Melbourne	Aug 15, 2023	180 Days
- Method: LTM-MET-3010 Alkali Metals Sulfur Silicon and Phosphorus by ICP-AES			
Eurofins Suite B11C: Na/K/Ca/Mg	Melbourne	Aug 02, 2023	180 Days
- Method: LTM-MET-3010 Alkali Metals by ICP-AES			

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Company Name: JBS & G Australia (QLD) P/L
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Project Name: APAS DSI
Project ID: 65513

Order No.: N/A
Report #: 1011929
Phone: 07 3181 5738
Fax:

Received: Jul 28, 2023 9:00 AM
Due: Aug 4, 2023
Priority: 5 Day
Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
External Laboratory																	
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**												
1	TP1_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064651	X			X		X	X				X	
2	TP2_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064652	X			X		X	X					
3	TP3_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064653				X		X	X				X	
4	TP3_0.5-0.6	Jul 26, 2023		Soil	B23-Jl0064654						X	X					
5	TP4_0.2-0.3	Jul 26, 2023		Soil	B23-Jl0064655	X					X	X				X	
6	TP5_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064656				X		X	X					
7	TP5_0.5-0.6	Jul 26, 2023		Soil	B23-Jl0064657						X					X	
8	TP5_2.0-2.1	Jul 26, 2023		Soil	B23-Jl0064658						X	X					
9	TP6_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064659				X		X						
10	TP6_0.5-0.6	Jul 26, 2023		Soil	B23-Jl0064660						X	X					
11	TP7_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064661				X		X						

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Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
12	TP7_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064662						X	X				X	
13	TP7_1.5-1.6	Jul 26, 2023		Soil	B23-JI0064663					X				X	X		X
14	TP8_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064664				X		X	X					
15	TP8_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064665						X	X				X	
16	TP12_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064666				X		X	X				X	
17	TP13_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064667				X		X	X					
18	TP14_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064668						X	X					
19	QC101	Jul 26, 2023		Water	B23-JI0064669								X				
20	TP9_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064670						X	X		X	X		X
21	TP9_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064671						X	X		X	X	X	X
22	TP10_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064672						X	X		X	X		X
23	TP10_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064673						X					X	
24	TP10_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064674						X	X		X	X		X
25	TP11_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064675				X		X			X	X		X

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Priority: 5 Day
Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
26	TP11_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064676						X	X				X	
27	QC102	Jul 27, 2023		Soil	B23-JI0064677						X	X				X	
28	TP11_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064678						X	X		X	X		X
29	FRAG_01	Jul 26, 2023		Building Materials	B23-JI0064679		X										
30	TP1_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064680			X									
31	TP1_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064681			X									
32	TP2_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064682			X									
33	TP2_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064683			X									
34	TP3_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064684			X									
35	TP4_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064685	X											
36	TP4_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064686			X									
37	TP4_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064687			X									
38	TP12_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064688			X									

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Project ID: 65513

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Fax:

Received: Jul 28, 2023 9:00 AM
Due: Aug 4, 2023
Priority: 5 Day
Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
39	TP12_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064689			X									
40	TP13_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064690			X									
41	TP14_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064691			X									
42	TP14_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064692			X									
43	TP9_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064693			X									
Test Counts						4	1	13	10	27	27	21	1	7	7	11	7

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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

Results <10 times the LOR: No Limit

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

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

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	n/a			0.5	N/A	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.5			0.5	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
Method Blank							
Chloride (1:5 aqueous extract)	mg/kg	< 5			5	Pass	
Sulphate as SO4 (1:5 aqueous extract)	mg/kg	< 10			10	Pass	
Phosphorus	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	119			70-130	Pass	
TRH C10-C14	%	74			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	113			70-130	Pass	
Toluene	%	102			70-130	Pass	
Ethylbenzene	%	112			70-130	Pass	
m&p-Xylenes	%	119			70-130	Pass	
Xylenes - Total*	%	118			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	118			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	86			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDD	%	81			70-130	Pass	
4.4'-DDE	%	92			70-130	Pass	
4.4'-DDT	%	111			70-130	Pass	
a-HCH	%	88			70-130	Pass	
Aldrin	%	81			70-130	Pass	
b-HCH	%	97			70-130	Pass	
d-HCH	%	91			70-130	Pass	
Dieldrin	%	89			70-130	Pass	
Endosulfan I	%	105			70-130	Pass	
Endosulfan II	%	91			70-130	Pass	
Endosulfan sulphate	%	98			70-130	Pass	
Endrin	%	96			70-130	Pass	
Endrin aldehyde	%	85			70-130	Pass	
Endrin ketone	%	103			70-130	Pass	
g-HCH (Lindane)	%	93			70-130	Pass	
Heptachlor	%	88			70-130	Pass	
Heptachlor epoxide	%	78			70-130	Pass	
Hexachlorobenzene	%	80			70-130	Pass	
Methoxychlor	%	119			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Azinphos-methyl	%	84			70-130	Pass	
Bolstar	%	92			70-130	Pass	
Chlorfenvinphos	%	110			70-130	Pass	
Chlorpyrifos	%	83			70-130	Pass	
Chlorpyrifos-methyl	%	75			70-130	Pass	
Coumaphos	%	112			70-130	Pass	
Demeton-S	%	125			70-130	Pass	
Demeton-O	%	104			70-130	Pass	
Diazinon	%	97			70-130	Pass	
Dichlorvos	%	96			70-130	Pass	
Dimethoate	%	104			70-130	Pass	
Disulfoton	%	86			70-130	Pass	
EPN	%	98			70-130	Pass	
Ethion	%	119			70-130	Pass	
Ethoprop	%	106			70-130	Pass	
Ethyl parathion	%	129			70-130	Pass	
Fenitrothion	%	96			70-130	Pass	
Fensulfothion	%	79			70-130	Pass	
Fenthion	%	105			70-130	Pass	
Malathion	%	125			70-130	Pass	
Merphos	%	87			70-130	Pass	
Methyl parathion	%	88			75-125	Pass	
Mevinphos	%	78			70-130	Pass	
Monocrotophos	%	120			70-130	Pass	
Naled	%	87			70-130	Pass	
Omethoate	%	107			70-130	Pass	
Phorate	%	96			70-130	Pass	
Pirimiphos-methyl	%	123			70-130	Pass	
Pyrazophos	%	115			70-130	Pass	
Ronnel	%	99			70-130	Pass	
Terbufos	%	106			70-130	Pass	
Tetrachlorvinphos	%	114			70-130	Pass	
Tokuthion	%	81			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Trichloronate	%	82			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	105			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	73			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	96			80-120	Pass	
Cadmium	%	97			80-120	Pass	
Chromium	%	91			80-120	Pass	
Copper	%	94			80-120	Pass	
Lead	%	94			80-120	Pass	
Nickel	%	84			80-120	Pass	
Zinc	%	93			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	99			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	109			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	105			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	115			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	97			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	133			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	83			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	107			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	141			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	129			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	97			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	110			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	105			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	101			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	129			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	87			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	123			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	119			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	95			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	139			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	90			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	78			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	137			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	118			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	96			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	69			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	133			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	104			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	140			50-150	Pass	
LCS - % Recovery							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chloride (1:5 aqueous extract)			%	108			70-130	Pass	
Sulphate as SO4 (1:5 aqueous extract)			%	109			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	B23-Au0000847	NCP	%	75			70-130	Pass	
4.4'-DDD	B23-Au0000847	NCP	%	80			70-130	Pass	
4.4'-DDE	B23-Au0000847	NCP	%	74			70-130	Pass	
4.4'-DDT	B23-Au0000847	NCP	%	111			70-130	Pass	
a-HCH	B23-Au0000847	NCP	%	74			70-130	Pass	
Aldrin	B23-Au0002611	NCP	%	84			70-130	Pass	
b-HCH	B23-Au0000847	NCP	%	83			70-130	Pass	
d-HCH	B23-Au0000847	NCP	%	79			70-130	Pass	
Dieldrin	B23-Au0000847	NCP	%	71			70-130	Pass	
Endosulfan I	B23-Au0000847	NCP	%	91			70-130	Pass	
Endosulfan II	B23-Au0000847	NCP	%	79			70-130	Pass	
Endosulfan sulphate	B23-Au0000847	NCP	%	97			70-130	Pass	
Endrin	B23-Au0000847	NCP	%	89			70-130	Pass	
Endrin aldehyde	B23-Au0000847	NCP	%	73			70-130	Pass	
Endrin ketone	B23-Au0000847	NCP	%	103			70-130	Pass	
g-HCH (Lindane)	B23-Au0000847	NCP	%	73			70-130	Pass	
Heptachlor	B23-Au0000847	NCP	%	77			70-130	Pass	
Heptachlor epoxide	B23-Au0002611	NCP	%	85			70-130	Pass	
Hexachlorobenzene	B23-Au0002611	NCP	%	82			70-130	Pass	
Methoxychlor	B23-Au0000847	NCP	%	120			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Bolstar	B23-Au0000847	NCP	%	93			70-130	Pass	
Chlorfenvinphos	B23-Jl0064167	NCP	%	124			70-130	Pass	
Chlorpyrifos	B23-Au0000847	NCP	%	76			70-130	Pass	
Chlorpyrifos-methyl	B23-Jl0053463	NCP	%	72			70-130	Pass	
Demeton-S	B23-Jl0064160	NCP	%	113			70-130	Pass	
Demeton-O	B23-Au0000847	NCP	%	118			70-130	Pass	
Diazinon	B23-Au0000847	NCP	%	88			70-130	Pass	
Dichlorvos	B23-Au0000847	NCP	%	101			70-130	Pass	
Dimethoate	B23-Jl0064160	NCP	%	101			70-130	Pass	
Disulfoton	B23-Au0000847	NCP	%	83			70-130	Pass	
EPN	B23-Jl0053463	NCP	%	106			70-130	Pass	
Ethion	B23-Jl0064160	NCP	%	123			70-130	Pass	
Ethoprop	B23-Jl0064160	NCP	%	123			70-130	Pass	
Fenitrothion	B23-Jl0064160	NCP	%	111			70-130	Pass	
Fensulfothion	B23-Au0000847	NCP	%	91			70-130	Pass	
Fenthion	B23-Au0000847	NCP	%	110			70-130	Pass	
Malathion	B23-Jl0064160	NCP	%	124			70-130	Pass	
Methyl parathion	B23-Au0000847	NCP	%	122			70-130	Pass	
Mevinphos	B23-Au0000847	NCP	%	125			70-130	Pass	
Monocrotophos	B23-Jl0064160	NCP	%	116			70-130	Pass	
Omethoate	B23-Jl0064160	NCP	%	112			70-130	Pass	
Phorate	B23-Au0000847	NCP	%	109			70-130	Pass	
Pirimiphos-methyl	B23-Au0000847	NCP	%	119			70-130	Pass	
Ronnel	B23-Au0000847	NCP	%	88			70-130	Pass	
Terbufos	B23-Au0000847	NCP	%	105			70-130	Pass	
Tetrachlorvinphos	B23-Jl0053463	NCP	%	123			70-130	Pass	
Tokuthion	B23-Au0000847	NCP	%	80			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Trichloronate	B23-Au0000847	NCP	%	72			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	M23-Jl0061103	NCP	%	110			70-130	Pass	
Aroclor-1260	M23-Jl0061103	NCP	%	105			70-130	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Jl0064657	CP	%	97			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Jl0064657	CP	%	121			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Jl0064657	CP	%	107			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Jl0064657	CP	%	119			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Jl0064657	CP	%	101			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Jl0064657	CP	%	134			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Jl0064657	CP	%	90			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Jl0064657	CP	%	112			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Jl0064657	CP	%	135			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Jl0064657	CP	%	131			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Jl0064657	CP	%	99			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Jl0064657	CP	%	115			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Jl0064657	CP	%	109			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Jl0064657	CP	%	105			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Jl0064657	CP	%	127			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Jl0064657	CP	%	95			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Jl0064657	CP	%	133			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Jl0064657	CP	%	122			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Jl0064657	CP	%	106			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Jl0064657	CP	%	140			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Jl0064657	CP	%	114			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Jl0064657	CP	%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Jl0064657	CP	%	145			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Jl0064657	CP	%	121			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Jl0064657	CP	%	70			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Jl0064657	CP	%	70			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-JI0064657	CP	%	135			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-JI0064657	CP	%	109			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0064657	CP	%	108			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0064657	CP	%	130			50-150	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B23-JI0064662	CP	%	97			70-130	Pass	
TRH C10-C14	B23-JI0064662	CP	%	104			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B23-JI0064662	CP	%	97			70-130	Pass	
Toluene	B23-JI0064662	CP	%	98			70-130	Pass	
Ethylbenzene	B23-JI0064662	CP	%	104			70-130	Pass	
m&p-Xylenes	B23-JI0064662	CP	%	109			70-130	Pass	
o-Xylene	B23-JI0064662	CP	%	107			70-130	Pass	
Xylenes - Total*	B23-JI0064662	CP	%	108			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B23-JI0064662	CP	%	97			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B23-JI0064662	CP	%	103			70-130	Pass	
Spike - % Recovery									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1					
Calcium	B23-JI0068226	NCP	%	97			75-125	Pass	
Magnesium	B23-JI0068226	NCP	%	93			75-125	Pass	
Potassium	B23-JI0068226	NCP	%	90			75-125	Pass	
Sodium	B23-JI0068226	NCP	%	111			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B23-JI0064666	CP	%	108			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B23-JI0064666	CP	%	101			70-130	Pass	
Toluene	B23-JI0064666	CP	%	95			70-130	Pass	
Ethylbenzene	B23-JI0064666	CP	%	105			70-130	Pass	
m&p-Xylenes	B23-JI0064666	CP	%	110			70-130	Pass	
o-Xylene	B23-JI0064666	CP	%	106			70-130	Pass	
Xylenes - Total*	B23-JI0064666	CP	%	109			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B23-JI0064666	CP	%	107			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B23-JI0064667	CP	%	88			75-125	Pass	
Cadmium	B23-JI0064667	CP	%	92			75-125	Pass	
Chromium	B23-JI0064667	CP	%	89			75-125	Pass	
Copper	B23-JI0064667	CP	%	90			75-125	Pass	
Lead	B23-JI0064667	CP	%	90			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nickel	B23-JI0064667	CP	%	96			75-125	Pass	
Zinc	B23-JI0064667	CP	%	89			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B23-JI0064676	CP	%	102			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B23-JI0064676	CP	%	99			70-130	Pass	
Toluene	B23-JI0064676	CP	%	98			70-130	Pass	
Ethylbenzene	B23-JI0064676	CP	%	104			70-130	Pass	
m&p-Xylenes	B23-JI0064676	CP	%	110			70-130	Pass	
o-Xylene	B23-JI0064676	CP	%	106			70-130	Pass	
Xylenes - Total*	B23-JI0064676	CP	%	109			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B23-JI0064676	CP	%	101			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B23-JI0064676	CP	%	116			75-125	Pass	
Cadmium	B23-JI0064676	CP	%	121			75-125	Pass	
Chromium	B23-JI0064676	CP	%	123			75-125	Pass	
Copper	B23-JI0064676	CP	%	122			75-125	Pass	
Lead	B23-JI0064676	CP	%	120			75-125	Pass	
Nickel	B23-JI0064676	CP	%	119			75-125	Pass	
Zinc	B23-JI0064676	CP	%	123			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	B23-Au0000863	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	B23-Au0000863	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Chlorpyrifos-methyl	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	B23-Au0000863	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	B23-Au0000863	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	B23-Au0000863	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	B23-Au0000863	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M23-Au0000809	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	M23-Au0000809	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	M23-Au0000809	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	M23-Au0000809	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	M23-Au0000809	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	M23-Au0000809	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	M23-Au0000809	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	M23-Au0000809	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-Jl0064652	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	B23-Jl0064652	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	B23-Jl0064652	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	B23-Jl0064652	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Jl0064652	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	B23-Jl0064652	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	B23-Jl0064652	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	B23-Jl0064652	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	B23-Jl0064652	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	B23-Jl0064652	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B23-Jl0064652	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	B23-Jl0064652	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B23-Jl0064652	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	B23-Jl0064652	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	B23-Jl0064652	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B23-Jl0064653	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	B23-Jl0064653	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chromium	B23-Jl0064653	CP	mg/kg	13	12	3.0	30%	Pass	
Copper	B23-Jl0064653	CP	mg/kg	5.4	< 5	13	30%	Pass	
Lead	B23-Jl0064653	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	B23-Jl0064653	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	B23-Jl0064653	CP	mg/kg	11	9.2	15	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	B23-Jl0064659	CP	%	1.3	1.3	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride (1:5 aqueous extract)	M23-Au0001826	NCP	mg/kg	77	88	13	30%	Pass	
Sulphate as SO4 (1:5 aqueous extract)	M23-Au0001827	NCP	mg/kg	10	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-Jl0064665	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	B23-Jl0064665	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	B23-Jl0064665	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	B23-Jl0064665	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Jl0064665	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	B23-Jl0064665	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	B23-Jl0064665	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	B23-Jl0064665	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	B23-Jl0064665	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	B23-Jl0064665	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B23-Jl0064665	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	B23-Jl0064665	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B23-Jl0064665	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	B23-Jl0064665	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	B23-Jl0064665	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B23-Jl0064665	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	B23-Jl0064665	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chromium	B23-Jl0064665	CP	mg/kg	17	16	2.1	30%	Pass	
Copper	B23-Jl0064665	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	B23-Jl0064665	CP	mg/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel	B23-JI0064665	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	B23-JI0064665	CP	mg/kg	8.9	8.3	6.6	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0064665	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0064665	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-JI0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Jl0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Jl0064665	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Jl0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Jl0064665	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Jl0064666	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Jl0064666	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Jl0064666	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Jl0064666	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	B23-Jl0064671	CP	%	4.1	4.4	8.7	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-Jl0064677	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	B23-Jl0064677	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	B23-Jl0064677	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	B23-Jl0064677	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Jl0064677	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	B23-Jl0064677	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	B23-Jl0064677	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	B23-Jl0064677	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	B23-Jl0064677	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	B23-Jl0064677	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B23-Jl0064677	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	B23-Jl0064677	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B23-Jl0064677	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	B23-Jl0064677	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	B23-Jl0064677	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B23-Jl0064677	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Chromium	B23-Jl0064677	CP	mg/kg	17	17	4.4	30%	Pass	
Copper	B23-Jl0064677	CP	mg/kg	5.0	5.2	4.2	30%	Pass	
Lead	B23-Jl0064677	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	B23-Jl0064677	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	B23-Jl0064677	CP	mg/kg	9.2	10	8.8	30%	Pass	

Comments

This report has been revised (V2) to include phosphorus results for samples JI0064670, 71, 72, 74, 75 and 78.

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Alana Wadsworth	Analytical Services Manager
Angelique Lang-Frey	Senior Analyst-Organic
Caitlin Breeze	Senior Analyst-Inorganic
Caitlin Breeze	Senior Analyst-Metal
Edward Lee	Senior Analyst-Organic
Emily Rosenberg	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Sample Properties
Jonathon Angell	Senior Analyst-Volatile
Laxman Dias	Senior Analyst-Asbestos

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Rebecca Schofield**

Report **1011929-W-V2**
Project name APAS DSI
Project ID 65513
Received Date Jul 28, 2023

Client Sample ID			**QC101**
Sample Matrix			**Water**
Eurofins Sample No.			**B23-JI0064669**
Date Sampled			**Jul 26, 2023**
Test/Reference	LOR	Unit	
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	88
Total Recoverable Hydrocarbons			
TRH C6-C10	0.02	mg/L	< 0.02

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
Naphthalene	Brisbane	Aug 01, 2023	14 Days
- Method: USEPA 8260B - MGT 350A Volatile Organics by GCMS			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Brisbane	Aug 01, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Brisbane	Aug 01, 2023	14 Days
- Method: USEPA SW846 8260			
Total Recoverable Hydrocarbons	Brisbane	Aug 01, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			

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Company Name: JBS & G Australia (QLD) P/L
Address: Level 3, Turbot Street
Brisbane
QLD 4000

Project Name: APAS DSI
Project ID: 65513

Order No.: N/A
Report #: 1011929
Phone: 07 3181 5738
Fax:

Received: Jul 28, 2023 9:00 AM
Due: Aug 4, 2023
Priority: 5 Day
Contact Name: Rebecca Schofield

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins Suite B15	Moisture Set	Moisture Set	Eurofins Suite B5	BTEXN and Volatile TRH	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
External Laboratory																	
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**												
1	TP1_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064651	X			X		X	X				X	
2	TP2_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064652	X			X		X	X					
3	TP3_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064653				X		X	X				X	
4	TP3_0.5-0.6	Jul 26, 2023		Soil	B23-Jl0064654						X	X					
5	TP4_0.2-0.3	Jul 26, 2023		Soil	B23-Jl0064655	X					X	X				X	
6	TP5_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064656				X		X	X					
7	TP5_0.5-0.6	Jul 26, 2023		Soil	B23-Jl0064657						X					X	
8	TP5_2.0-2.1	Jul 26, 2023		Soil	B23-Jl0064658						X	X					
9	TP6_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064659				X		X						
10	TP6_0.5-0.6	Jul 26, 2023		Soil	B23-Jl0064660						X	X					
11	TP7_0.0-0.1	Jul 26, 2023		Soil	B23-Jl0064661				X		X						

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Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
12	TP7_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064662						X	X				X	
13	TP7_1.5-1.6	Jul 26, 2023		Soil	B23-JI0064663					X				X	X		X
14	TP8_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064664				X		X	X					
15	TP8_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064665						X	X				X	
16	TP12_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064666				X		X	X				X	
17	TP13_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064667				X		X	X					
18	TP14_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064668						X	X					
19	QC101	Jul 26, 2023		Water	B23-JI0064669								X				
20	TP9_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064670						X	X		X	X		X
21	TP9_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064671						X	X		X	X	X	X
22	TP10_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064672						X	X		X	X		X
23	TP10_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064673						X					X	
24	TP10_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064674						X	X		X	X		X
25	TP11_0.0-0.1	Jul 27, 2023		Soil	B23-JI0064675				X		X			X	X		X

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Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
26	TP11_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064676						X	X				X	
27	QC102	Jul 27, 2023		Soil	B23-JI0064677						X	X				X	
28	TP11_1.0-1.1	Jul 27, 2023		Soil	B23-JI0064678						X	X		X	X		X
29	FRAG_01	Jul 26, 2023		Building Materials	B23-JI0064679		X										
30	TP1_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064680			X									
31	TP1_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064681			X									
32	TP2_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064682			X									
33	TP2_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064683			X									
34	TP3_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064684			X									
35	TP4_0.0-0.1	Jul 26, 2023		Soil	B23-JI0064685	X											
36	TP4_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064686			X									
37	TP4_1.4-1.5	Jul 26, 2023		Soil	B23-JI0064687			X									
38	TP12_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064688			X									

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Melbourne Laboratory - NATA # 1261 Site # 1254									X	X	X	X	X	X	X		X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X										
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X			X	
39	TP12_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064689			X									
40	TP13_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064690			X									
41	TP14_0.5-0.6	Jul 26, 2023		Soil	B23-JI0064691			X									
42	TP14_1.0-1.1	Jul 26, 2023		Soil	B23-JI0064692			X									
43	TP9_0.4-0.5	Jul 27, 2023		Soil	B23-JI0064693			X									
Test Counts						4	1	13	10	27	27	21	1	7	7	11	7

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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

Results <10 times the LOR: No Limit

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

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

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	106			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	96			70-130	Pass	
Toluene	%	96			70-130	Pass	
Ethylbenzene	%	102			70-130	Pass	
m&p-Xylenes	%	105			70-130	Pass	
Xylenes - Total*	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C10	%	106			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B23-JI0065689	NCP	%	105			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B23-JI0065689	NCP	%	100			70-130	Pass	
Toluene	B23-JI0065689	NCP	%	100			70-130	Pass	
Ethylbenzene	B23-JI0065689	NCP	%	102			70-130	Pass	
m&p-Xylenes	B23-JI0065689	NCP	%	105			70-130	Pass	
o-Xylene	B23-JI0065689	NCP	%	103			70-130	Pass	
Xylenes - Total*	B23-JI0065689	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C10	B23-JI0065689	NCP	%	106			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Naphthalene	B23-JI0066114	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-JI0066114	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Jl0066114	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	B23-Jl0066114	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B23-Jl0066114	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B23-Jl0066114	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	B23-Jl0066114	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	B23-Jl0066114	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C10	B23-Jl0066114	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Comments

This report has been revised (V2) to include phosphorus results for samples JI0064670, 71, 72, 74, 75 and 78.

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised by:

Alana Wadsworth	Analytical Services Manager
Angelique Lang-Frey	Senior Analyst-Volatile

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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CERTIFICATE OF ANALYSIS

Work Order	: **EB2323134**	Page	: 1 of 9
Client	: **JBS&G AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: ACCOUNTS PAYABLE	Contact	: John Pickering
Address	: LEVEL 3 32 TURBOT STREET BRISBANE QLD, AUSTRALIA 4000	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 08 9488 0100	Telephone	: +61 7 3552 8634
Project	: 65513 - APAS DSI	Date Samples Received	: 28-Jul-2023 15:49
Order number	: 65513	Date Analysis Commenced	: 01-Aug-2023
C-O-C number	: ----	Issue Date	: 04-Aug-2023 14:26
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

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*
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Timothy Creagh	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

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.
- 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.
- 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	QC103	----	----	----	----
			Sampling date / time	27-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2323134-001	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**3.0**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**10**	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----
Lead	7439-92-1	5	mg/kg	<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
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)				Sample ID	QC103	----	----	----	----
				Sampling date / time	27-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2323134-001	--------	--------	--------	--------
					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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC103	----	----	----	----
			Sampling date / time	27-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2323134-001	--------	--------	--------	--------
				Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----	----	----	----
^ **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	----	----	----	----
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	----	----	----	----
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	----	----	----	----
>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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC103	----	----	----	----
			Sampling date / time	27-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2323134-001	--------	--------	--------	--------
				Result	----	----	----	----
EP080: BTEXN - Continued								
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	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0011**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	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	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC103	----	----	----	----
				Sampling date / time	27-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2323134-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	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 PFAS	----	0.0002	mg/kg		**0.0011**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0011**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0011**	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**80.6**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**101**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC103	----	----	----	----
				Sampling date / time	27-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2323134-001	--------	--------	--------	--------
					Result	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate - Continued									
DEF	78-48-8	0.05	%		119	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		104	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		105	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		77.5	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		101	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		101	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		107	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		89.0	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		81.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		93.1	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		94.5	----	----	----	----
13C8-PFOA	----	0.0002	%		103	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	16	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	138
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	23	134
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	53	134
Toluene-D8	2037-26-5	60	131
4-Bromofluorobenzene	460-00-4	59	127
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2323134**

Client	: **JBS&G AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: ACCOUNTS PAYABLE	Contact	: John Pickering
Address	: LEVEL 3 32 TURBOT STREET BRISBANE QLD, AUSTRALIA 4000	Address	: 2 Byth Street Stafford QLD Australia 4053
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Telephone	: +61 08 9488 0100	Telephone	: +61 7 3552 8634
Facsimile	: +61 08 9488 0199	Facsimile	: +61-7-3243 7218
Project	: 65513 - APAS DSI	Page	: 1 of 2
Order number	: ----	Quote number	: EP2020JBSENV0002 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 28-Jul-2023 15:49	Issue Date	: 31-Jul-2023
Client Requested Due Date	: 07-Aug-2023	Scheduled Reporting Date	: **07-Aug-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 7.9°C - Ice Bricks present
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 1 / 1

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 be advised, where metals have been requested, the standard 8 metals have been assigned. If you wish to discuss this further please contact ALS Brisbane Client Services Department at ALSEnviro.Brisbane@alsglobal.com or phone 3243 7222.**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- 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.
- **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.**

Sample Container(s)/Preservation Non-Compliances

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

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

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 - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)	SOIL - S-12 OC/OP Pesticides	SOIL - S-26 8 metals/TRH/BTEXN/PAH
EB2323134-001	27-Jul-2023 00:00	QC103	✓	✓	✓	✓	✓

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- *AU Certificate of Analysis - NATA (COA)	Email	adminnsw@jbsg.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	adminnsw@jbsg.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	adminnsw@jbsg.com.au
- A4 - AU Sample Receipt Notification - Environmental (WRG) (SRN)	Email	adminnsw@jbsg.com.au
- A4 - AU Tax Invoice (INV)	Email	adminnsw@jbsg.com.au
- Chain of Custody (CoC) (COC)	Email	adminnsw@jbsg.com.au
- EDI Format - ESDAT (ESDAT)	Email	adminnsw@jbsg.com.au
- EDI Format - XTab (XTAB)	Email	adminnsw@jbsg.com.au

K BRADLEY

- *AU Certificate of Analysis - NATA (COA)	Email	kbradley@jbsg.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kbradley@jbsg.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kbradley@jbsg.com.au
- A4 - AU Sample Receipt Notification - Environmental (WRG) (SRN)	Email	kbradley@jbsg.com.au
- A4 - AU Tax Invoice (INV)	Email	kbradley@jbsg.com.au
- Chain of Custody (CoC) (COC)	Email	kbradley@jbsg.com.au
- EDI Format - ESDAT (ESDAT)	Email	kbradley@jbsg.com.au
- EDI Format - XTab (XTAB)	Email	kbradley@jbsg.com.au

REBECCA SCHOFIELD

- *AU Certificate of Analysis - NATA (COA)	Email	rschofield@jbsg.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	rschofield@jbsg.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	rschofield@jbsg.com.au
- A4 - AU Sample Receipt Notification - Environmental (WRG) (SRN)	Email	rschofield@jbsg.com.au
- A4 - AU Tax Invoice (INV)	Email	rschofield@jbsg.com.au
- Chain of Custody (CoC) (COC)	Email	rschofield@jbsg.com.au
- EDI Format - ESDAT (ESDAT)	Email	rschofield@jbsg.com.au
- EDI Format - XTab (XTAB)	Email	rschofield@jbsg.com.au

Chain of Custody

coc 1 of 1

JBS&G

PROJECT NO.: 65513	LABORATORY BATCH NO.:
PROJECT NAME: APAS DSI	SAMPLERS:
DATE NEEDED BY: Standard TAT	QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) rschofield@jbsg.com.au; (3) kbradley@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

* Please forward to ALS for analysis

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	~~[illegible]~~	~~[illegible] Extended Suite~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	TRH, BTEX, PAH	METALS		OCP, OPP, PCB		PFAS						TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: Analysis Suite Code Breakdown on Back of COC
QC103	S	27/7/23		J, P									X	X		X		X							

Environmental Division
Brisbane
Work Order Reference
EB2323134

Telephone : + 61-7-3243 7222

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Rebecca Schofield DATE: 27/7/23	CONSIGNMENT NOTE NO. 009 03 X1B7V	NAME: EH	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO. TOLL	DATE: 28.07.23 1549 OF:	COOLER TEMP ..... deg C
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF:	TRANSPORT CO	OF:	COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

NOTES:

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Chain of Custody

1034559

JBS&G

PROJECT NO.: 65513	LABORATORY BATCH NO.:
PROJECT NAME: APAS DSI	SAMPLERS:
DATE NEEDED BY: Standard TAT	QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) rschofield@jbsg.com.au; (3) khailes@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Consignment no:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	B5	PFAS Extended Suite	B15	B11C	B11E	B19A	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES: Analysis Suite Code Breakdown on Back of COC
Pond 1/1 – 0-10	S	9/10/23		Soil Jar x 2 and PFAS		x	x	x						
Pond 1/1 – 10-20	S	9/10/23		Soil Jar x 2 and PFAS		x	x	x	x	x	x			
Pond 1/2 – 0-10	S	9/10/23		Soil Jar x 2 and PFAS										
Pond 1/2 – 10-20	S	9/10/23		Soil Jar x 2 and PFAS										
Pond 1/3 – 0-10	S	9/10/23		Soil Jar x 2 and PFAS										
Pond 1/3 – 10-20	S	9/10/23		Soil Jar x 2 and PFAS		x	x	x						
Pond 2/1 – 0-10	S	9/10/23		Soil Jar x 2 and PFAS		x	x	x						
Pond 2/1 – 10-20	S	9/10/23		Soil Jar x 2 and PFAS										
Pond 2/2 – 0-20	S	9/10/23		Soil Jar x 2 and PFAS										
Pond 2/3 – 0-20	S	9/10/23		Soil Jar x 2 and PFAS		x	x	x						
Pond 3/1 – 0-10	S	9/10/23		Soil Jar x 2 and PFAS		x	x	x						
Pond 3/1 – 10-20	S	9/10/23		Soil Jar x 2 and PFAS		x	x	x						
Pond 3/2 – 0-20	S	9/10/23		Soil Jar x 2 and PFAS		x	x	x						
Pond 3/3 – 0-20	S	9/10/23		Soil Jar x 2 and PFAS										
Pond 4/1 – 0-10	S	9/10/23		Soil Jar x 2 and PFAS		x	x	x						
Pond 4/1 – 10-20	S	9/10/23		Soil Jar x 2 and PFAS										
Pond 4/2 – 0-20	S	9/10/23		Soil Jar x 2 and PFAS		x	x	x	x	x	x			
Pond 4/3 – 0-20	S	9/10/23		Soil Jar x 2 and PFAS										

Date/Time: 13/10/23 2:30pm

Chilled: Yes / No

Temp: 13°C 60

Corrections

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: OF:	COOLER TEMP ..... deg C
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF:	TRANSPORT CO	OF:	COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

NOTES:

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eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

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6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West NSW 2304
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	Tel: +61 2 4968 8448
Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

Eurofins ARL Pty Ltd

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Tel: +61 8 6253 4444
NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

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Penrose,	Rolleston,	Gate Pa,
Auckland 1061	Christchurch 7675	Tauranga 3112
Tel: +64 9 526 4551	Tel: +64 3 343 5201	Tel: +64 9 525 0568
IANZ# 1327	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	JBS & G Australia (QLD) P/L
Contact name:	adminnsw@jbsg.com.au
Project name:	APASDSI
Project ID:	65513
Turnaround time:	5 Day
Date/Time received	Oct 13, 2023 2:30 PM
Eurofins reference	1034559

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 13 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Please note: sample Pond 1/3 0-10 was not receieved by laboratory, testing has been cancelled.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Alana Wadsworth on phone : 0499 810 009 or by email: AlanaWadsworth@eurofins.com

Results will be delivered electronically via email to adminnsw@jbsg.com.au - adminnsw@jbsg.com.au.

Note: A copy of these results will also be delivered to the general JBS & G Australia (QLD) P/L email address.

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West NSW 2304
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Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

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Tel: +61 8 6253 4444
NATA# 2377
Site# 2370

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Auckland 1061	Christchurch 7675	Tauranga 3112
Tel: +64 9 526 4551	Tel: +64 3 343 5201	Tel: +64 9 525 0568
IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: JBS & G Australia (QLD) P/L
Address: Level 3, Turbot Street
Brisbane
QLD 4000

Project Name: APAS DSI
Project ID: 65513

Order No.:
Report #: 1034559
Phone: 07 3181 5738
Fax:

Received: Oct 13, 2023 2:30 PM
Due: Oct 20, 2023
Priority: 5 Day
Contact Name: adminnsw@jbsg.com.au

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail	CANCELLED	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B5	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254			X		X	X		X	X
Brisbane Laboratory - NATA # 1261 Site # 20794	X	X	X	X	X		X		X
External Laboratory									

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	POND 1/1-0-10	Oct 09, 2023		Soil	B23-Oc0029703			X	X	X		X		
2	POND 1/1-10-20	Oct 09, 2023		Soil	B23-Oc0029704			X	X	X	X	X	X	X
3	POND 1/3- 10-20	Oct 09, 2023		Soil	B23-Oc0029705			X	X	X		X		
4	POND 2/1- 0-10	Oct 09, 2023		Soil	B23-Oc0029706			X	X	X		X		
5	POND 2/3- 0-20	Oct 09, 2023		Soil	B23-Oc0029707			X	X	X		X		
6	POND 3/1-10/20	Oct 09, 2023		Soil	B23-Oc0029708			X	X	X		X		
7	POND 3/2- 0-20	Oct 09, 2023		Soil	B23-Oc0029709			X	X	X		X		

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
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VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	Tel: +61 2 4968 8448
Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

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Site# 2370

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Auckland 1061	Christchurch 7675	Tauranga 3112
Tel: +64 9 526 4551	Tel: +64 3 343 5201	Tel: +64 9 525 0568
IANZ# 1327	IANZ# 1290	IANZ# 1402

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: JBS & G Australia (QLD) P/L
Address: Level 3, Turbot Street
Brisbane
QLD 4000

Project Name: APAS DSI
Project ID: 65513

Order No.:
Report #: 1034559
Phone: 07 3181 5738
Fax:

Received: Oct 13, 2023 2:30 PM
Due: Oct 20, 2023
Priority: 5 Day
Contact Name: adminnsw@jbsg.com.au

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						CANCELLED	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B5	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254								X		X	X		X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X		X		X
8	POND 4/1- 0-10	Oct 09, 2023		Soil	B23-Oc0029710			X	X	X		X		
9	POND 4/2- 0-20	Oct 09, 2023		Soil	B23-Oc0029711			X	X	X	X	X	X	X
10	POND 3/1- 0-10	Oct 09, 2023		Soil	B23-Oc0029712			X	X	X		X		
11	POND 1/2-0-10	Oct 09, 2023		Soil	B23-Oc0029713		X							
12	POND 1/2-10-20	Oct 09, 2023		Soil	B23-Oc0029714		X							
13	POND 1/3- 0-10	Oct 09, 2023		Soil	B23-Oc0029715	X								
14	POND 2/1-10-20	Oct 09, 2023		Soil	B23-Oc0029716		X							
15	POND 2/2- 0-20	Oct 09, 2023		Soil	B23-Oc0029717		X							
16	POND 3/3- 0-20	Oct 09, 2023		Soil	B23-Oc0029718		X							

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

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ABN: 91 05 0159 898

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WA 6106
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NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

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IANZ# 1327	IANZ# 1290	IANZ# 1402

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: JBS & G Australia (QLD) P/L
Address: Level 3, Turbot Street
Brisbane
QLD 4000

Project Name: APAS DSI
Project ID: 65513

Order No.:
Report #: 1034559
Phone: 07 3181 5738
Fax:

Received: Oct 13, 2023 2:30 PM
Due: Oct 20, 2023
Priority: 5 Day
Contact Name: adminnsw@jbsg.com.au

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						CANCELLED	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B5	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254								X		X	X		X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X		X		X
17	POND 4/3-0-20	Oct 09, 2023		Soil	B23-Oc0029719		X							
18	POND 4/1- 10-20	Oct 09, 2023		Soil	B23-Oc0029720		X							
Test Counts						1	7	10	10	10	2	10	2	2

JBS & G Australia (QLD) P/L
Level 3, Turbot Street
Brisbane
QLD 4000

NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **adminnsw@jbsg.com.au**

Report **1034559-S**
Project name APAS DSI
Project ID 65513
Received Date Oct 13, 2023

Client Sample ID			**POND 1/1-0-10**	[G01]**POND 1/1-10-20**	[G01]**POND 1/3-10-20**	**POND 2/1- 0-10**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**B23-Oc0029703**	**B23-Oc0029704**	**B23-Oc0029705**	**B23-Oc0029706**
Date Sampled			**Oct 09, 2023**	**Oct 09, 2023**	**Oct 09, 2023**	**Oct 09, 2023**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	190	2800	490	< 20
TRH C15-C28	50	mg/kg	3100	20000	14000	66
TRH C29-C36	50	mg/kg	1900	8200	7900	70
TRH C10-C36 (Total)	50	mg/kg	5190	31000	22390	136
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	82	78	85	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	0.9	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	290	5299.1	1400	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.5	< 0.5	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05

Client Sample ID			POND 1/1-0-10	G01POND 1/1-10-20	G01POND 1/3-10-20	POND 2/1- 0-10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-Oc0029703	B23-Oc0029704	B23-Oc0029705	B23-Oc0029706
Date Sampled			Oct 09, 2023	Oct 09, 2023	Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.5	< 0.5	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.5	< 0.5	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.5	< 0.5	< 0.1
Dibutylchlorendate (surr.)	1	%	146	125	132	87
Tetrachloro-m-xylene (surr.)	1	%	106	85	59	90
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Coumaphos	2	mg/kg	< 2	< 5	< 5	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
EPN	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Monocrotophos	2	mg/kg	< 2	< 5	< 5	< 2
Naled	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Omethoate	2	mg/kg	< 2	< 5	< 5	< 2
Phorate	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 5	< 5	< 0.2
Triphenylphosphate (surr.)	1	%	65	78	68	68

Client Sample ID			POND 1/1-0-10	[G01]POND 1/1-10-20	[G01]POND 1/3-10-20	POND 2/1- 0-10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-Oc0029703	B23-Oc0029704	B23-Oc0029705	B23-Oc0029706
Date Sampled			Oct 09, 2023	Oct 09, 2023	Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.2	< 0.2	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.2	< 0.2	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.2	< 0.2	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.2	< 0.2	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.2	< 0.2	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.2	< 0.2	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.2	< 0.2	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.2	< 0.2	< 0.1
Dibutylchlorendate (surr.)	1	%	146	125	132	87
Tetrachloro-m-xylene (surr.)	1	%	106	85	59	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	290	5300	1400	< 50
TRH >C16-C34	100	mg/kg	4500	24000	19000	110
TRH >C34-C40	100	mg/kg	1300	6400	6300	< 100
TRH >C10-C40 (total)*	100	mg/kg	6090	35700	26700	110
Heavy Metals						
Arsenic	2	mg/kg	790	1200	480	10
Cadmium	0.5	mg/kg	< 0.5	0.5	< 0.5	< 0.5
Chromium	5	mg/kg	33	28	20	20
Copper	5	mg/kg	32	37	17	9.6
Lead	5	mg/kg	18	15	7.3	6.5
Nickel	5	mg/kg	22	25	9.1	9.6
Zinc	5	mg/kg	420	530	140	22
Sample Properties						
% Moisture	1	%	21	25	18	5.3
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	190	160	52	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	370	360	67	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	[N09]1700	[N09]3200	[N09]310	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	[N09]280	[N09]510	[N09]59	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	[N09]1100	[N09]1300	[N09]650	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	35	15	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	6.5	< 5
13C4-PFBA (surr.)	1	%	59	59	56	63
13C5-PFPeA (surr.)	1	%	67	70	66	66
13C5-PFHxA (surr.)	1	%	65	71	70	63
13C4-PFHpA (surr.)	1	%	62	72	73	67
13C8-PFOA (surr.)	1	%	73	89	80	68
13C5-PFNA (surr.)	1	%	93	99	96	90
13C6-PFDA (surr.)	1	%	103	105	110	96
13C2-PFUnDA (surr.)	1	%	104	115	108	93
13C2-PFDoDA (surr.)	1	%	97	124	116	94
13C2-PFTeDA (surr.)	1	%	123	40	131	94

Client Sample ID			POND 1/1-0-10	[G01]POND 1/1-10-20	[G01]POND 1/3-10-20	POND 2/1- 0-10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-Oc0029703	B23-Oc0029704	B23-Oc0029705	B23-Oc0029706
Date Sampled			Oct 09, 2023	Oct 09, 2023	Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	180	72	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	14	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	5.8	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	29	89	73	66
D3-N-MeFOSA (surr.)	1	%	31	32	38	89
D5-N-EtFOSA (surr.)	1	%	29	24	32	92
D7-N-MeFOSE (surr.)	1	%	15	104	96	80
D9-N-EtFOSE (surr.)	1	%	22	109	24	82
D5-N-EtFOSAA (surr.)	1	%	47	46	78	117
D3-N-MeFOSAA (surr.)	1	%	23	21	34	89
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	130	300	29	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	[N09]1200	[N09]890	[N09]690	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	45	45	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	[N09]220	[N09]600	[N09]92	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]4200	[N09]8000	[N09]3400	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	710	1200	690	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]99000	[N09]120000	[N09]83000	32
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	500	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	76	83	76	71
18O2-PFHxS (surr.)	1	%	86	85	85	91
13C8-PFOS (surr.)	1	%	108	82	72	101
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	530	780	110	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	1000	520	250	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	37	16	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	161	95	117	95
13C2-6:2 FTSA (surr.)	1	%	84	151	176	79
13C2-8:2 FTSA (surr.)	1	%	119	111	63	102
13C2-10:2 FTSA (surr.)	1	%	59	65	105	97
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	103200	128000	86400	32
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	100100	121300	83650	32
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	104300	129300	87050	32
Sum of WA DWER PFAS (n=10)*	10	ug/kg	108500	135130	87927	32
Sum of PFASs (n=30)*	50	ug/kg	111427	137987.8	89405.5	< 50

Client Sample ID			POND 1/1-0-10	[G01]POND 1/1-10-20	[G01]POND 1/3-10-20	POND 2/1- 0-10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-Oc0029703	B23-Oc0029704	B23-Oc0029705	B23-Oc0029706
Date Sampled			Oct 09, 2023	Oct 09, 2023	Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit				
Chloride (1:5 aqueous extract)	5	mg/kg	-	21000	-	-
Nitrate & Nitrite (as N)	5	mg/kg	-	< 5	-	-
Nitrate (as N)	5	mg/kg	-	< 5	-	-
Nitrite (as N)	5	mg/kg	-	< 5	-	-
Sulphate as SO4 (1:5 aqueous extract)	10	mg/kg	-	3800	-	-
Total Kjeldahl Nitrogen (as N)	10	mg/kg	-	3300	-	-
Total Nitrogen (as N)*	10	mg/kg	-	3300	-	-
Phosphorus	5	mg/kg	-	6600	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/kg	-	770	-	-
Carbonate Alkalinity (as CaCO3)	20	mg/kg	-	< 20	-	-
Hydroxide Alkalinity (as CaCO3)	20	mg/kg	-	< 20	-	-
Total Alkalinity (as CaCO3)	50	mg/kg	-	770	-	-
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	5	mg/kg	-	45000	-	-
Magnesium	5	mg/kg	-	9900	-	-
Potassium	5	mg/kg	-	9100	-	-
Sodium	5	mg/kg	-	27000	-	-

Client Sample ID			POND 2/3- 0-20	POND 3/1-10/20	POND 3/2- 0-20	POND 4/1- 0-10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-Oc0029707	B23-Oc0029708	B23-Oc0029709	B23-Oc0029710
Date Sampled			Oct 09, 2023	Oct 09, 2023	Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	60	< 50	73	110
TRH C29-C36	50	mg/kg	62	< 50	82	110
TRH C10-C36 (Total)	50	mg/kg	122	< 50	155	220
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	91	82	92	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20

Client Sample ID			POND 2/3- 0-20	POND 3/1- 10/20	POND 3/2- 0-20	POND 4/1- 0-10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-Oc0029707	B23-Oc0029708	B23-Oc0029709	B23-Oc0029710
Date Sampled			Oct 09, 2023	Oct 09, 2023	Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	69	85	79	82
Tetrachloro-m-xylene (surr.)	1	%	78	84	87	72
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			POND 2/3- 0-20	POND 3/1- 10/20	POND 3/2- 0-20	POND 4/1- 0-10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-Oc0029707	B23-Oc0029708	B23-Oc0029709	B23-Oc0029710
Date Sampled			Oct 09, 2023	Oct 09, 2023	Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	55	55	64	71
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	69	85	79	82
Tetrachloro-m-xylene (surr.)	1	%	78	84	87	72
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	110	< 100	130	190
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	110	< 100	130	190
Heavy Metals						
Arsenic	2	mg/kg	4.6	43	36	17
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	11	22	16	46
Copper	5	mg/kg	5.8	11	9.9	24
Lead	5	mg/kg	< 5	6.6	8.1	17
Nickel	5	mg/kg	< 5	9.9	5.2	21
Zinc	5	mg/kg	11	37	38	50
Sample Properties						
% Moisture	1	%	1.8	16	4.0	10.0
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			POND 2/3- 0-20	POND 3/1- 10/20	POND 3/2- 0-20	POND 4/1- 0-10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-Oc0029707	B23-Oc0029708	B23-Oc0029709	B23-Oc0029710
Date Sampled			Oct 09, 2023	Oct 09, 2023	Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	64	70	68	74
13C5-PFPeA (surr.)	1	%	72	73	67	75
13C5-PFHxA (surr.)	1	%	76	73	75	78
13C4-PFHpA (surr.)	1	%	81	78	79	83
13C8-PFOA (surr.)	1	%	73	76	74	84
13C5-PFNA (surr.)	1	%	94	96	85	88
13C6-PFDA (surr.)	1	%	108	103	100	103
13C2-PFUnDA (surr.)	1	%	110	98	99	101
13C2-PFDoDA (surr.)	1	%	112	96	98	96
13C2-PFTeDA (surr.)	1	%	129	120	105	103
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	7.0	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	70	68	67	70
D3-N-MeFOSA (surr.)	1	%	92	97	92	90
D5-N-EtFOSA (surr.)	1	%	91	96	93	88
D7-N-MeFOSE (surr.)	1	%	88	75	74	78
D9-N-EtFOSE (surr.)	1	%	85	92	80	89
D5-N-EtFOSAA (surr.)	1	%	161	150	117	114
D3-N-MeFOSAA (surr.)	1	%	98	102	94	98
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	7.2	14	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	9.3	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]28	[N09]54	[N09]140	5.2
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	5.9	9.1	< 5
13C3-PFBS (surr.)	1	%	69	73	72	69
18O2-PFHxS (surr.)	1	%	107	89	93	100
13C8-PFOS (surr.)	1	%	110	101	89	118

Client Sample ID			POND 2/3- 0-20	POND 3/1- 10/20	POND 3/2- 0-20	POND 4/1- 0-10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-Oc0029707	B23-Oc0029708	B23-Oc0029709	B23-Oc0029710
Date Sampled			Oct 09, 2023	Oct 09, 2023	Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	6.2	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	101	92	107	110
13C2-6:2 FTSA (surr.)	1	%	106	76	92	150
13C2-8:2 FTSA (surr.)	1	%	121	98	109	125
13C2-10:2 FTSA (surr.)	1	%	155	119	107	121
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	28	54	149.3	5.2
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	28	54	140	5.2
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	28	54	149.3	5.2
Sum of WA DWER PFAS (n=10)*	10	ug/kg	28	60.2	149.3	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	73.3	179.4	< 50

Client Sample ID			POND 4/2- 0-20	POND 3/1- 0-10
Sample Matrix			Soil	Soil
Eurofins Sample No.			B23-Oc0029711	B23-Oc0029712
Date Sampled			Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	150	< 50
TRH C29-C36	50	mg/kg	170	< 50
TRH C10-C36 (Total)	50	mg/kg	320	< 50
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	90	89
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20

Client Sample ID			POND 4/2- 0-20	POND 3/1- 0-10
Sample Matrix			Soil	Soil
Eurofins Sample No.			B23-Oc0029711	B23-Oc0029712
Date Sampled			Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit		
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	57	66
Tetrachloro-m-xylene (surr.)	1	%	98	51
Organophosphorus Pesticides				
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2

Client Sample ID			POND 4/2- 0-20	POND 3/1- 0-10
Sample Matrix			Soil	Soil
Eurofins Sample No.			B23-Oc0029711	B23-Oc0029712
Date Sampled			Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Mevinphos	0.2	mg/kg	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	72	INT
Polychlorinated Biphenyls				
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	57	66
Tetrachloro-m-xylene (surr.)	1	%	98	51
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	270	< 100
TRH >C34-C40	100	mg/kg	140	< 100
TRH >C10-C40 (total)*	100	mg/kg	410	< 100
Heavy Metals				
Arsenic	2	mg/kg	15	35
Cadmium	0.5	mg/kg	< 0.5	< 0.5
Chromium	5	mg/kg	22	21
Copper	5	mg/kg	15	9.3
Lead	5	mg/kg	8.5	6.3
Nickel	5	mg/kg	10	9.2
Zinc	5	mg/kg	24	33
Sample Properties				
% Moisture	1	%	7.0	6.0
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5

Client Sample ID			POND 4/2- 0-20	POND 3/1- 0-10
Sample Matrix			Soil	Soil
Eurofins Sample No.			B23-Oc0029711	B23-Oc0029712
Date Sampled			Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5
13C4-PFBA (surr.)	1	%	62	64
13C5-PFPeA (surr.)	1	%	64	67
13C5-PFHxA (surr.)	1	%	69	74
13C4-PFHpA (surr.)	1	%	69	77
13C8-PFOA (surr.)	1	%	70	70
13C5-PFNA (surr.)	1	%	87	94
13C6-PFDA (surr.)	1	%	101	108
13C2-PFUnDA (surr.)	1	%	95	99
13C2-PFDoDA (surr.)	1	%	91	107
13C2-PFTeDA (surr.)	1	%	104	114
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10
13C8-FOSA (surr.)	1	%	71	66
D3-N-MeFOSA (surr.)	1	%	85	95
D5-N-EtFOSA (surr.)	1	%	85	89
D7-N-MeFOSE (surr.)	1	%	71	74
D9-N-EtFOSE (surr.)	1	%	74	81
D5-N-EtFOSAA (surr.)	1	%	112	139
D3-N-MeFOSAA (surr.)	1	%	90	98
Perfluoroalkyl sulfonic acids (PFSAs)				
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	8.7
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	[N09]74
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	6.3
13C3-PFBS (surr.)	1	%	67	69
18O2-PFHxS (surr.)	1	%	91	94
13C8-PFOS (surr.)	1	%	98	112

Client Sample ID			POND 4/2- 0-20	POND 3/1- 0-10
Sample Matrix			Soil	Soil
Eurofins Sample No.			B23-Oc0029711	B23-Oc0029712
Date Sampled			Oct 09, 2023	Oct 09, 2023
Test/Reference	LOR	Unit		
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	81	85
13C2-6:2 FTSA (surr.)	1	%	81	86
13C2-8:2 FTSA (surr.)	1	%	102	108
13C2-10:2 FTSA (surr.)	1	%	97	140
PFASs Summations				
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	74
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	74
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	74
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	74
Sum of PFASs (n=30)*	50	ug/kg	< 50	89
Chloride (1:5 aqueous extract)	5	mg/kg	49	-
Nitrate & Nitrite (as N)	5	mg/kg	< 5	-
Nitrate (as N)	5	mg/kg	< 5	-
Nitrite (as N)	5	mg/kg	< 5	-
Sulphate as SO4 (1:5 aqueous extract)	10	mg/kg	< 10	-
Total Kjeldahl Nitrogen (as N)	10	mg/kg	43	-
Total Nitrogen (as N)*	10	mg/kg	43	-
Phosphorus	5	mg/kg	170	-
Alkalinity (speciated)				
Bicarbonate Alkalinity (as CaCO3)	20	mg/kg	87	-
Carbonate Alkalinity (as CaCO3)	20	mg/kg	< 20	-
Hydroxide Alkalinity (as CaCO3)	20	mg/kg	< 20	-
Total Alkalinity (as CaCO3)	50	mg/kg	87	-
Eurofins Suite B11C: Na/K/Ca/Mg				
Calcium	5	mg/kg	4300	-
Magnesium	5	mg/kg	3800	-
Potassium	5	mg/kg	3100	-
Sodium	5	mg/kg	170	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
Eurofins Suite B5			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Brisbane	Oct 19, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Brisbane	Oct 19, 2023	14 Days
- Method: USEPA SW846 8260			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Oct 19, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Oct 19, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M7	Brisbane	Oct 19, 2023	180 Days
- Method: USEPA 6010/6020 Heavy Metals			
Organochlorine Pesticides	Brisbane	Oct 19, 2023	14 Days
- Method: LTM-ORG-2220 OCP and PCB in Soil and Water			
Organophosphorus Pesticides	Brisbane	Oct 19, 2023	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8270)			
Polychlorinated Biphenyls	Melbourne	Oct 16, 2023	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
% Moisture	Brisbane	Oct 13, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Oct 19, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Oct 19, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	Oct 19, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Oct 19, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride (1:5 aqueous extract)	Melbourne	Oct 16, 2023	28 Days
- Method: LTM-INO-4270 Anions by Ion Chromatography			
Sulphate as SO4 (1:5 aqueous extract)	Melbourne	Oct 16, 2023	28 Days
- Method: LTM-INO-4270 Anions by Ion Chromatography			
Alkalinity (speciated)	Melbourne	Oct 16, 2023	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N)	Melbourne	Oct 16, 2023	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrate (as N)	Melbourne	Oct 16, 2023	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrite (as N)	Melbourne	Oct 16, 2023	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Total Kjeldahl Nitrogen (as N)	Melbourne	Oct 16, 2023	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Eurofins Suite B19A: Total N (TKN, NOx), Total P			
Phosphorus	Melbourne	Oct 16, 2023	180 Days
- Method: LTM-MET-3010 Alkali Metals Sulfur Silicon and Phosphorus by ICP-AES			
Eurofins Suite B11C: Na/K/Ca/Mg	Melbourne	Oct 19, 2023	180 Days
- Method: LTM-MET-3010 Alkali Metals by ICP-AES			

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Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

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IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: JBS & G Australia (QLD) P/L
Address: Level 3, Turbot Street
Brisbane
QLD 4000

Project Name: APAS DSI
Project ID: 65513

Order No.:
Report #: 1034559
Phone: 07 3181 5738
Fax:

Received: Oct 13, 2023 2:30 PM
Due: Oct 20, 2023
Priority: 5 Day
Contact Name: adminnsw@jbsg.com.au

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						CANCELLED	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B5	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254								X		X	X		X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X		X		X
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	POND 1/1-0-10	Oct 09, 2023		Soil	B23-Oc0029703			X	X	X		X		
2	POND 1/1-10-20	Oct 09, 2023		Soil	B23-Oc0029704			X	X	X	X	X	X	X
3	POND 1/3- 10-20	Oct 09, 2023		Soil	B23-Oc0029705			X	X	X		X		
4	POND 2/1- 0-10	Oct 09, 2023		Soil	B23-Oc0029706			X	X	X		X		
5	POND 2/3- 0-20	Oct 09, 2023		Soil	B23-Oc0029707			X	X	X		X		
6	POND 3/1-10/20	Oct 09, 2023		Soil	B23-Oc0029708			X	X	X		X		
7	POND 3/2- 0-20	Oct 09, 2023		Soil	B23-Oc0029709			X	X	X		X		

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
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Sample Detail						CANCELLED	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B5	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254								X		X	X		X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X		X		X
8	POND 4/1- 0-10	Oct 09, 2023		Soil	B23-Oc0029710			X	X	X		X		
9	POND 4/2- 0-20	Oct 09, 2023		Soil	B23-Oc0029711			X	X	X	X	X	X	X
10	POND 3/1- 0-10	Oct 09, 2023		Soil	B23-Oc0029712			X	X	X		X		
11	POND 1/2-0-10	Oct 09, 2023		Soil	B23-Oc0029713		X							
12	POND 1/2-10-20	Oct 09, 2023		Soil	B23-Oc0029714		X							
13	POND 1/3- 0-10	Oct 09, 2023		Soil	B23-Oc0029715	X								
14	POND 2/1-10-20	Oct 09, 2023		Soil	B23-Oc0029716		X							
15	POND 2/2- 0-20	Oct 09, 2023		Soil	B23-Oc0029717		X							
16	POND 3/3- 0-20	Oct 09, 2023		Soil	B23-Oc0029718		X							

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Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						CANCELLED	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B5	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254								X		X	X		X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X		X		X
17	POND 4/3-0-20	Oct 09, 2023		Soil	B23-Oc0029719		X							
18	POND 4/1- 10-20	Oct 09, 2023		Soil	B23-Oc0029720		X							
Test Counts						1	7	10	10	10	2	10	2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry weight basis unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with blue colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is 7 days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30%; however the following acceptance guidelines are equally applicable: Results <10 times the LOR: No Limit

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

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

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries above the QC limit designated in QSM 5.4, where no positive PFAS results have been reported, have been reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.5			0.5	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
Method Blank							
Chloride (1:5 aqueous extract)	mg/kg	< 5			5	Pass	
Sulphate as SO4 (1:5 aqueous extract)	mg/kg	< 10			10	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/kg	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/kg	< 20			20	Pass	
Hydroxide Alkalinity (as CaCO3)	mg/kg	< 20			20	Pass	
Total Alkalinity (as CaCO3)	mg/kg	< 50			50	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	96			70-130	Pass	
TRH C10-C14	%	87			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	94			70-130	Pass	
Toluene	%	96			70-130	Pass	
Ethylbenzene	%	97			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
Xylenes - Total*	%	96			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C10	%	100			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	84			70-130	Pass	
4.4'-DDD	%	95			70-130	Pass	
4.4'-DDE	%	126			70-130	Pass	
4.4'-DDT	%	73			70-130	Pass	
a-HCH	%	121			70-130	Pass	
Aldrin	%	113			70-130	Pass	
b-HCH	%	85			70-130	Pass	
d-HCH	%	113			70-130	Pass	
Dieldrin	%	83			70-130	Pass	
Endosulfan I	%	104			70-130	Pass	
Endosulfan II	%	85			70-130	Pass	
Endosulfan sulphate	%	124			70-130	Pass	
Endrin	%	97			70-130	Pass	
Endrin aldehyde	%	108			70-130	Pass	
Endrin ketone	%	125			70-130	Pass	
g-HCH (Lindane)	%	115			70-130	Pass	
Heptachlor	%	72			70-130	Pass	
Heptachlor epoxide	%	80			70-130	Pass	
Hexachlorobenzene	%	98			70-130	Pass	
Methoxychlor	%	74			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Azinphos-methyl	%	80			70-130	Pass	
Bolstar	%	70			70-130	Pass	
Chlorfenvinphos	%	119			70-130	Pass	
Chlorpyrifos	%	74			70-130	Pass	
Chlorpyrifos-methyl	%	80			70-130	Pass	
Coumaphos	%	95			70-130	Pass	
Demeton-S	%	101			70-130	Pass	
Demeton-O	%	120			70-130	Pass	
Diazinon	%	75			70-130	Pass	
Dichlorvos	%	75			70-130	Pass	
Dimethoate	%	123			70-130	Pass	
Disulfoton	%	118			70-130	Pass	
EPN	%	96			70-130	Pass	
Ethion	%	80			70-130	Pass	
Ethoprop	%	128			70-130	Pass	
Ethyl parathion	%	130			70-130	Pass	
Fenitrothion	%	91			70-130	Pass	
Fensulfothion	%	101			70-130	Pass	
Fenthion	%	118			70-130	Pass	
Malathion	%	70			70-130	Pass	
Merphos	%	76			70-130	Pass	
Mevinphos	%	120			70-130	Pass	
Monocrotophos	%	105			70-130	Pass	
Naled	%	94			70-130	Pass	
Omethoate	%	108			70-130	Pass	
Phorate	%	96			70-130	Pass	
Pirimiphos-methyl	%	117			70-130	Pass	
Pyrazophos	%	118			70-130	Pass	
Ronnel	%	125			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Terbufos	%	71			70-130	Pass	
Tetrachlorvinphos	%	118			70-130	Pass	
Tokuthion	%	86			70-130	Pass	
Trichloronate	%	72			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	98			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	88			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	100			80-120	Pass	
Cadmium	%	103			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	102			80-120	Pass	
Lead	%	101			80-120	Pass	
Nickel	%	103			80-120	Pass	
Zinc	%	96			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	87			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	83			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	85			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	73			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	76			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	95			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	88			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	94			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	96			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	87			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	87			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	96			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	96			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	91			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	77			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	98			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	101			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	110			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	96			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	102			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	94			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	90			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	101			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	97			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	88			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	91			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	89			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	91			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	74			50-150	Pass	
LCS - % Recovery									
Alkalinity (speciated)									
Carbonate Alkalinity (as CaCO3)			%	91			70-130	Pass	
Total Alkalinity (as CaCO3)			%	115			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B23-Oc0029703	CP	%	89			70-130	Pass	
TRH C10-C14	B23-Oc0028484	NCP	%	82			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B23-Oc0029703	CP	%	94			70-130	Pass	
Toluene	B23-Oc0029703	CP	%	96			70-130	Pass	
Ethylbenzene	B23-Oc0029703	CP	%	97			70-130	Pass	
m&p-Xylenes	B23-Oc0029703	CP	%	96			70-130	Pass	
o-Xylene	B23-Oc0029703	CP	%	96			70-130	Pass	
Xylenes - Total*	B23-Oc0029703	CP	%	96			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B23-Oc0029703	CP	%	79			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	B23-Oc0028307	NCP	%	71			70-130	Pass	
4.4'-DDD	B23-Oc0028412	NCP	%	89			70-130	Pass	
4.4'-DDE	B23-Oc0028307	NCP	%	72			70-130	Pass	
4.4'-DDT	B23-Oc0028412	NCP	%	130			70-130	Pass	
a-HCH	B23-Oc0028307	NCP	%	71			70-130	Pass	
Aldrin	B23-Oc0028412	NCP	%	110			70-130	Pass	
b-HCH	B23-Oc0028307	NCP	%	77			70-130	Pass	
d-HCH	B23-Oc0028412	NCP	%	111			70-130	Pass	
Dieldrin	B23-Oc0028307	NCP	%	75			70-130	Pass	
Endosulfan I	B23-Oc0028412	NCP	%	105			70-130	Pass	
Endosulfan II	B23-Oc0028307	NCP	%	75			70-130	Pass	
Endosulfan sulphate	B23-Oc0028412	NCP	%	118			70-130	Pass	
Endrin	B23-Oc0016795	NCP	%	99			70-130	Pass	
Endrin aldehyde	B23-Oc0028412	NCP	%	102			70-130	Pass	
Endrin ketone	B23-Oc0028412	NCP	%	118			70-130	Pass	
g-HCH (Lindane)	B23-Oc0028412	NCP	%	115			70-130	Pass	
Heptachlor	B23-Oc0028307	NCP	%	75			70-130	Pass	
Heptachlor epoxide	B23-Oc0028307	NCP	%	76			70-130	Pass	
Hexachlorobenzene	B23-Oc0028307	NCP	%	93			70-130	Pass	
Methoxychlor	B23-Oc0028412	NCP	%	129			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Azinphos-methyl	B23-Oc0016795	NCP	%	110			70-130	Pass	
Bolstar	B23-Oc0028412	NCP	%	125			70-130	Pass	
Chlorfenvinphos	B23-Oc0028307	NCP	%	75			70-130	Pass	
Chlorpyrifos	B23-Oc0028307	NCP	%	70			70-130	Pass	
Chlorpyrifos-methyl	B23-Oc0028307	NCP	%	80			70-130	Pass	
Coumaphos	B23-Oc0016795	NCP	%	102			70-130	Pass	
Demeton-S	B23-Oc0028412	NCP	%	97			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Demeton-O	B23-Oc0016795	NCP	%	76			70-130	Pass	
Diazinon	B23-Oc0028412	NCP	%	128			70-130	Pass	
Dichlorvos	B23-Oc0028307	NCP	%	75			70-130	Pass	
Dimethoate	B23-Oc0028412	NCP	%	114			70-130	Pass	
Disulfoton	B23-Oc0028412	NCP	%	99			70-130	Pass	
Ethion	B23-Oc0008366	NCP	%	77			70-130	Pass	
Ethoprop	B23-Oc0028307	NCP	%	70			70-130	Pass	
Ethyl parathion	B23-Oc0028412	NCP	%	120			70-130	Pass	
Fenitrothion	B23-Oc0028307	NCP	%	76			70-130	Pass	
Fensulfothion	B23-Oc0028307	NCP	%	108			70-130	Pass	
Fenthion	B23-Oc0028412	NCP	%	106			70-130	Pass	
Malathion	B23-Oc0033681	NCP	%	126			70-130	Pass	
Methyl parathion	B23-Oc0028307	NCP	%	70			70-130	Pass	
Mevinphos	B23-Oc0028412	NCP	%	112			70-130	Pass	
Monocrotophos	B23-Oc0028412	NCP	%	98			70-130	Pass	
Naled	B23-Oc0028412	NCP	%	72			70-130	Pass	
Phorate	B23-Oc0028307	NCP	%	90			70-130	Pass	
Pirimiphos-methyl	B23-Oc0028412	NCP	%	111			70-130	Pass	
Pyrazophos	B23-Oc0028307	NCP	%	78			70-130	Pass	
Ronnel	B23-Oc0028412	NCP	%	113			70-130	Pass	
Terbufos	B23-Oc0028307	NCP	%	82			70-130	Pass	
Tetrachlorvinphos	B23-Oc0028412	NCP	%	118			70-130	Pass	
Tokuthion	B23-Oc0018124	NCP	%	91			70-130	Pass	
Trichloronate	B23-Oc0028307	NCP	%	72			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B23-Oc0028484	NCP	%	82			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B23-Oc0034324	NCP	%	92			75-125	Pass	
Cadmium	B23-Oc0034324	NCP	%	110			75-125	Pass	
Chromium	B23-Oc0034324	NCP	%	105			75-125	Pass	
Copper	B23-Oc0034324	NCP	%	103			75-125	Pass	
Lead	B23-Oc0034324	NCP	%	103			75-125	Pass	
Nickel	B23-Oc0034324	NCP	%	100			75-125	Pass	
Zinc	B23-Oc0034324	NCP	%	107			75-125	Pass	
Spike - % Recovery									
				Result 1					
Nitrate & Nitrite (as N)	M23-Oc0030416	NCP	%	97			70-130	Pass	
Nitrite (as N)	M23-Oc0030416	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Oc0029712	CP	%	91			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Oc0029712	CP	%	83			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Oc0029712	CP	%	94			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Oc0029712	CP	%	77			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Oc0029712	CP	%	88			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Oc0029712	CP	%	106			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Oc0029712	CP	%	105			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Oc0029712	CP	%	104			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Oc0029712	CP	%	103			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Oc0029712	CP	%	111			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorotetradecanoic acid (PFTeDA)	B23-Oc0029712	CP	%	95			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Oc0029712	CP	%	112			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Oc0029712	CP	%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Oc0029712	CP	%	102			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Oc0029712	CP	%	108			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Oc0029712	CP	%	78			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Oc0029712	CP	%	88			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Oc0029712	CP	%	105			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Oc0029712	CP	%	102			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Oc0029712	CP	%	134			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Oc0029712	CP	%	85			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Oc0029712	CP	%	90			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Oc0029712	CP	%	92			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Oc0029712	CP	%	113			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Oc0029712	CP	%	118			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Oc0029712	CP	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Oc0029712	CP	%	73			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Oc0029712	CP	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Oc0029712	CP	%	92			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	B23-Oc0028417	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Endosulfan I	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	B23-Oc0028417	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	B23-Oc0028417	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	B23-Oc0028417	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	B23-Oc0028417	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	B23-Oc0028417	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M23-Oc0031024	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	M23-Oc0031024	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	M23-Oc0031024	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	M23-Oc0031024	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	M23-Oc0031024	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	M23-Oc0031024	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	M23-Oc0031024	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	M23-Oc0031024	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B23-Oc0034276	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	B23-Oc0034276	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chromium	B23-Oc0034276	NCP	mg/kg	55	54	2.5	30%	Pass	
Copper	B23-Oc0034276	NCP	mg/kg	22	25	14	30%	Pass	
Lead	B23-Oc0034276	NCP	mg/kg	7.1	7.9	9.9	30%	Pass	
Nickel	B23-Oc0034276	NCP	mg/kg	45	57	24	30%	Pass	
Zinc	B23-Oc0034276	NCP	mg/kg	64	63	1.00	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	B23-Oc0043565	NCP	%	10	9.5	10	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-Oc0029703	CP	ug/kg	180	130	27	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Oc0029703	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Oc0029703	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Oc0029703	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Oc0029703	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Oc0029703	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Oc0029703	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Oc0044719	NCP	ug/kg	11	10	9.3	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Oc0029703	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Oc0044719	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Oc0044719	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Oc0029703	CP	ug/kg	37	35	4.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-Oc0029704	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Oc0029704	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	B23-Oc0029704	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	B23-Oc0029704	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	B23-Oc0029704	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	B23-Oc0029704	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	B23-Oc0029704	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B23-Oc0029704	CP	mg/kg	0.9	1.0	5.5	30%	Pass	
TRH C6-C10	B23-Oc0029704	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride (1:5 aqueous extract)	M23-Oc0030667	NCP	mg/kg	6.5	6.7	3.7	30%	Pass	
Nitrate & Nitrite (as N)	M23-Oc0030415	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Nitrite (as N)	M23-Oc0030415	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Phosphorus	B23-Oc0024295	NCP	mg/kg	410	430	4.1	30%	Pass	
Duplicate									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD			
Magnesium	M23-Oc0030415	NCP	mg/kg	970	1100	15	30%	Pass	
Potassium	M23-Oc0044907	NCP	mg/kg	690	600	14	30%	Pass	
Sodium	M23-Oc0030415	NCP	mg/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	B23-Oc0029712	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	B23-Oc0029712	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	B23-Oc0029712	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B23-Oc0029712	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	B23-Oc0029712	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	B23-Oc0029712	CP	mg/kg	< 100	< 100	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

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Emily Rosenberg	Senior Analyst-Metal
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Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-Sample Properties
Jonathon Angell	Senior Analyst-Volatile
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Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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Appendix D

Borehole Logs

Client: Central Petroleum **Location:** 383 Brewer Road, Hugh		**Date:** 14/02/2024
Drill Rig: Push-tube rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH1 (south-west of evaporation pond 1 on bund wall)		
0.1-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH1 – 0.1 BH1 – 0.3 BH1 – 1.4
End of borehole at 1.4 m due to refusal on bedrock		

Client: Central Petroleum **Location:** 383 Brewer Road, Hugh		**Date:** 14/02/2024
Drill Rig: Push-tube rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH2 (north-east of evaporation pond 3)		
0.1-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH2 – 0.1 BH2 – 0.3 BH2 – 1.4
End of borehole at 1.4 m due to refusal on bedrock		

Client: Central Petroleum **Location:** 383 Brewer Road, Hugh		**Date:** 14/02/2024
Drill Rig: Push-tube rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH3 (north-west of evaporation pond 2)		
0.1-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH3 – 0.1 BH3 – 0.3 BH3 – 1.4
End of borehole at 1.4 m due to refusal on bedrock		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH4 (south-east tank farm, east of southern most tank)		
0.0-0.2	FILL, sand, orange brown	BH4 – 0.1
End of borehole at 0.2 m due		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH5 (south-east tank farm, between two northern tanks)		
0.0-0.2	FILL, sand, orange brown	BH5 – 0.1
End of borehole at 0.2 m due		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Push tube drill rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH5A (north of bund area on southern side of road)		
0.0-0.1	FILL, sand, orange brown	BH5A – 0.1
0.1-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH5A – 0.3 BH5A– 1.4
End of borehole at 0.2 m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH6 (north west of tank farm, west side of bund between bund and pipes)		
0.0-0.2	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH6 – 0.1
End of borehole at 0.2 m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH7 (south-east tank farm, east of most northern eastern tank)		
0.0-0.2	FILL, sand, orange brown	BH7 – 0.1
End of borehole at 0.2 m due		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Push tube drill rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH08 (south west of storage shed)		
0.0-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH08 – 0.1 BH08 – 0.3 BH08– 1.4
End of borehole at 1.4 m due to refusal on bedrock		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Push tube drill rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
BH09 (south of rail line and south of tank farm)		
0.0-0.2	FILL, with fine to medium gravel, brown/grey, loose, no odour.	BH09 – 0.1
0.2-1.5	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH09 – 0.3 BH09– 1.0
End of borehole at 1.5m due to refusal on bedrock		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Push tube drill rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
BH10 (south of rail line and south of tank farm)		
0.0-0.1	FILL, with fine to medium gravel, brown/grey, loose, no odour.	BH10 – 0.1
0.1-3.0	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour. Becoming cemented below 1.0m.	BH10 – 0.3 BH10– 1.0
End of borehole at 3.0m due to refusal on bedrock		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Push tube drill rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH11 (north of rail spur, south of pipeline)		
0.0-0.15	FILL, with fine to medium gravel, brown/grey, loose, no odour.	BH11 – 0.1
0.15-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour. Becoming cemented below 1.0m.	BH11 – 0.3 BH11– 1.0
End of borehole at 1.4m due to refusal on bedrock		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Push tube drill rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH12 (west of waste AST and delivery points, east of road)		
0.0-0.2	FILL, sand, orange brown	BH12 – 0.1
0.2-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour. Becoming cemented below 1.0m.	BH12 – 0.3 BH12– 1.0
End of borehole at 1.4m due to refusal on bedrock		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH13 (south west corner of fenced area, south west of road)		
0.0-0.1	FILL, sand, orange brown	BH13 – 0.1
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH14 (south of concrete area and south of drum store bund)		
0.0-0.1	FILL, sand, orange brown	BH14 – 0.1
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH15 (central fenced area, west of road and adjacent bund)		
0.0-0.1	FILL, with fine to medium gravel, brown/grey, loose, no odour.	BH15 – 0.1
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH16 (central fenced area, east of bund, east of road)		
0.0-0.1	FILL, sand, orange brown	BH16 – 0.1
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Push tube drill rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH17 (north of storage sheds and laydown yard)		
0.0-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH17 – 0.1 BH17 – 0.3 BH17– 1.0
End of borehole at 1.4m due to refusal on bedrock		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Push tube drill rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH18 (north of central paddock)		
0.0-0.2	FILL, with fine to medium gravel, brown/grey, loose, no odour.	BH19 – 0.1
0.2-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH19 – 0.3 BH19– 1.0
End of borehole at 1.4m due to refusal on bedrock		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Push tube drill rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH19 (south east corner of site, east of entrance, north of transformer)		
0.0-0.2	FILL, with fine to medium gravel, brown/grey, loose, no odour.	BH19 – 0.1
0.2-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH19 – 0.3 BH19– 1.0
End of borehole at 1.4m due to refusal on bedrock		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Push tube drill rig		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
BH20 (north east of paddock area)		
0.0-1.4	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	BH20 – 0.1 BH20 – 0.3 BH20– 1.0
End of borehole at 1.4m due to refusal on bedrock		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
Pond 1 (south west corner of evaporation pond 1, under broken blue liner)		
0.0-0.1	SAND, silty, red/orange, fine to medium grained, loose, dry, slight hydrocarbon odour.	Pond 1 – 0.1, QA5, QA6
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling** Depth (m)
Pond 2 (north west corner of evaporation pond 2, under broken blue liner)		
0.0-0.1	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	Pond 2 – 0.1
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
Pond 3 (eastern end of evaporation pond 3, under broken blue liner)		
0.0-0.1	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	Pond 3 – 0.1
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
TP3 N (10m north of TP3)		
0.0-0.1	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	TP3 N, QA3, QA4
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
TP3 E (10m east of TP3)		
0.0-0.1	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	TP3 E
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
TP3 W (10m west of TP3)		
0.0-0.1	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	TP3 W
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
TP3 S (10m south of TP3)		
0.0-0.1	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	TP3 S
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
TP1 N (10m north of TP1)		
0.0-0.1	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	TP1 N
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
TP1 E (10m east of TP1)		
0.0-0.1	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	TP1 E
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface Sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
TP1 W (10m west of TP1)		
0.0-0.1	SAND, silty, red/orange, fine to medium grained, loose, dry, no odour.	TP1 W
End of borehole at 0.1m		

Client: Central Petroleum **Location: 383 Brewer Road, Hugh**		**Date: 14/02/2024**
Drill Rig: Surface sample		
Depth of Strata Change (m)	**Sample Description**	**Drilling and Sampling**
		Depth (m)
BG (background sample, outside front gate to north of road and west of site boundary)		
0.0-0.2	FILL, sand, orange brown	BG – 0.1
End of borehole at 0.2 m		

Appendix E

Laboratory Analytical Summary Tables

Central Petroleum Brewer Road, Hugh

Table 1 Summary of Soil Laboratory Results for Metals, TRH and BTEXN

			Sample ID		BH01 0.1	BH01 1.4	BH02 0.1	BH03 0.1	BH04 0.1	QA1	QA2	BH05 0.1	BH06 0.1	BH07 0.1	BH08 0.1
			Date Sampled		14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024
			Lab Batch No.		1069986	1069986	1069986	1069986	1069986	1069986	EB2405552	1069986	1069986	1069986	1069986
	Unit	LOR	Health-based Investigation Criteria 'A'	Health-based Investigation Criteria 'D'						Duplicate of BH04 0.1	Triplicate of BH04 0.1				
Total Metals															
Arsenic	mg/kg	2	100	3000	5.2	< 2	2.2	2.9	< 2	< 2	<5	2.9	< 2	< 2	< 2
Cadmium	mg/kg	0.5	20	900	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<1	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	mg/kg	5	100	3600	16	15	20	15	15	11	9	19	16	13	14
Copper	mg/kg	5	6000	240000	21	< 5	7.2	8.7	< 5	< 5	<5	< 5	5.9	< 5	6.9
Lead	mg/kg	5	300	1500	7.3	< 5	6.1	5.1	< 5	< 5	<5	7.4	5.6	< 5	9.5
Mercury	mg/kg	0.1	40	730	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	mg/kg	5	400	6000	8	< 5	8.4	6.2	< 5	< 5	<2	< 5	< 5	< 5	< 5
Zinc	mg/kg	5	7400	400000	20	5.8	18	14	7.5	7.9	<5	56	15	< 5	22
Total Recoverable Hydrocarbons (TRH)															
TRH C6-C10	mg/kg	10	NE	NL [3]	< 20	< 20	< 20	< 20	< 20	< 20	<10	< 20	< 20	< 20	< 20
TRH C6-C10 minus BTEX (F1)	mg/kg	10	45 *	260 [3]	< 20	< 20	< 20	< 20	< 20	< 20	<10	< 20	< 20	< 20	< 20
TRH >C10-C16	mg/kg	50	120 **	170 [4]	< 50	< 50	< 50	< 50	< 50	< 50	<50	< 50	< 50	< 50	< 50
TRH >C16-C34 (F3)	mg/kg	100	300 **	1700 [4]	180	< 100	< 100	< 100	< 100	< 100	<100	< 100	< 100	< 100	< 100
TRH >C34-C40 (F4)	mg/kg	100	2800 **	3300 [4]	100	< 100	< 100	< 100	< 100	< 100	<100	< 100	< 100	< 100	< 100
TRH C10-C40 (sum)	mg/kg	50	NE	NL [3]	280	< 100	< 100	< 100	< 100	< 100	<50	< 100	< 100	< 100	< 100
TRH >C10-C16 (F2) - Naphthalene	mg/kg	50	110 *	NL [4]	< 50	< 50	< 50	< 50	< 50	< 50	<50	< 50	< 50	< 50	< 50
BTEX															
Benzene	mg/kg	0.2	0.5 *	3 [3]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.2	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	mg/kg	0.5	160 *	135 [4]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.5	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	mg/kg	0.5	55 *	165 [4]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.5	< 0.1	< 0.1	< 0.1	< 0.1
meta- and para-Xylene	mg/kg	0.5	NE	NE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.5	< 0.2	< 0.2	< 0.2	< 0.2
ortho-Xylene	mg/kg	0.5	NE	NE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.5	< 0.1	< 0.1	< 0.1	< 0.1
Total xylenes	mg/kg	0.5	40 *	160 [4]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	<0.5	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	1	3 *	95 [4]	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<1	< 0.5	< 0.5	< 0.5	< 0.5

Note:
Exceeds Nominated Criteria
Exceeds Nominated Criteria
NE: Not Established
NL: Not Limiting
LOR - Limit of Reporting
* HSL-A&B for vapour intrusion (0 to <1m; sand)
** ESL for urban residential and public open space (coarse-grained)
3 - HSL-D for vapour intrusion (0 to <1m; sand)
4 - ESL for commercial/industrial (coarse-grained)

Central Petroleum Brewer Road, Hugh

Table 1 Summary of Soil Laboratory Results for Metals, TRH and BTEXN

			Sample ID		BH09 0.1	BH10 0.1	BH10 1	BH11 0.1	BH11 0.3	BH12 0.1	BH12 1	BH13 0.1	BH14 0.1	BH15 0.1	BH16 0.1
			Date Sampled		14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024
			Lab Batch No.		1069986	1069986	1069986	1069986	1069986	1069986	1069986	1069986	1069986	1069986	1069986
	Unit	LOR	Health-based Investigation Criteria 'A'	Health-based Investigation Criteria 'D'											
Total Metals															
Arsenic	mg/kg	2	100	3000	< 2	< 2	< 2	< 2	< 2	< 2	< 2	12	< 2	14	< 2
Cadmium	mg/kg	0.5	20	900	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	mg/kg	5	100	3600	20	15	11	16	12	14	13	14	13	40	12
Copper	mg/kg	5	6000	240000	61	32	< 5	51	< 5	38	< 5	28	5.3	100	15
Lead	mg/kg	5	300	1500	21	15	< 5	5.1	< 5	< 5	< 5	30	< 5	62	38
Mercury	mg/kg	0.1	40	730	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	mg/kg	5	400	6000	18	10	< 5	11	< 5	14	< 5	5.4	< 5	28	< 5
Zinc	mg/kg	5	7400	400000	43	24	5.2	13	< 5	33	< 5	350	5.2	610	210
Total Recoverable Hydrocarbons (TRH)															
TRH C6-C10	mg/kg	10	NE	NL [3]	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
TRH C6-C10 minus BTEX (F1)	mg/kg	10	45 *	260 [3]	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
TRH >C10-C16	mg/kg	50	120 **	170 [4]	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
TRH >C16-C34 (F3)	mg/kg	100	300 **	1700 [4]	< 100	< 100	< 100	< 100	190	< 100	< 100	< 100	< 100	< 100	< 100
TRH >C34-C40 (F4)	mg/kg	100	2800 **	3300 [4]	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
TRH C10-C40 (sum)	mg/kg	50	NE	NL [3]	< 100	< 100	< 100	< 100	190	< 100	< 100	< 100	< 100	< 100	< 100
TRH >C10-C16 (F2) - Naphthalene	mg/kg	50	110 *	NL [4]	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
BTEX															
Benzene	mg/kg	0.2	0.5 *	3 [3]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	mg/kg	0.5	160 *	135 [4]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	mg/kg	0.5	55 *	165 [4]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
meta- and para-Xylene	mg/kg	0.5	NE	NE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
ortho-Xylene	mg/kg	0.5	NE	NE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total xylenes	mg/kg	0.5	40 *	160 [4]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	1	3 *	95 [4]	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Note:
Exceeds Nominated Criteria
Exceeds Nominated Criteria
NE: Not Established
NL: Not Limiting
LOR - Limit of Reporting
* HSL-A&B for vapour intrusion (0 to <1m; sand)
** ESL for urban residential and public open space (coarse-grained)
3 - HSL-D for vapour intrusion (0 to <1m; sand)
4 - ESL for commercial/industrial (coarse-grained)

Central Petroleum Brewer Road, Hugh

Table 1 Summary of Soil Laboratory Results for Metals, TRH and BTEXN

			Sample ID		BH18 0.1	BH18 1	BH19 0.1	BH20 0.1	POND1 0.1	QA 5	QA6	POND2 0.1	BG 0.1	TRIP BLANK
			Date Sampled		14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024
			Lab Batch No.		1069986	1069986	1069986	1069986	1069986	1069986	EB2405552	1069986	1069986	1069986
	Unit	LOR	Health-based Investigation Criteria 'A'	Health-based Investigation Criteria 'D'						Duplicate of Pond 1 0.1	Triplicate of Pond 1 0.1			
Total Metals														
Arsenic	mg/kg	2	100	3000	< 2	< 2	< 2	< 2	36	39	41	4.4	< 2	----
Cadmium	mg/kg	0.5	20	900	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<1	< 0.5	< 0.5	----
Chromium	mg/kg	5	100	3600	9	12	12	11	13	16	10	13	14	----
Copper	mg/kg	5	6000	240000	< 5	< 5	< 5	5.3	6.4	7.8	5	5.3	6.1	----
Lead	mg/kg	5	300	1500	< 5	< 5	< 5	< 5	< 5	6	<5	< 5	5.2	----
Mercury	mg/kg	0.1	40	730	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	----
Nickel	mg/kg	5	400	6000	< 5	< 5	< 5	< 5	5.1	6.4	4	< 5	< 5	----
Zinc	mg/kg	5	7400	400000	12	8.1	5.6	13	68	70	72	10	13	----
Total Recoverable Hydrocarbons (TRH)														
TRH C6-C10	mg/kg	10	NE	NL [3]	< 20	< 20	< 20	< 20	< 20	< 20	<10	< 20	< 20	----
TRH C6-C10 minus BTEX (F1)	mg/kg	10	45 *	260 [3]	< 20	< 20	< 20	< 20	< 20	< 20	<10	< 20	< 20	----
TRH >C10-C16	mg/kg	50	120 **	170 [4]	< 50	< 50	< 50	< 50	< 50	< 50	<50	< 50	< 50	----
TRH >C16-C34 (F3)	mg/kg	100	300 **	1700 [4]	< 100	< 100	< 100	140	180	230	190	< 100	< 100	----
TRH >C34-C40 (F4)	mg/kg	100	2800 **	3300 [4]	< 100	< 100	< 100	< 100	< 100	110	<100	< 100	< 100	----
TRH C10-C40 (sum)	mg/kg	50	NE	NL [3]	< 100	< 100	< 100	140	180	340	190	< 100	< 100	----
TRH >C10-C16 (F2) - Naphthalene	mg/kg	50	110 *	NL [4]	< 50	< 50	< 50	< 50	< 50	< 50	<50	< 50	< 50	----
BTEX														
Benzene	mg/kg	0.2	0.5 *	3 [3]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.2	< 0.1	< 0.1	< 0.1
Toluene	mg/kg	0.5	160 *	135 [4]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.5	< 0.1	< 0.1	< 0.1
Ethylbenzene	mg/kg	0.5	55 *	165 [4]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.5	< 0.1	< 0.1	< 0.1
meta- and para-Xylene	mg/kg	0.5	NE	NE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.5	< 0.2	< 0.2	< 0.2
ortho-Xylene	mg/kg	0.5	NE	NE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.5	< 0.1	< 0.1	< 0.1
Total xylenes	mg/kg	0.5	40 *	160 [4]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	<0.5	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	1	3 *	95 [4]	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<1	< 0.5	< 0.5	----

Note:

Exceeds Nominated Criteria

Exceeds Nominated Criteria

NE: Not Established

NL: Not Limiting

LOR - Limit of Reporting

* HSL-A&B for vapour intrusion (0 to <1m; sand)

** ESL for urban residential and public open space (coarse-grained)

3 - HSL-D for vapour intrusion (0 to <1m; sand)

4 - ESL for commercial/industrial (coarse-grained)

Central Petroleum Brewer Road, Hugh

Table 2 Summary of Soil Laboratory Results for PAH

			Sample ID		BH01 0.1	BH01 1.4	BH02 0.1	BH04 0.1	BH05 0.1	BH08 0.1
			Lab Batch No.		14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024
			Date Sampled		1069986	1069986	1069986	1069986	1069986	1069986
	Unit	LOR	Health-based Investigation Criteria 'A'	Health-based Investigation Criteria 'D'						
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	mg/kg	0.5	0.7 **	0.7 **	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5	3.0	30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5	NE	NE	0.6	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	NE	NE	1.2	1.2	1.2	1.2	1.2	1.2
Benzo(b&j)fluoranthene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	mg/kg	0.5	0.7 **	0.7 **	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	mg/kg	0.5	3 *	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	mg/kg	0.5	300	4000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Note:
NE: Not Established
NL: Not Limiting
LOR - Limit of Reporting
* HSL-A&B for vapour intrusion (0 to <1m; sand)
** ESL for urban residential and public open space (coarse-grained)

Exceeds Nominated Criteria
Exceeds Nominated Criteria

Central Petroleum Brewer Road, Hugh

Table 2 Summary of Soil Laboratory Results for PAH

			Sample ID		BH10 0.1	BH10 1	BH11 0.3	BH13 0.1	BH15 0.1
			Lab Batch No.		14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024
			Date Sampled		1069986	1069986	1069986	1069986	1069986
	Unit	LOR	Health-based Investigation Criteria 'A'	Health-based Investigation Criteria 'D'					
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	mg/kg	0.5	0.7 **	0.7 **	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5	3.0	30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5	NE	NE	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	NE	NE	1.2	1.2	1.2	1.2	1.2
Benzo(b&j)fluoranthene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	mg/kg	0.5	0.7 **	0.7 **	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	mg/kg	0.5	3 *	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	mg/kg	0.5	NE	NE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	mg/kg	0.5	300	4000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Note:
NE: Not Established
NL: Not Limiting
LOR - Limit of Reporting
* HSL-A&B for vapour intrusion (0 to <1m; sand)
** ESL for urban residential and public open space (coarse-grained)

Exceeds Nominated Criteria
Exceeds Nominated Criteria

Central Petroleum Brewer Road, Hugh
Table 3 Summary of Soil Laboratory Results for PFAS - NEMP Criteria

					Sample ID	BH01 0.1	BH02 0.1	BH03 0.1	BH04 0.1	QA1	QA2	BH05 0.1
					Date Sampled	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024
					Lab Batch No.	1069986	1069986	1069986	1069986	1069986	EB2405552	1069986
	Unit	LOR	Health Investigation Level - residential (gardens)	Human Health Investigation Level - Open Space (NEMP 2.0)	Human Health Investigation Level - Industrial / Commercial (NEMP 2.0)					Duplicate of BH04 0.1	Triplicate of BH04 0.1	
Perfluoroalkyl Sulfonic Acids												
Perfluorohexane sulfonic acid (PFHxS)	µg/kg	5	NE	NE	NE	< 5	< 5	< 5	< 5	< 5	0.3	< 5
Perfluorooctane sulfonic acid (PFOS)	µg/kg	5	NE	NE	NE	< 5	< 5	< 5	< 5	< 5	2	< 5
Perfluoroalkyl Carboxylic Acids												
Perfluorooctanoic acid (PFOA)	µg/kg	5	100	10,000	50,000	< 5	< 5	< 5	< 5	< 5	<0.2	< 5
Fluorotelomer Sulfonic Acids												
6:2 Fluorotelomer sulfonic acid	µg/kg	10	NE	NE	NE	< 10	< 10	< 10	< 10	< 10	<0.5	< 10
PFAS Sums												
Sum of PFHxS and PFOS	µg/kg	5	100	1,000	20,000	< 5	< 5	< 5	< 5	< 5	<0.2	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/kg	5	NE	NE	NE	< 5	< 5	< 5	< 5	< 5	3.8	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	µg/kg	5	NE	NE	NE	< 5	< 5	< 5	< 5	< 5	3.8	< 5

Note:
NE: Not Established
LOR - Limit of Reporting
Highlighted Cells Have Detectable Concentrations or Exceed Nominated Criteria

Central Petroleum Brewer Road, Hugh
Table 3 Summary of Soil Laboratory Results for PFAS - NEMP Criteria

			BH06 0.1	BH07 0.1	BH08 0.1	BH09 0.1	BH10 0.1	BH11 0.1	BH12 0.1	BH13 0.1	BH14 0.1	BH15 0.1	BH16 0.1
			14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024
			1069986	1069986	1069986	1069986	1069986	1069986	1069986	1069986	1069986	1069986	1069986
	Unit	**LOR**											
Perfluoroalkyl Sulfonic Acids													
Perfluorohexane sulfonic acid (PFHxS)	µg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Perfluorooctane sulfonic acid (PFOS)	µg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Perfluoroalkyl Carboxylic Acids													
Perfluorooctanoic acid (PFOA)	µg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Fluorotelomer Sulfonic Acids													
6:2 Fluorotelomer sulfonic acid	µg/kg	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
PFAS Sums													
Sum of PFHxS and PFOS	µg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	µg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5

Note:
NE: Not Established
LOR - Limit of Reporting
Highlighted Cells Have Detectable Concentrations or
Exceed Nominated Criteria

Central Petroleum Brewer Road, Hugh
Table 3 Summary of Soil Laboratory Results for PFAS - NEMP Criteria

			BH18 0.1	BH19 0.1	BH20 0.1	POND1 0.1	QA 5	QA6	POND2 0.1	BH17 0.1	POND3 0.1	TP1N 0.1	TP1E 0.1
			14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024
			1069986	1069986	1069986	1069986	1069986	EB2405552	1069986	1069986	1069986	1069986	1069986
	Unit	**LOR**					Duplicate of Pond 1 0.1	Triplicate of Pond 1 0.1					
Perfluoroalkyl Sulfonic Acids													
Perfluorohexane sulfonic acid (PFHxS)	µg/kg	5	< 5	< 5	< 5	24	23	19.8	< 5	< 5	21	< 5	< 5
Perfluorooctane sulfonic acid (PFOS)	µg/kg	5	< 5	< 5	< 5	< 5	< 5	2390	< 5	< 5	< 5	< 5	< 5
Perfluoroalkyl Carboxylic Acids													
Perfluorooctanoic acid (PFOA)	µg/kg	5	< 5	< 5	< 5	< 5	< 5	3.3	< 5	< 5	5.7	< 5	< 5
Fluorotelomer Sulfonic Acids													
6:2 Fluorotelomer sulfonic acid	µg/kg	10	< 10	< 10	< 10	< 10	< 10	<2.6	< 10	< 10	< 10	< 10	< 10
PFAS Sums													
Sum of PFHxS and PFOS	µg/kg	5	< 5	< 5	< 5	24	23	2410	< 5	< 5	21	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/kg	5	< 5	< 5	< 5	24	23	2420	< 5	< 5	26.7	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	µg/kg	5	< 5	< 5	< 5	< 5	< 5	2420	< 5	< 5	5.7	< 5	< 5

Note:
NE: Not Established
LOR - Limit of Reporting
Highlighted Cells Have Detectable Concentrations or Exceed Nominated Criteria

Central Petroleum Brewer Road, Hugh
Table 3 Summary of Soil Laboratory Results for PFAS - NEMP Criteria

			TP1S 0.1	TP1W 0.1	TP3N 0.1	QA 3	QA4	TP3E 0.1	TP3W 0.1
			14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024	14/02/2024
			1069986	1073979	1069986	1069986	EB2405552	1069986	1069986
	Unit	**LOR**				Duplicate of TP3 N	Triplicate of TP3 N		
Perfluoroalkyl Sulfonic Acids									
Perfluorohexane sulfonic acid (PFHxS)	µg/kg	5	< 5	< 5	< 5	< 5	0.004	< 5	< 5
Perfluorooctane sulfonic acid (PFOS)	µg/kg	5	< 5	51	< 5	< 5	1.25	< 5	< 5
Perfluoroalkyl Carboxylic Acids									
Perfluorooctanoic acid (PFOA)	µg/kg	5	< 5	< 5	< 5	< 5	<1	< 5	< 5
Fluorotelomer Sulfonic Acids									
6:2 Fluorotelomer sulfonic acid	µg/kg	10	< 10	< 10	< 10	< 10	<1	< 10	< 10
PFAS Sums									
Sum of PFHxS and PFOS	µg/kg	5	< 5	51	< 5	< 5	<1	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/kg	5	< 5	51	< 5	< 5	1.26	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	µg/kg	5	< 5	51	< 5	< 5	1.26	< 5	< 5

Note:
NE: Not Established
LOR - Limit of Reporting
Highlighted Cells Have Detectable Concentrations or Exceed Nominated Criteria

Central Petroleum Brewer Road, Hugh

Table 4 Summary of Soil Laboratory Results for PFAS - ALSP Leaching Procedure

					Sample ID	POND1 0.1	POND1 0.1	POND3 0.1	POND3 0.1
					Date Sampled	14/02/2024	14/02/2024	14/02/2024	14/02/2024
					Lab Batch No.	1073979	1073979	1073979	1073979
	Unit	LOR	Unlined Landfill ASLP (µg/L)	Lined Landfill ASLP (µg/L)	Double Lined Landfill ASLP (µg/L)				
Perfluoroalkyl Sulfonic Acids									
Perfluorohexane sulfonic acid (PFHxS)	µg/L	5	NE	NE	NE	1.1	1.4	1.1	1.2
Perfluorooctane sulfonic acid (PFOS)	µg/L	5	NE	NE	NE	120	160	8.1	3.9
Perfluoroalkyl Carboxylic Acids									
Perfluorooctanoic acid (PFOA)	µg/L	5	0.56	5.6	56	0.23	0.29	0.28	0.28
Fluorotelomer Sulfonic Acids									
6:2 Fluorotelomer sulfonic acid	µg/L	10	NE	NE	NE	0.07	0.07	0.24	0.3
PFAS Sums									
Sum of PFHxS and PFOS	µg/L	5	0.07	0.7	7	**121.1**	**161.4**	**9.2**	**5.1**
Sum of enHealth PFAS (PFHxS + PFOS + PFOA	µg/L	5	NE	NE	NE	121.33	161.69	9.48	5.38
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	5	NE	NE	NE	120.23	160.29	8.38	4.18

Note:
NE: Not Established
LOR - Limit of Reporting
Highlighted Cells Have Detectable Concentrations or Exceed Nominated Criteria

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Central Petroleum Brewer Road, Hugh
Table 5 QA/QC results

		Sample ID		POND1 0.1	QA 5	RPD1%	QA6	RPD2%	TP3N 0.1	QA 3	RPD1%	QA4	RPD2%	POND1 0.1	QA 5	RPD1%	QA6	RPD2%
		Date Sampled		14/02/2024	14/02/2024		14/02/2024		14/02/2024	14/02/2024		14/02/2024		14/02/2024	14/02/2024		14/02/2024	
		Lab Batch No.		1069986	1069986		EB2405552		1069986	1069986		EB2405552		1069986	1069986		EB2405552	
	Unit	LOR Lab 1	LOR Lab 2															
Total Metals																		
Arsenic	mg/kg	2	2	36	39	8	41	13	< 2	< 2	~	<5	~	~	~	~	~	~
Cadmium	mg/kg	0.5	0.5	< 0.5	< 0.5	~	<1	~	< 0.5	< 0.5	~	<1	~	~	~	~	~	~
Chromium	mg/kg	5	5	13	16	21	10	26	15	11	31	9	50	~	~	~	~	~
Copper	mg/kg	5	5	6.4	7.8	20	5	25	< 5	< 5	~	<5	~	~	~	~	~	~
Lead	mg/kg	5	5	< 5	6	~	<5	~	< 5	< 5	~	<5	~	~	~	~	~	~
Mercury	mg/kg	0.1	0.1	< 0.1	< 0.1	~	<0.1	~	< 0.1	< 0.1	~	<0.1	~	~	~	~	~	~
Nickel	mg/kg	5	5	5.1	6.4	23	4	24	< 5	< 5	~	<2	~	~	~	~	~	~
Zinc	mg/kg	5	5	68	70	3	72	6	7.5	7.9	5	<5	~	~	~	~	~	~
Total Recoverable Hydrocarbons (TRH)																		
TRH C6-C10	mg/kg	10	10	< 20	< 20	~	<10	~	< 20	< 20	~	<10	~	~	~	~	~	~
TRH C6-C10 minus BTEX (F1)	mg/kg	10	10	< 20	< 20	~	<10	~	< 20	< 20	~	<10	~	~	~	~	~	~
TRH >C10-C16	mg/kg	50	50	< 50	< 50	~	<50	~	< 50	< 50	~	<50	~	~	~	~	~	~
TRH >C16-C34 (F3)	mg/kg	100	100	180	230	24	190	5	< 100	< 100	~	<100	~	~	~	~	~	~
TRH >C34-C40 (F4)	mg/kg	100	100	< 100	110	~	<100	~	< 100	< 100	~	<100	~	~	~	~	~	~
TRH C10-C40 (sum)	mg/kg	50	50	180	340	62	190	5	< 100	< 100	~	<50	~	~	~	~	~	~
TRH >C10-C16 (F2) - Naphthalene	mg/kg	50	50	< 50	< 50	~	<50	~	< 50	< 50	~	<50	~	~	~	~	~	~
BTEXN																		
Benzene	mg/kg	0.2	0.2	< 0.1	< 0.1	~	<0.2	~	< 0.1	< 0.1	~	<0.2	~	~	~	~	~	~
Toluene	mg/kg	0.5	0.5	< 0.1	< 0.1	~	<0.5	~	< 0.1	< 0.1	~	<0.5	~	~	~	~	~	~
Ethylbenzene	mg/kg	0.5	0.5	< 0.1	< 0.1	~	<0.5	~	< 0.1	< 0.1	~	<0.5	~	~	~	~	~	~
meta- and para-Xylene	mg/kg	0.5	0.5	< 0.2	< 0.2	~	<0.5	~	< 0.2	< 0.2	~	<0.5	~	~	~	~	~	~
ortho-Xylene	mg/kg	0.5	0.5	< 0.1	< 0.1	~	<0.5	~	< 0.1	< 0.1	~	<0.5	~	~	~	~	~	~
Total xylenes	mg/kg	0.5	0.5	< 0.3	< 0.3	~	<0.5	~	< 0.3	< 0.3	~	<0.5	~	~	~	~	~	~
Total BTEX	mg/kg	0.2	0.2	< 0.5	< 0.5	~	<1	~	< 0.5	< 0.5	~	<1	~	~	~	~	~	~
Naphthalene	mg/kg	1	1	< 0.5	< 0.5	~	<1	~	< 0.5	< 0.5	~	<1	~	~	~	~	~	~
Perfluoroalkyl Sulfonic Acids																		
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	0.0002	24	23	4	19.8	19	< 5	< 5	~	0.004	~	24	23	4	19.8	19
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002	0.0002	< 5	< 5	~	2.39	~	< 5	< 5	~	1.25	~	< 5	< 5	~	2.39	~
Perfluoroalkyl Carboxylic Acids																		
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	0.0002	< 5	< 5	~	3.3	~	< 5	< 5	~	<1	~	< 5	< 5	~	3.3	~
Fluorotelomer Sulfonic Acids																		
6:2 Fluorotelomer sulfonic acid	mg/kg	0.0002	0.0002	< 10	< 10	~	<2.6	~	< 10	< 10	~	<1	~	< 10	< 10	~	<2.6	~
PFAS Sums																		
Sum of PFHxS and PFOS	mg/kg	0.001	0.001	24	23	4	2410	196	< 5	< 5	~	<1	~	24	23	4	<3.3	~
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	mg/kg	0.0002	0.0002	24	23	4	2420	196	< 5	< 5	~	1.26	~	24	23	4	2.42	163
Sum of US EPA PFAS (PFOS + PFOA)*	mg/kg	0.0002	0.0002	< 5	< 5		2420	~	< 5	< 5	~	1.26	~	< 5	< 5		2.42	~

Appendix F

Laboratory Certificates

#10699486

Company Mach1 Environmental
Address PO Box 3028, Ashgrove East, QLD 4060
Contact Robin Wagland

Project code	023-002-069	Email invoice to	Robin@mach1environmental.com.au	Sampler(s)	Robin Wagland	Shipping method	Toll Courier to Eurofins
Purchase Order	023-002-069	Email results to	Robin@mach1environmental.com.au	Phone #	0420 931 207	Shipping date	15/02/24 @8.30
Quote ID		Format	Excel	Handed over by	Robin Wagland	Signature	

Location ID	Sample depth	Media	Sample date	Containers								Soil analysis						Notes
				500mL Plastic	250mL Plastic	125ml Plastic	200mL Amber Glass	40mL glass	30mL VOA vial	500mL PFAS Bottle	Jar (Glass)	Jar (HDPE)	Bag	Lab description	B1 - TRH, BTEXN, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	B1 - TRH, BTEXN	Nitrate, % Fines, CEC, pH/CaCl2, TOC, % Clay Content	PFAS - Short suite	
														Lab code	B6	B7	B1	R21		HOLD
H01	0.1	Soil	14/02/2024								1	1			1				1	
H01	0.3	Soil	14/02/2024								1	1							1	
H01	1.4	Soil	14/02/2024								1	1				1				
H02	0.1	Soil	14/02/2024								1	1				1			1	
H02	0.3	Soil	14/02/2024								1	1							1	
H02	1.4	Soil	14/02/2024								1	1				1				
H03	0.1	Soil	14/02/2024								1	1			1				1	
H03	0.3	Soil	14/02/2024								1	1							1	
H03	1.4	Soil	14/02/2024								1	1								
H04	0.1	Soil	14/02/2024								1	1				1			1	
H05	0.1	Soil	14/02/2024								1	1				1			1	
H05A	0.1	Soil	14/02/2024								1	1							1	
H05A	0.3	Soil	14/02/2024								1	1							1	
H05A	1.4	Soil	14/02/2024								1	1							1	
H06	0.1	Soil	14/02/2024								1	1				1			1	
H07	0.1	Soil	14/02/2024								1	1				1			1	
H08	0.1	Soil	14/02/2024								1	1				1			1	
H08	0.3	Soil	14/02/2024								1	1							1	
H08	1	Soil	14/02/2024								1	1							1	
H09	0.1	Soil	14/02/2024								1	1				1			1	
H09	0.3	Soil	14/02/2024								1	1							1	
H09	1	Soil	14/02/2024								1	1							1	
H10	0.1	Soil	14/02/2024								1	1				1			1	
H10	0.3	Soil	14/02/2024								1	1							1	
H10	1	Soil	14/02/2024								1	1				1			1	
H11	0.1	Soil	14/02/2024								1	1				1			1	
H11	0.3	Soil	14/02/2024								1	1				1			1	
H11	1	Soil	14/02/2024								1	1							1	
H12	0.1	Soil	14/02/2024								1	1				1			1	
H12	0.3	Soil	14/02/2024								1	1							1	
H12	1	Soil	14/02/2024								1	1				1			1	

Hunter Lens

Date/Time: 16/2/24 10:40AM

Chilled: Yes / No

Temp: 19.5

Correction: 2.0

Final Temp:

| | | |

TOLL 407814
CUSTOMER ACCOUNT NUMBER

TGE5018 06/18

FROM ROBIN WAGLAND
CENTRAL PETROLEUM
C/O 21 FOWLER ST POSTCODE
QLD
CONTACT DETAILS

TO 1/21 SMALLWOOD
PLACE, MURRARIE
BRISBANE 4172
QLD
CONTACT DETAILS 0499572666
ZOE FLYNN

TOLL EXTRA SERVICE
UNLESS AGREED OTHERWISE – UNDER CONDITION 7 OF TOLL'S STANDARD SERVICE CONDITIONS, TOLL WILL PAY UP TO $500 FOR PHYSICAL LOSS OR DAMAGE TO GOODS IF TOLL IS NEGLIGENT FOR AN EXTRA SERVICE FEE OF $6.60 INCLUSIVE OF GST IF INDICATED BELOW:
Toll Extra Service Required
Value of Goods (not over $5,000)*
For Extra Service Fee on back $
*In any event where the value of goods requiring Toll Extra Service is greater than $500 you must contact your nearest Toll Priority Office.

233781543

00903V6QZR 02 9
00903V6QZR 5
M11
CONSIGNMENT NOTE NUMBER

PRIORITY SERVICE
RECEIVER'S COPY

CUSTOMER'S REFERENCE / BOOKING NUMBER

CUBIC MEASUREMENT PER ITEM	No. OF ITEMS	WEIGHT IN KG
40 x 31 x 35	1	15
40 x 31 x 35	1	15
40 x 31 x 35	1	16
x x		
x x		
x x		
x x		
x x		

CONTACT DETAILS (NAME AND PHONE NUMBER) MUST BE COMPLETED

FOR PICKUP 13 15 31 www.tollgroup.com

DESCRIPTION OF GOODS – SPECIAL INSTRUCTIONS
SOIL SAMPLES

DATE 15/02/24 TIME 9.05

RUN ...S SIGNATURE

...IGNMENT IS NOT PREPAID
...AT THIS ITEM/S DOES NOT CONTAIN ANY ...VE OR INCENDIARY DEVICES. I AM ALSO AWARE ...E SUBJECT TO SECURITY EXAMINATION AND ...S UNPAID BY RECEIVER ARE PAYABLE BY SENDER. THIS DELIVERY WILL BE SUBJECT TO OUR STANDARD CONDITIONS (HTTPS://WWW.MYTOLL.COM/WEB/GUEST/TERMS-AND-CONDITIONS). I AGREE TO THE STANDARD CONDITIONS AND DECLARE THESE GOODS ARE NOT DANGEROUS GOODS.

15, 02, 24

Toll Transport Pty Ltd ABN 31 006 604 191

Priority Service
ITEM 2

233781543
00903V6QZR

PLEASE NOTE : WE DO NOT DELIVER TO P.O. BOXES

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www.eurofins.com.au EnviroSales@eurofins.com

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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

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Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	MACH1 Environmental Pty Ltd
Contact name:	Robin Wagland
Project name:	Not provided
Project ID:	023-002-069
Turnaround time:	5 Day
Date/Time received	Feb 16, 2024 10:40 PM
Eurofins reference	1069986

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✗	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Samples "TP3S" "BH02 1.4" and "B14 0.1" were not received. Extra samples "BH02 1.5" and "BH14 1.0" was received and will be put on hold.
Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Zoe Flynn on phone : or by email: ZoeFlynn@eurofins.com

Results will be delivered electronically via email to Robin Wagland - robin@mach1environmental.com.au.

Global Leader - Results you can trust

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: MACH1 Environmental Pty Ltd
Address: PO Box 320
Ferny Hills
QLD 4055

Project Name:
Project ID: 023-002-069

Order No.: 023-002-069
Report #: 1069986
Phone: (07) 3351 0468
Fax:

Received: Feb 16, 2024 10:40 PM
Due: Feb 26, 2024
Priority: 5 Day
Contact Name: Robin Wagland

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						CANCELLED	HOLD	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B1	Eurofins Suite B6: BTEX/TRH/M8	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs) - Short	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254									X						
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X	X
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	BH01 0.1	Feb 14, 2024		Soil	B24-Fe0045747			X		X				X	
2	BH01 1.4	Feb 14, 2024		Soil	B24-Fe0045748			X		X					
3	BH02 0.1	Feb 14, 2024		Soil	B24-Fe0045749			X		X				X	
4	BH02 1.4	Feb 14, 2024		Soil	B24-Fe0045750	X									
5	BH03 0.1	Feb 14, 2024		Soil	B24-Fe0045751			X				X		X	
6	BH04 0.1	Feb 14, 2024		Soil	B24-Fe0045752			X		X				X	
7	BH05 0.1	Feb 14, 2024		Soil	B24-Fe0045753			X		X				X	
8	BH06 0.1	Feb 14, 2024		Soil	B24-Fe0045754			X				X		X	
9	BH07 0.1	Feb 14, 2024		Soil	B24-Fe0045755			X				X		X	
10	BH08 0.1	Feb 14, 2024		Soil	B24-Fe0045756			X		X				X	
11	BH09 0.1	Feb 14, 2024		Soil	B24-Fe0045757			X				X		X	
12	BH10 0.1	Feb 14, 2024		Soil	B24-Fe0045758			X		X				X	

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Company Name: MACH1 Environmental Pty Ltd
Address: PO Box 320
Ferny Hills
QLD 4055

Project Name:
Project ID: 023-002-069

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Report #: 1069986
Phone: (07) 3351 0468
Fax:

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Priority: 5 Day
Contact Name: Robin Wagland

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						CANCELLED	HOLD	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B1	Eurofins Suite B6: BTEX/TRH/M8	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs) - Short	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254									X						
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X	X
13	BH10 1	Feb 14, 2024		Soil	B24-Fe0045759			X		X					
14	BH11 0.1	Feb 14, 2024		Soil	B24-Fe0045760			X				X			
15	BH11 0.3	Feb 14, 2024		Soil	B24-Fe0045761			X		X					
16	BH12 0.1	Feb 14, 2024		Soil	B24-Fe0045762			X				X			
17	BH12 1	Feb 14, 2024		Soil	B24-Fe0045763			X				X			
18	BH13 0.1	Feb 14, 2024		Soil	B24-Fe0045764			X		X					
19	BH14 0.1	Feb 14, 2024		Soil	B24-Fe0045765			X				X			
20	BH15 0.1	Feb 14, 2024		Soil	B24-Fe0045766			X		X					
21	BH16 0.1	Feb 14, 2024		Soil	B24-Fe0045767			X				X			
22	BH18 0.1	Feb 14, 2024		Soil	B24-Fe0045768			X				X			
23	BH18 1	Feb 14, 2024		Soil	B24-Fe0045769			X				X			
24	BH19 0.1	Feb 14, 2024		Soil	B24-Fe0045770			X		X					
25	BH20 0.1	Feb 14, 2024		Soil	B24-Fe0045771			X		X					
26	POND1 0.1	Feb 14, 2024		Soil	B24-Fe0045772			X				X			
27	POND2 0.1	Feb 14, 2024		Soil	B24-Fe0045773			X		X					

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Sample Detail						CANCELLED	HOLD	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B1	Eurofins Suite B6: BTEX/TRH/M8	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs) - Short	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254									X						
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X	X
28	QA1	Feb 14, 2024		Soil	B24-Fe0045774			X				X			
29	QA 5	Feb 14, 2024		Soil	B24-Fe0045775			X				X			
30	TRIP SPIKE	Feb 14, 2024		Trip Spike (solid)	B24-Fe0045776						X				X
31	TRIP BLANK	Feb 14, 2024		Trip Blank (solid)	B24-Fe0045777						X		X		
32	BG 0.1	Feb 14, 2024		Soil	B24-Fe0045778			X	X			X			
33	BH01 0.3	Feb 14, 2024		Soil	B24-Fe0045779		X								
34	BH02 0.3	Feb 14, 2024		Soil	B24-Fe0045780		X								
35	BH03 0.3	Feb 14, 2024		Soil	B24-Fe0045781		X								
36	BH03 1.4	Feb 14, 2024		Soil	B24-Fe0045782		X								
37	BH05A 0.1	Feb 14, 2024		Soil	B24-Fe0045783		X								
38	BH05A 0.3	Feb 14, 2024		Soil	B24-Fe0045784		X								
39	BH05A 1.0	Feb 14, 2024		Soil	B24-Fe0045785		X								
40	BH08 0.3	Feb 14, 2024		Soil	B24-Fe0045786		X								

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Company Name: MACH1 Environmental Pty Ltd
Address: PO Box 320
Ferny Hills
QLD 4055

Project Name:
Project ID: 023-002-069

Order No.: 023-002-069
Report #: 1069986
Phone: (07) 3351 0468
Fax:

Received: Feb 16, 2024 10:40 PM
Due: Feb 26, 2024
Priority: 5 Day
Contact Name: Robin Wagland

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						CANCELLED	HOLD	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B1	Eurofins Suite B6: BTEX/TRH/M8	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs) - Short	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254									X						
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X	X
41	BH08 1	Feb 14, 2024		Soil	B24-Fe0045787		X								
42	BH09 0.3	Feb 14, 2024		Soil	B24-Fe0045788		X								
43	BH09 1	Feb 14, 2024		Soil	B24-Fe0045789		X								
44	BH10 0.3	Feb 14, 2024		Soil	B24-Fe0045790		X								
45	BH11 1	Feb 14, 2024		Soil	B24-Fe0045791		X								
46	BH12 0.3	Feb 14, 2024		Soil	B24-Fe0045792		X								
47	BH17 0.1	Feb 14, 2024		Soil	B24-Fe0045793		X								
48	BH17 0.3	Feb 14, 2024		Soil	B24-Fe0045794		X								
49	BH17 1	Feb 14, 2024		Soil	B24-Fe0045795		X								
50	BH18 0.3	Feb 14, 2024		Soil	B24-Fe0045796		X								
51	BH19 0.3	Feb 14, 2024		Soil	B24-Fe0045797		X								
52	BH19 1	Feb 14, 2024		Soil	B24-Fe0045798		X								
53	BH20 0.3	Feb 14, 2024		Soil	B24-Fe0045799		X								
54	BH20 1	Feb 14, 2024		Soil	B24-Fe0045800		X								
55	POND3 0.1	Feb 14, 2024		Soil	B24-Fe0045801		X								

eurofins

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Eurofins Environment Testing Australia Pty Ltd
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: MACH1 Environmental Pty Ltd
Address: PO Box 320
Ferny Hills
QLD 4055

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Contact Name: Robin Wagland

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						CANCELLED	HOLD	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B1	Eurofins Suite B6: BTEX/TRH/M8	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs) - Short	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254									X						
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X	X
56	TP1N 0.1	Feb 14, 2024		Soil	B24-Fe0045802		X								
57	TP1E 0.1	Feb 14, 2024		Soil	B24-Fe0045803		X								
58	TP1S 0.1	Feb 14, 2024		Soil	B24-Fe0045804		X								
59	TP3N 0.1	Feb 14, 2024		Soil	B24-Fe0045805		X								
60	TP3E 0.1	Feb 14, 2024		Soil	B24-Fe0045806		X								
61	TP3S 0.1	Feb 14, 2024		Soil	B24-Fe0045807	X									
62	TP3W 0.1	Feb 14, 2024		Soil	B24-Fe0045808		X								
63	QA 3	Feb 14, 2024		Soil	B24-Fe0045809		X								
64	BH02 1.5	Feb 14, 2024		Soil	B24-Fe0045895		X								
65	TP1W 1.0	Feb 14, 2024		Soil	B24-Fe0046089		X								
66	BH014 1.0	Feb 14, 2024		Soil	B24-Fe0046105		X								
Test Counts						2	33	29	1	14	2	15	1	10	1

Mach1 Environmental Pty Ltd
PO Box 320
Ferny Hills
QLD 4055

NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Robin Wagland**

Report **1069986-S**
Project name
Project ID 023-002-069
Received Date Feb 16, 2024

Client Sample ID			**BH01 0.1**	**BH01 1.4**	**BH02 0.1**	**BH03 0.1**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**B24-Fe0045747**	**B24-Fe0045748**	**B24-Fe0045749**	**B24-Fe0045751**
Date Sampled			**Feb 14, 2024**	**Feb 14, 2024**	**Feb 14, 2024**	**Feb 14, 2024**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	89	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	130	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	219	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	90	86	101	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-

Client Sample ID			BH01 0.1	BH01 1.4	BH02 0.1	BH03 0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045747	B24-Fe0045748	B24-Fe0045749	B24-Fe0045751
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	99	89	91	-
p-Terphenyl-d14 (surr.)	1	%	100	94	89	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	180	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	280	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	5.2	< 2	2.2	2.9
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	16	15	20	15
Copper	5	mg/kg	21	< 5	7.2	8.7
Lead	5	mg/kg	7.3	< 5	6.1	5.1
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	8.0	< 5	8.4	6.2
Zinc	5	mg/kg	20	5.8	18	14
Sample Properties						
% Moisture	1	%	< 1	3.0	1.7	1.7
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	-	< 10	< 10
13C2-6:2 FTSA (surr.)	1	%	125	-	78	137
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	-	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	-	< 5	[N09]< 5
18O2-PFHxS (surr.)	1	%	108	-	94	108
13C8-PFOS (surr.)	1	%	120	-	112	113
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	-	< 5	< 5
13C8-PFOA (surr.)	1	%	119	-	102	115
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	< 5

Client Sample ID			BH04 0.1	BH05 0.1	BH06 0.1	BH07 0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045752	B24-Fe0045753	B24-Fe0045754	B24-Fe0045755
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50

Client Sample ID			BH04 0.1	BH05 0.1	BH06 0.1	BH07 0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045752	B24-Fe0045753	B24-Fe0045754	B24-Fe0045755
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	116	86	102	102
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	106	122	-	-
p-Terphenyl-d14 (surr.)	1	%	116	119	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	< 2	2.9	< 2	< 2
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	15	19	16	13
Copper	5	mg/kg	< 5	< 5	5.9	< 5
Lead	5	mg/kg	< 5	7.4	5.6	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	7.5	56	15	< 5

Client Sample ID			BH04 0.1	BH05 0.1	BH06 0.1	BH07 0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045752	B24-Fe0045753	B24-Fe0045754	B24-Fe0045755
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	< 1	1.2	< 1	< 1
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C2-6:2 FTSA (surr.)	1	%	88	92	75	93
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
18O2-PFHxS (surr.)	1	%	96	104	106	106
13C8-PFOS (surr.)	1	%	122	105	116	118
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C8-PFOA (surr.)	1	%	117	120	120	113
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			BH08 0.1	BH09 0.1	BH10 0.1	BH10 1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045756	B24-Fe0045757	B24-Fe0045758	B24-Fe0045759
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	111	92	86	106
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5

Client Sample ID			BH08 0.1	BH09 0.1	BH10 0.1	BH10 1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045756	B24-Fe0045757	B24-Fe0045758	B24-Fe0045759
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	110	-	102	99
p-Terphenyl-d14 (surr.)	1	%	105	-	125	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	14	20	15	11
Copper	5	mg/kg	6.9	61	32	< 5
Lead	5	mg/kg	9.5	21	15	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	18	10	< 5
Zinc	5	mg/kg	22	43	24	5.2
Sample Properties						
% Moisture	1	%	1.4	1.7	1.2	1.5
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	-
13C2-6:2 FTSA (surr.)	1	%	82	89	91	-
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	-
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]< 5	< 5	< 5	-
18O2-PFHxS (surr.)	1	%	107	107	111	-
13C8-PFOS (surr.)	1	%	94	121	119	-
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	-
13C8-PFOA (surr.)	1	%	109	117	125	-
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	-

Client Sample ID			BH11 0.1	BH11 0.3	BH12 0.1	BH12 1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045760	B24-Fe0045761	B24-Fe0045762	B24-Fe0045763
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	160	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	160	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	108	85	149	137
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	-
Acenaphthene	0.5	mg/kg	-	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	-
Anthracene	0.5	mg/kg	-	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Chrysene	0.5	mg/kg	-	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	-
Fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Fluorene	0.5	mg/kg	-	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	-
Naphthalene	0.5	mg/kg	-	< 0.5	-	-
Phenanthrene	0.5	mg/kg	-	< 0.5	-	-
Pyrene	0.5	mg/kg	-	< 0.5	-	-
Total PAH*	0.5	mg/kg	-	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	-	92	-	-
p-Terphenyl-d14 (surr.)	1	%	-	94	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	190	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	190	< 100	< 100

Client Sample ID			BH11 0.1	BH11 0.3	BH12 0.1	BH12 1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045760	B24-Fe0045761	B24-Fe0045762	B24-Fe0045763
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	16	12	14	13
Copper	5	mg/kg	51	< 5	38	< 5
Lead	5	mg/kg	5.1	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	11	< 5	14	< 5
Zinc	5	mg/kg	13	< 5	33	< 5
Sample Properties						
% Moisture	1	%	< 1	1.7	< 1	2.5
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	-	< 10	-
13C2-6:2 FTSA (surr.)	1	%	106	-	99	-
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	-	< 5	-
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	-	< 5	-
18O2-PFHxS (surr.)	1	%	113	-	101	-
13C8-PFOS (surr.)	1	%	117	-	124	-
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	-	< 5	-
13C8-PFOA (surr.)	1	%	118	-	125	-
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	-

Client Sample ID			BH13 0.1	BH14 0.1	BH15 0.1	BH16 0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045764	B24-Fe0045765	B24-Fe0045766	B24-Fe0045767
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	135	139	98	143
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20

Client Sample ID			BH13 0.1	BH14 0.1	BH15 0.1	BH16 0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045764	B24-Fe0045765	B24-Fe0045766	B24-Fe0045767
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	106	-	100	-
p-Terphenyl-d14 (surr.)	1	%	82	-	90	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	12	< 2	14	< 2
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	14	13	40	12
Copper	5	mg/kg	28	5.3	100	15
Lead	5	mg/kg	30	< 5	62	38
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	5.4	< 5	28	< 5
Zinc	5	mg/kg	350	5.2	610	210
Sample Properties						
% Moisture	1	%	< 1	< 1	< 1	< 1
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C2-6:2 FTSA (surr.)	1	%	100	106	93	94
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]< 5	< 5	[N09]< 5	< 5
18O2-PFHxS (surr.)	1	%	92	108	97	97
13C8-PFOS (surr.)	1	%	104	116	117	118
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C8-PFOA (surr.)	1	%	106	117	120	110
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			BH13 0.1	BH14 0.1	BH15 0.1	BH16 0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045764	B24-Fe0045765	B24-Fe0045766	B24-Fe0045767
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			BH18 0.1	BH18 1	BH19 0.1	BH20 0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045768	B24-Fe0045769	B24-Fe0045770	B24-Fe0045771
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	78
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	75
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	153
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	146	136	146	138
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	1.2
Acenaphthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	-	< 0.5	< 0.5

Client Sample ID			BH18 0.1	BH18 1	BH19 0.1	BH20 0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045768	B24-Fe0045769	B24-Fe0045770	B24-Fe0045771
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
2-Fluorobiphenyl (surr.)	1	%	-	-	111	99
p-Terphenyl-d14 (surr.)	1	%	-	-	91	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	140
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	140
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	9.0	12	12	11
Copper	5	mg/kg	< 5	< 5	< 5	5.3
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	12	8.1	5.6	13
Sample Properties						
% Moisture	1	%	< 1	2.6	1.6	< 1
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	-	< 10	< 10
13C2-6:2 FTSA (surr.)	1	%	88	-	72	97
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	-	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	-	< 5	< 5
18O2-PFHxS (surr.)	1	%	98	-	96	103
13C8-PFOS (surr.)	1	%	123	-	118	116
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	-	< 5	< 5
13C8-PFOA (surr.)	1	%	122	-	109	122
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	< 5

Client Sample ID			POND1 0.1	POND2 0.1	QA1	QA 5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045772	B24-Fe0045773	B24-Fe0045774	B24-Fe0045775
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	110	< 50	< 50	130
TRH C29-C36	50	mg/kg	93	< 50	< 50	140
TRH C10-C36 (Total)	50	mg/kg	203	< 50	< 50	270
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			POND1 0.1	POND2 0.1	QA1	QA 5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045772	B24-Fe0045773	B24-Fe0045774	B24-Fe0045775
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
BTEX						
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	141	112	141	141
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	-
Acenaphthene	0.5	mg/kg	-	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	-
Anthracene	0.5	mg/kg	-	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Chrysene	0.5	mg/kg	-	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	-
Fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Fluorene	0.5	mg/kg	-	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	-
Naphthalene	0.5	mg/kg	-	< 0.5	-	-
Phenanthrene	0.5	mg/kg	-	< 0.5	-	-
Pyrene	0.5	mg/kg	-	< 0.5	-	-
Total PAH*	0.5	mg/kg	-	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	-	91	-	-
p-Terphenyl-d14 (surr.)	1	%	-	75	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	180	< 100	< 100	230
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	110
TRH >C10-C40 (total)*	100	mg/kg	180	< 100	< 100	340
Heavy Metals						
Arsenic	2	mg/kg	36	4.4	< 2	39
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	13	13	11	16
Copper	5	mg/kg	6.4	5.3	< 5	7.8
Lead	5	mg/kg	< 5	< 5	< 5	6.0
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	5.1	< 5	< 5	6.4
Zinc	5	mg/kg	68	10	7.9	70
Sample Properties						
% Moisture	1	%	1.9	< 1	< 1	1.8

Client Sample ID			POND1 0.1	POND2 0.1	QA1	QA 5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045772	B24-Fe0045773	B24-Fe0045774	B24-Fe0045775
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C2-6:2 FTSA (surr.)	1	%	156	110	91	160
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]24	< 5	< 5	[N09]23
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]< 5	< 5	< 5	[N09]< 5
18O2-PFHxS (surr.)	1	%	108	117	100	94
13C8-PFOS (surr.)	1	%	110	127	118	101
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	[N09]< 5	< 5	< 5	[N09]< 5
13C8-PFOA (surr.)	1	%	131	130	114	111
Sum (PFHxS + PFOS)*	5	ug/kg	24	< 5	< 5	23
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	24	< 5	< 5	23

Client Sample ID			TRIP SPIKE	TRIP BLANK	BG 0.1	BH17 0.1
Sample Matrix			Trip Spike (solid)	Trip Blank (solid)	Soil	Soil
Eurofins Sample No.			B24-Fe0045776	B24-Fe0045777	B24-Fe0045778	B24-Fe0045793
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	-	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	144	99	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
Heavy Metals						
Arsenic	2	mg/kg	-	-	< 2	-
Cadmium	0.5	mg/kg	-	-	< 0.5	-
Chromium	5	mg/kg	-	-	14	-
Copper	5	mg/kg	-	-	6.1	-

Client Sample ID			TRIP SPIKE	TRIP BLANK	BG 0.1	BH17 0.1
Sample Matrix			Trip Spike (solid)	Trip Blank (solid)	Soil	Soil
Eurofins Sample No.			B24-Fe0045776	B24-Fe0045777	B24-Fe0045778	B24-Fe0045793
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Heavy Metals						
Iron	20	mg/kg	-	-	15000	-
Lead	5	mg/kg	-	-	5.2	-
Mercury	0.1	mg/kg	-	-	< 0.1	-
Nickel	5	mg/kg	-	-	< 5	-
Zinc	5	mg/kg	-	-	13	-
Sample Properties						
% Moisture	1	%	-	-	< 1	-
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	-	-	-	< 10
13C2-6:2 FTSA (surr.)	1	%	-	-	-	65
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	-	-	-	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	-	-	-	[N09]< 5
18O2-PFHxS (surr.)	1	%	-	-	-	105
13C8-PFOS (surr.)	1	%	-	-	-	70
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	-	-	-	< 5
13C8-PFOA (surr.)	1	%	-	-	-	110
Sum (PFHxS + PFOS)*	5	ug/kg	-	-	-	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	-	-	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	-	-	< 5
Naphthalene	1	%	66	-	-	-
TRH C6-C10	1	%	78	-	-	-
TRH C6-C9	1	%	74	-	-	-
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	-	-
% Clay	2.5	%	-	-	< 2.5	-
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	-	-	15	-
pH (units)(1:5 soil:CaCl2 extract at 25 °C as rec.)	0.1	pH Units	-	-	6.0	-
Total Organic Carbon	0.1	%	-	-	0.6	-
BTEX						
Benzene	1	%	32	-	-	-
Ethylbenzene	1	%	40	-	-	-
m&p-Xylenes	1	%	40	-	-	-
o-Xylene	1	%	43	-	-	-
Toluene	1	%	38	-	-	-
Xylenes - Total	1	%	42	-	-	-
4-Bromofluorobenzene (surr.)	1	%	136	-	-	-
Total Recoverable Hydrocarbons						
TRH C6-C10	20	mg/kg	-	< 20	-	-
Heavy Metals						
Iron (%)	0.01	%	-	-	1.5	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.5	meq/100g	-	-	4.2	-

Client Sample ID			POND3 0.1	TP1N 0.1	TP1E 0.1	TP1S 0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045801	B24-Fe0045802	B24-Fe0045803	B24-Fe0045804
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C2-6:2 FTSA (surr.)	1	%	137	92	88	99
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]21	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]< 5	[N09]< 5	[N09]< 5	[N09]< 5
18O2-PFHxS (surr.)	1	%	102	93	101	144
13C8-PFOS (surr.)	1	%	95	103	117	74
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	[N09]5.7	< 5	< 5	< 5
13C8-PFOA (surr.)	1	%	103	108	105	114
Sum (PFHxS + PFOS)*	5	ug/kg	21	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	5.7	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	26.7	< 5	< 5	< 5

Client Sample ID			TP3N 0.1	TP3E 0.1	TP3W 0.1	QA 3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-Fe0045805	B24-Fe0045806	B24-Fe0045808	B24-Fe0045809
Date Sampled			Feb 14, 2024	Feb 14, 2024	Feb 14, 2024	Feb 14, 2024
Test/Reference	LOR	Unit				
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C2-6:2 FTSA (surr.)	1	%	83	91	106	98
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]< 5	[N09]< 5	[N09]< 5	[N09]< 5
18O2-PFHxS (surr.)	1	%	99	108	104	100
13C8-PFOS (surr.)	1	%	117	74	94	122
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C8-PFOA (surr.)	1	%	113	97	104	100
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Brisbane	Feb 23, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Brisbane	Feb 23, 2024	14 Days
- Method: USEPA SW846 8260			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Feb 23, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Naphthalene	Brisbane	Feb 23, 2024	14 Days
- Method: USEPA 8260B - MGT 350A Volatile Organics by GCMS			
Total Recoverable Hydrocarbons	Brisbane	Feb 23, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins Suite B6: BTEX/TRH/M8			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Feb 23, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Brisbane	Feb 23, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B7			
Polycyclic Aromatic Hydrocarbons	Brisbane	Feb 23, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
NEPM Screen for Soil Classification			
Heavy Metals	Melbourne	Feb 21, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Clay	Brisbane	Feb 22, 2024	14 Days
- Method: LTM-GEN-7040 Percentage clay, silt and sand by Hydrometer			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	Melbourne	Feb 21, 2024	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (units)(1:5 soil:CaCl2 extract at 25 °C as rec.)	Melbourne	Feb 21, 2024	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Total Organic Carbon	Melbourne	Feb 21, 2024	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Cation Exchange Capacity	Melbourne	Feb 23, 2024	28 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			
% Moisture	Brisbane	Feb 19, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Brisbane	Feb 26, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Project Name:
Project ID: 023-002-069

Order No.: 023-002-069
Report #: 1069986
Phone: (07) 3351 0468
Fax:

Received: Feb 16, 2024 10:40 PM
Due: Feb 26, 2024
Priority: 5 Day
Contact Name: Robin Wagland

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						CANCELLED	HOLD	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B1	Eurofins Suite B6: BTEX/TRH/M8	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs) - Short	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254									X						
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X	X
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	BH01 0.1	Feb 14, 2024		Soil	B24-Fe0045747			X		X				X	
2	BH01 1.4	Feb 14, 2024		Soil	B24-Fe0045748			X		X					
3	BH02 0.1	Feb 14, 2024		Soil	B24-Fe0045749			X		X				X	
4	BH02 1.4	Feb 14, 2024		Soil	B24-Fe0045750	X									
5	BH03 0.1	Feb 14, 2024		Soil	B24-Fe0045751			X				X		X	
6	BH04 0.1	Feb 14, 2024		Soil	B24-Fe0045752			X		X				X	
7	BH05 0.1	Feb 14, 2024		Soil	B24-Fe0045753			X		X				X	
8	BH06 0.1	Feb 14, 2024		Soil	B24-Fe0045754			X				X		X	
9	BH07 0.1	Feb 14, 2024		Soil	B24-Fe0045755			X				X		X	
10	BH08 0.1	Feb 14, 2024		Soil	B24-Fe0045756			X		X				X	
11	BH09 0.1	Feb 14, 2024		Soil	B24-Fe0045757			X				X		X	
12	BH10 0.1	Feb 14, 2024		Soil	B24-Fe0045758			X		X				X	

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Project Name:
Project ID: 023-002-069

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Report #: 1069986
Phone: (07) 3351 0468
Fax:

Received: Feb 16, 2024 10:40 PM
Due: Feb 26, 2024
Priority: 5 Day
Contact Name: Robin Wagland

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						CANCELLED	HOLD	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B1	Eurofins Suite B6: BTEX/TRH/M8	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs) - Short	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254									X						
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X	X
13	BH10 1	Feb 14, 2024		Soil	B24-Fe0045759			X		X					
14	BH11 0.1	Feb 14, 2024		Soil	B24-Fe0045760			X				X			
15	BH11 0.3	Feb 14, 2024		Soil	B24-Fe0045761			X		X					
16	BH12 0.1	Feb 14, 2024		Soil	B24-Fe0045762			X				X			
17	BH12 1	Feb 14, 2024		Soil	B24-Fe0045763			X				X			
18	BH13 0.1	Feb 14, 2024		Soil	B24-Fe0045764			X		X					
19	BH14 0.1	Feb 14, 2024		Soil	B24-Fe0045765			X				X			
20	BH15 0.1	Feb 14, 2024		Soil	B24-Fe0045766			X		X					
21	BH16 0.1	Feb 14, 2024		Soil	B24-Fe0045767			X				X			
22	BH18 0.1	Feb 14, 2024		Soil	B24-Fe0045768			X				X			
23	BH18 1	Feb 14, 2024		Soil	B24-Fe0045769			X				X			
24	BH19 0.1	Feb 14, 2024		Soil	B24-Fe0045770			X		X					
25	BH20 0.1	Feb 14, 2024		Soil	B24-Fe0045771			X		X					
26	POND1 0.1	Feb 14, 2024		Soil	B24-Fe0045772			X				X			
27	POND2 0.1	Feb 14, 2024		Soil	B24-Fe0045773			X		X					

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Address: PO Box 320
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QLD 4055

Project Name:
Project ID: 023-002-069

Order No.: 023-002-069
Report #: 1069986
Phone: (07) 3351 0468
Fax:

Received: Feb 16, 2024 10:40 PM
Due: Feb 26, 2024
Priority: 5 Day
Contact Name: Robin Wagland

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						CANCELLED	HOLD	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B1	Eurofins Suite B6: BTEX/TRH/M8	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs) - Short	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254									X						
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X	X
28	QA1	Feb 14, 2024		Soil	B24-Fe0045774			X				X			
29	QA 5	Feb 14, 2024		Soil	B24-Fe0045775			X				X			
30	TRIP SPIKE	Feb 14, 2024		Trip Spike (solid)	B24-Fe0045776						X				X
31	TRIP BLANK	Feb 14, 2024		Trip Blank (solid)	B24-Fe0045777						X		X		
32	BG 0.1	Feb 14, 2024		Soil	B24-Fe0045778			X	X			X			
33	BH01 0.3	Feb 14, 2024		Soil	B24-Fe0045779		X								
34	BH02 0.3	Feb 14, 2024		Soil	B24-Fe0045780		X								
35	BH03 0.3	Feb 14, 2024		Soil	B24-Fe0045781		X								
36	BH03 1.4	Feb 14, 2024		Soil	B24-Fe0045782		X								
37	BH05A 0.1	Feb 14, 2024		Soil	B24-Fe0045783		X								
38	BH05A 0.3	Feb 14, 2024		Soil	B24-Fe0045784		X								
39	BH05A 1.0	Feb 14, 2024		Soil	B24-Fe0045785		X								
40	BH08 0.3	Feb 14, 2024		Soil	B24-Fe0045786		X								

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Melbourne Laboratory - NATA # 1261 Site # 1254									X						
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X	X
41	BH08 1	Feb 14, 2024		Soil	B24-Fe0045787		X								
42	BH09 0.3	Feb 14, 2024		Soil	B24-Fe0045788		X								
43	BH09 1	Feb 14, 2024		Soil	B24-Fe0045789		X								
44	BH10 0.3	Feb 14, 2024		Soil	B24-Fe0045790		X								
45	BH11 1	Feb 14, 2024		Soil	B24-Fe0045791		X								
46	BH12 0.3	Feb 14, 2024		Soil	B24-Fe0045792		X								
47	BH17 0.1	Feb 14, 2024		Soil	B24-Fe0045793		X								
48	BH17 0.3	Feb 14, 2024		Soil	B24-Fe0045794		X								
49	BH17 1	Feb 14, 2024		Soil	B24-Fe0045795		X								
50	BH18 0.3	Feb 14, 2024		Soil	B24-Fe0045796		X								
51	BH19 0.3	Feb 14, 2024		Soil	B24-Fe0045797		X								
52	BH19 1	Feb 14, 2024		Soil	B24-Fe0045798		X								
53	BH20 0.3	Feb 14, 2024		Soil	B24-Fe0045799		X								
54	BH20 1	Feb 14, 2024		Soil	B24-Fe0045800		X								
55	POND3 0.1	Feb 14, 2024		Soil	B24-Fe0045801		X								

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Melbourne Laboratory - NATA # 1261 Site # 1254									X						
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X	X
56	TP1N 0.1	Feb 14, 2024		Soil	B24-Fe0045802		X								
57	TP1E 0.1	Feb 14, 2024		Soil	B24-Fe0045803		X								
58	TP1S 0.1	Feb 14, 2024		Soil	B24-Fe0045804		X								
59	TP3N 0.1	Feb 14, 2024		Soil	B24-Fe0045805		X								
60	TP3E 0.1	Feb 14, 2024		Soil	B24-Fe0045806		X								
61	TP3S 0.1	Feb 14, 2024		Soil	B24-Fe0045807	X									
62	TP3W 0.1	Feb 14, 2024		Soil	B24-Fe0045808		X								
63	QA 3	Feb 14, 2024		Soil	B24-Fe0045809		X								
64	BH02 1.5	Feb 14, 2024		Soil	B24-Fe0045895		X								
65	TP1W 1.0	Feb 14, 2024		Soil	B24-Fe0046089		X								
66	BH014 1.0	Feb 14, 2024		Soil	B24-Fe0046105		X								
Test Counts						2	33	29	1	14	2	15	1	10	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry weight basis unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with blue colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is 7 days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit	**Colour:** Pt-Co Units	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 70 – 130%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 5.4, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

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

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Method Blank							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Conductivity (1:5 aqueous extract at 25 °C as rec.)	uS/cm	< 10			10	Pass	
Total Organic Carbon	%	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Cation Exchange Capacity							
Cation Exchange Capacity	meq/100g	< 0.5			0.5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	98			70-130	Pass	
TRH C10-C14	%	84			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	91			70-130	Pass	
Toluene	%	94			70-130	Pass	
Ethylbenzene	%	105			70-130	Pass	
m&p-Xylenes	%	98			70-130	Pass	
Xylenes - Total*	%	97			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	91			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	107			70-130	Pass	
Acenaphthylene	%	86			70-130	Pass	
Anthracene	%	79			70-130	Pass	
Benz(a)anthracene	%	111			70-130	Pass	
Benzo(a)pyrene	%	110			70-130	Pass	
Benzo(b&j)fluoranthene	%	125			70-130	Pass	
Benzo(g.h.i)perylene	%	81			70-130	Pass	
Benzo(k)fluoranthene	%	86			70-130	Pass	
Chrysene	%	101			70-130	Pass	
Dibenz(a.h)anthracene	%	78			70-130	Pass	
Fluoranthene	%	123			70-130	Pass	
Fluorene	%	78			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	98			70-130	Pass	
Naphthalene	%	100			70-130	Pass	
Phenanthrene	%	103			70-130	Pass	
Pyrene	%	114			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	82			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	88			80-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	%	86			80-120	Pass	
Chromium	%	94			80-120	Pass	
Copper	%	89			80-120	Pass	
Iron	%	108			80-120	Pass	
Lead	%	98			80-120	Pass	
Mercury	%	109			80-120	Pass	
Nickel	%	89			80-120	Pass	
Zinc	%	85			80-120	Pass	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	95			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	81			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	74			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	70			50-150	Pass	
LCS - % Recovery							
Conductivity (1:5 aqueous extract at 25 °C as rec.)	%	100			70-130	Pass	
Total Organic Carbon	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C10	%	124			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Anthracene	B24-Fe0064018	NCP	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	B24-Fe0043415	NCP	%	117			70-130	Pass	
Fluoranthene	B24-Fe0043415	NCP	%	130			70-130	Pass	
Indeno(1.2.3-cd)pyrene	B24-Fe0064018	NCP	%	112			70-130	Pass	
Phenanthrene	B24-Fe0043415	NCP	%	115			70-130	Pass	
Pyrene	B24-Fe0064018	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B24-Fe0045749	CP	%	102			70-130	Pass	
TRH C10-C14	B24-Fe0045749	CP	%	86			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B24-Fe0045749	CP	%	98			70-130	Pass	
Toluene	B24-Fe0045749	CP	%	105			70-130	Pass	
Ethylbenzene	B24-Fe0045749	CP	%	121			70-130	Pass	
m&p-Xylenes	B24-Fe0045749	CP	%	119			70-130	Pass	
o-Xylene	B24-Fe0045749	CP	%	116			70-130	Pass	
Xylenes - Total*	B24-Fe0045749	CP	%	118			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B24-Fe0045749	CP	%	98			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	B24-Fe0045749	CP	%	119			70-130	Pass	
Acenaphthylene	B24-Fe0045749	CP	%	105			70-130	Pass	
Benzo(a)pyrene	B24-Fe0045749	CP	%	126			70-130	Pass	
Benzo(g.h.i)perylene	B24-Fe0045749	CP	%	87			70-130	Pass	
Benzo(k)fluoranthene	B24-Fe0045749	CP	%	97			70-130	Pass	
Dibenz(a.h)anthracene	B24-Fe0045749	CP	%	88			70-130	Pass	
Fluorene	B24-Fe0045749	CP	%	100			70-130	Pass	
Naphthalene	B24-Fe0045749	CP	%	104			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B24-Fe0045749	CP	%	84			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B24-Fe0045752	CP	%	87			75-125	Pass	
Cadmium	B24-Fe0045752	CP	%	91			75-125	Pass	
Chromium	B24-Fe0045752	CP	%	89			75-125	Pass	
Copper	B24-Fe0045752	CP	%	88			75-125	Pass	
Lead	B24-Fe0045752	CP	%	96			75-125	Pass	
Mercury	B24-Fe0045752	CP	%	108			75-125	Pass	
Nickel	B24-Fe0045752	CP	%	87			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B24-Fe0045755	CP	%	94			75-125	Pass	
Cadmium	B24-Fe0045755	CP	%	87			75-125	Pass	
Chromium	B24-Fe0045755	CP	%	99			75-125	Pass	
Copper	B24-Fe0045755	CP	%	95			75-125	Pass	
Lead	B24-Fe0045755	CP	%	103			75-125	Pass	
Mercury	B24-Fe0045755	CP	%	108			75-125	Pass	
Nickel	B24-Fe0045755	CP	%	94			75-125	Pass	
Zinc	B24-Fe0045755	CP	%	80			75-125	Pass	
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1					
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B24-Fe0045755	CP	%	101			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B24-Fe0045755	CP	%	81			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B24-Fe0045755	CP	%	66			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B24-Fe0045755	CP	%	68			50-150	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	B24-Fe0045764	CP	%	115			70-130	Pass	
Acenaphthylene	B24-Fe0045764	CP	%	113			70-130	Pass	
Benz(a)anthracene	B24-Fe0045764	CP	%	89			70-130	Pass	
Benzo(a)pyrene	B24-Fe0045764	CP	%	121			70-130	Pass	
Benzo(k)fluoranthene	B24-Fe0045764	CP	%	107			70-130	Pass	
Chrysene	B24-Fe0045764	CP	%	79			70-130	Pass	
Fluorene	B24-Fe0045764	CP	%	100			70-130	Pass	
Naphthalene	B24-Fe0045764	CP	%	101			70-130	Pass	
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1					
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B24-Fe0045770	CP	%	94			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B24-Fe0045770	CP	%	88			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B24-Fe0045770	CP	%	74			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B24-Fe0045770	CP	%	71			50-150	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B24-Fe0045772	CP	%	85			75-125	Pass	
Cadmium	B24-Fe0045772	CP	%	83			75-125	Pass	
Chromium	B24-Fe0045772	CP	%	78			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Copper	B24-Fe0045772	CP	%	80			75-125	Pass	
Lead	B24-Fe0045772	CP	%	85			75-125	Pass	
Mercury	B24-Fe0045772	CP	%	86			75-125	Pass	
Nickel	B24-Fe0045772	CP	%	83			75-125	Pass	
Zinc	B24-Fe0045772	CP	%	84			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B24-Fe0045773	CP	%	128			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B24-Fe0045773	CP	%	127			70-130	Pass	
Toluene	B24-Fe0045773	CP	%	127			70-130	Pass	
Ethylbenzene	B24-Fe0045773	CP	%	125			70-130	Pass	
m&p-Xylenes	B24-Fe0045773	CP	%	127			70-130	Pass	
o-Xylene	B24-Fe0045773	CP	%	130			70-130	Pass	
Xylenes - Total*	B24-Fe0045773	CP	%	128			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Iron	M24-Fe0049211	NCP	%	102			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S24-Fe0052350	NCP	%	17	17	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B24-Fe0045751	CP	mg/kg	2.9	3.2	10	30%	Pass	
Cadmium	B24-Fe0045751	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chromium	B24-Fe0045751	CP	mg/kg	15	17	12	30%	Pass	
Copper	B24-Fe0045751	CP	mg/kg	8.7	10	17	30%	Pass	
Lead	B24-Fe0045751	CP	mg/kg	5.1	5.5	8.2	30%	Pass	
Mercury	B24-Fe0045751	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	B24-Fe0045751	CP	mg/kg	6.2	7.2	15	30%	Pass	
Zinc	B24-Fe0045751	CP	mg/kg	14	16	15	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B24-Fe0045753	CP	mg/kg	2.9	3.0	3.1	30%	Pass	
Chromium	B24-Fe0045753	CP	mg/kg	19	20	5.0	30%	Pass	
Copper	B24-Fe0045753	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	B24-Fe0045753	CP	mg/kg	7.4	7.2	2.7	30%	Pass	
Nickel	B24-Fe0045753	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	B24-Fe0045753	CP	mg/kg	56	56	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B24-Fe0045756	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	B24-Fe0045756	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	B24-Fe0045756	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	B24-Fe0045756	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B24-Fe0045756	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	B24-Fe0045756	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	B24-Fe0045756	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	B24-Fe0045756	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	B24-Fe0045756	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	B24-Fe0045756	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	B24-Fe0045756	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	B24-Fe0045756	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B24-Fe0045756	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	B24-Fe0045756	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	B24-Fe0045756	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B24-Fe0045760	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	B24-Fe0045760	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chromium	B24-Fe0045760	CP	mg/kg	16	16	1.2	30%	Pass	
Copper	B24-Fe0045760	CP	mg/kg	51	51	<1	30%	Pass	
Lead	B24-Fe0045760	CP	mg/kg	5.1	6.2	19	30%	Pass	
Nickel	B24-Fe0045760	CP	mg/kg	11	14	22	30%	Pass	
Zinc	B24-Fe0045760	CP	mg/kg	13	15	13	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B24-Fe0045760	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B24-Fe0045760	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B24-Fe0045760	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B24-Fe0045762	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B24-Fe0045762	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	B24-Fe0045762	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	B24-Fe0045762	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	B24-Fe0045762	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	B24-Fe0045762	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	B24-Fe0045762	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B24-Fe0045762	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	B24-Fe0045762	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B24-Fe0045764	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B24-Fe0045764	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B24-Fe0045764	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B24-Fe0045768	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B24-Fe0045768	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	B24-Fe0045768	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	B24-Fe0045768	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	B24-Fe0045768	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	B24-Fe0045768	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	B24-Fe0045768	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B24-Fe0045768	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	B24-Fe0045768	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B24-Fe0045769	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	B24-Fe0045769	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chromium	B24-Fe0045769	CP	mg/kg	12	12	<1	30%	Pass	
Copper	B24-Fe0045769	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	B24-Fe0045769	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	B24-Fe0045769	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	B24-Fe0045769	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	B24-Fe0045769	CP	mg/kg	8.1	8.5	5.1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	B24-Fe0045770	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	B24-Fe0045770	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	B24-Fe0045770	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Naphthalene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	B24-Fe0045770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B24-Fe0045770	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	B24-Fe0045770	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	B24-Fe0045770	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B24-Fe0045778	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B24-Fe0045778	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	B24-Fe0045778	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	B24-Fe0045778	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	B24-Fe0045778	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	B24-Fe0045778	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	B24-Fe0045778	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B24-Fe0045778	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	B24-Fe0045778	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Iron	M24-Fe0049675	NCP	mg/kg	41000	41000	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	M24-Fe0052554	NCP	uS/cm	3400	3100	9.5	30%	Pass	
Total Organic Carbon	S24-Fe0043500	NCP	%	0.6	0.6	13	30%	Pass	
Duplicate									
Cation Exchange Capacity				Result 1	Result 2	RPD			
Cation Exchange Capacity	M24-Fe0049755	NCP	meq/100g	26	26	<1	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B24-Fe0045793	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B24-Fe0045793	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B24-Fe0045793	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B24-Fe0045808	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B24-Fe0045808	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B24-Fe0045808	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.

Authorised by:

Zoe Flynn	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Emily Rosenberg	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Sample Properties
Jonathon Angell	Senior Analyst-Volatile
Mary Makarios	Senior Analyst-Inorganic
Mary Makarios	Senior Analyst-Metal



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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From: Robin Wagland <robin@mach1environmental.com.au>
Sent: Thursday, 29 February 2024 7:11 PM
To: Zoe Flynn <ZoeFlynn@eurofins.com>
Cc: Annie Newbery <annie@mach1environmental.com.au>
Subject: RE: Eurofins Test Results, Invoice - Report 1069986 : Site 023-002-069

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Zoe,

Many thanks for getting these through to us.

I must have missed it on the original COC, but TP1W 1.0, should in fact be TP1W0.1 and should be analysed for PFAS short suite.

Is it possible to get this extra analysis done on a fast turnaround, in addition to completing a PFAS short suite DI and TCLP leachate on the detectable PFAS being POND3 0.1 and POND1 0.1.

Many thanks in advance.

Robin.

Robin Wagland
Principal
Auditor

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1073979

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All reasonable precautions have been taken to ensure no viruses are present in this e-mail. As our company cannot accept responsibilit
any loss or damage arising from the use of this e-mail or attachments we recommend that you subject these to your virus checking
procedures prior to use.
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Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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Site# 2370

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	MACH1 Environmental Pty Ltd
Contact name:	Robin Wagland
Project name:	Not provided
Project ID:	023-002-069
Turnaround time:	2 Day
Date/Time received	Feb 29, 2024 7:11 PM
Eurofins reference	1073979

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✗	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Zoe Flynn on phone : or by email: ZoeFlynn@eurofins.com

Results will be delivered electronically via email to Robin Wagland - robin@mach1environmental.com.au.

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: MACH1 Environmental Pty Ltd
Address: PO Box 320
Ferny Hills
QLD 4055

Project Name:
Project ID: 023-002-069

Order No.: 023-002-069
Report #: 1073979
Phone: (07) 3351 0468
Fax:

Received: Feb 29, 2024 7:11 PM
Due: Mar 5, 2024
Priority: 2 Day
Contact Name: Robin Wagland

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						AUS Leaching Procedure	USA Leaching Procedure	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TP1W 0.1	Feb 14, 2024		Soil	B24-Ma0000850			X	X
2	POND1 0.1	Feb 14, 2024		AUS Leachate - Reagent Water	B24-Ma0000851	X			X
3	POND1 0.1	Feb 14, 2024		US Leachate	B24-Ma0000852		X		X
4	POND3 0.1	Feb 14, 2024		AUS Leachate - Reagent Water	B24-Ma0000853	X			X
5	POND3 0.1	Feb 14, 2024		US Leachate	B24-Ma0000854		X		X
Test Counts						2	2	1	5

Mach1 Environmental Pty Ltd
PO Box 320
Ferny Hills
QLD 4055

NATA Accredited
Accreditation Number 1261
Site Number 20794

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Attention: **Robin Wagland**

Report **1073979-L**
Project name
Project ID 023-002-069
Received Date Feb 29, 2024

Client Sample ID			**POND1 0.1**	**POND1 0.1**	**POND3 0.1**	**POND3 0.1**
Sample Matrix			**AUS Leachate - Reagent Water**	**US Leachate**	**AUS Leachate - Reagent Water**	**US Leachate**
Eurofins Sample No.			**B24-Ma0000851**	**B24-Ma0000852**	**B24-Ma0000853**	**B24-Ma0000854**
Date Sampled			**Feb 14, 2024**	**Feb 14, 2024**	**Feb 14, 2024**	**Feb 14, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	4.0	-	4.0	-
pH (initial)	0.1	pH Units	N/A	-	N/A	-
pH (Leachate fluid)	0.1	pH Units	7.0	-	7.0	-
pH (off)	0.1	pH Units	7.5	-	7.1	-
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	0.07	0.07	0.24	0.30
13C2-6:2 FTSA (surr.)	1	%	96	98	79	68
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]1.1	[N09]1.4	[N09]1.1	[N09]1.2
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]120	[N09]160	[N09]8.1	[N09]3.9
18O2-PFHxS (surr.)	1	%	73	90	79	69
13C8-PFOS (surr.)	1	%	84	50	147	147
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.23	[N09]0.29	[N09]0.28	[N09]0.28
13C8-PFOA (surr.)	1	%	77	74	95	90
Sum (PFHxS + PFOS)*	0.01	ug/L	121.1	161.4	9.2	5.1
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	120.23	160.29	8.38	4.18
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	121.33	161.69	9.48	5.38
USA Leaching Procedure						
Leachate Fluid[C01]		comment	-	1.0	-	1.0
pH (initial)	0.1	pH Units	-	7.6	-	7.2
pH (Leachate fluid)	0.1	pH Units	-	5.0	-	5.0
pH (off)	0.1	pH Units	-	5.1	-	5.1
pH (USA HCl addition)	0.1	pH Units	-	1.6	-	1.6

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
AUS Leaching Procedure	Brisbane	Mar 01, 2024	7 Days
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Brisbane	Mar 01, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
USA Leaching Procedure	Brisbane	Mar 01, 2024	14 Days
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			

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Eurofins Environment Testing Australia Pty Ltd
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: MACH1 Environmental Pty Ltd
Address: PO Box 320
Ferny Hills
QLD 4055

Project Name:
Project ID: 023-002-069

Order No.: 023-002-069
Report #: 1073979
Phone: (07) 3351 0468
Fax:

Received: Feb 29, 2024 7:11 PM
Due: Mar 5, 2024
Priority: 2 Day
Contact Name: Robin Wagland

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						AUS Leaching Procedure	USA Leaching Procedure	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TP1W 0.1	Feb 14, 2024		Soil	B24-Ma0000850			X	X
2	POND1 0.1	Feb 14, 2024		AUS Leachate - Reagent Water	B24-Ma0000851	X			X
3	POND1 0.1	Feb 14, 2024		US Leachate	B24-Ma0000852		X		X
4	POND3 0.1	Feb 14, 2024		AUS Leachate - Reagent Water	B24-Ma0000853	X			X
5	POND3 0.1	Feb 14, 2024		US Leachate	B24-Ma0000854		X		X
Test Counts						2	2	1	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry weight basis unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with blue colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is 7 days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit	**Colour:** Pt-Co Units	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 70 – 130%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 5.4, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B24-Ma0000852	CP	ug/L	0.07	0.08	5.4	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B24-Ma0000852	CP	ug/L	1.4	1.6	12	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	B24-Ma0000852	CP	ug/L	160	120	26	30%	Pass	
Perfluorooctanoic acid (PFOA)	B24-Ma0000852	CP	ug/L	0.29	0.32	8.6	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.

Authorised by:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Sample Properties



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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Attention: **Robin Wagland**

Report **1073979-S**
Project name
Project ID 023-002-069
Received Date Feb 29, 2024

Client Sample ID			**TP1W 0.1**
Sample Matrix			**Soil**
Eurofins Sample No.			**B24-Ma0000850**
Date Sampled			**Feb 14, 2024**
Test/Reference	LOR	Unit	
Sample Properties			
% Moisture	1	%	< 1
Per- and Polyfluoroalkyl Substances (PFASs) - Short			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10
13C2-6:2 FTSA (surr.)	1	%	INT
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]51
18O2-PFHxS (surr.)	1	%	143
13C8-PFOS (surr.)	1	%	149
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5
13C8-PFOA (surr.)	1	%	121
Sum (PFHxS + PFOS)*	5	ug/kg	51
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	51
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	51

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
% Moisture	Brisbane	Mar 01, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Brisbane	Mar 01, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

eurofins

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Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

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6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: MACH1 Environmental Pty Ltd
Address: PO Box 320
Ferny Hills
QLD 4055

Project Name:
Project ID: 023-002-069

Order No.: 023-002-069
Report #: 1073979
Phone: (07) 3351 0468
Fax:

Received: Feb 29, 2024 7:11 PM
Due: Mar 5, 2024
Priority: 2 Day
Contact Name: Robin Wagland

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						AUS Leaching Procedure	USA Leaching Procedure	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TP1W 0.1	Feb 14, 2024		Soil	B24-Ma0000850			X	X
2	POND1 0.1	Feb 14, 2024		AUS Leachate - Reagent Water	B24-Ma0000851	X			X
3	POND1 0.1	Feb 14, 2024		US Leachate	B24-Ma0000852		X		X
4	POND3 0.1	Feb 14, 2024		AUS Leachate - Reagent Water	B24-Ma0000853	X			X
5	POND3 0.1	Feb 14, 2024		US Leachate	B24-Ma0000854		X		X
Test Counts						2	2	1	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry weight basis unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with blue colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is 7 days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit	**Colour:** Pt-Co Units	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 70 – 130%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 5.4, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Per- and Polyfluoroalkyl Substances (PFASs) - Short									
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			ug/kg	< 10			10	Pass	
Perfluorohexanesulfonic acid (PFHxS)			ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)			ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)			ug/kg	< 5			5	Pass	
LCS - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short									
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	82			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	80			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	125			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	103			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1					
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B24-Ma0000850	CP	%	68			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B24-Ma0000850	CP	%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B24-Ma0000850	CP	%	64			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B24-Ma0000850	CP	%	127			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	B24-Ma0000542	NCP	%	23	25	8.5	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B24-Ma0000850	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B24-Ma0000850	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	B24-Ma0000850	CP	ug/kg	51	50	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B24-Ma0000850	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.

Authorised by:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Sample Properties



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

CERTIFICATE OF ANALYSIS

Work Order	: **EB2405552**	Page	: 1 of 6
Client	: **MACH 1 ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR ROBIN WAGLAND	Contact	: Customer Services EB
Address	: PO BOX 33028 ASHGROVE EAST QLD, AUSTRALIA 4060	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 07 3366 7702	Telephone	: +61-7-3243 7222
Project	: 023-002-069	Date Samples Received	: 19-Feb-2024 15:50
Order number	: 023-002-069	Date Analysis Commenced	: 20-Feb-2024
C-O-C number	: ----	Issue Date	: 26-Feb-2024 14:31
Sampler	: ROBIN WAGLAND		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 3		
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
- 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*
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Soil Preparation, Stafford, QLD
Matt Frost	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

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.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP231X-PFAS: High LCS recovery deemed acceptable as all associated analyte results are less than LOR
- EP231X-PFAS: Samples 'QA4' (EB2405552-002) and 'QA6' (EB2405552-003) required dilution due to the presence of high-level contaminants. LOR values have been adjusted accordingly. Surrogates and Matrix spike recovery not determind. The LORs of particular analytes have been raised further due to additional matrix interferences.
- EP080 - TRH Volatiles/BTEX: Sample EB2405193-005 shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- 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	QA2	QA4	QA6	----	----
				Sampling date / time	14-Feb-2024 00:00	14-Feb-2024 00:00	14-Feb-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		EB2405552-001	EB2405552-002	EB2405552-003	--------	--------
					Result	Result	Result	----	----
EA055: Moisture Content									
Moisture Content	----	1.0	%		<1.0	----	<1.0	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		----	<0.1	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	----	**41**	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	<1	----	----
Chromium	7440-47-3	2	mg/kg		**9**	----	**10**	----	----
Copper	7440-50-8	5	mg/kg		<5	----	**5**	----	----
Lead	7439-92-1	5	mg/kg		<5	----	<5	----	----
Nickel	7440-02-0	2	mg/kg		<2	----	**4**	----	----
Zinc	7440-66-6	5	mg/kg		<5	----	**72**	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	<0.1	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	**120**	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	<100	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	**120**	----	----
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	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	**190**	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	**190**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QA2	QA4	QA6	----	----
				Sampling date / time	14-Feb-2024 00:00	14-Feb-2024 00:00	14-Feb-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		EB2405552-001	EB2405552-002	EB2405552-003	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	<50	----	----
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	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		**0.0002**	<0.0010	<0.0026	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0003**	**0.0040**	**0.0198**	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0020**	**1.25**	**2.39**	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.005	<0.013	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		**0.0008**	**0.0011**	<0.0034	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0005**	**0.0019**	**0.0067**	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0010	<0.0026	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0010	**0.0033**	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0010	<0.0026	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0010	<0.0026	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0010	<0.0047	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QA2	QA4	QA6	----	----
				Sampling date / time	14-Feb-2024 00:00	14-Feb-2024 00:00	14-Feb-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		EB2405552-001	EB2405552-002	EB2405552-003	--------	--------
					Result	Result	Result	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0010	<0.0026	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0023**	**1.25**	**2.41**	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0038**	**1.26**	**2.42**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**98.7**	----	**99.0**	----	----
Toluene-D8	2037-26-5	0.2	%		**92.6**	----	**91.5**	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**90.5**	----	**87.3**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**104**	**120**	**Not Determined**	----	----
13C8-PFOA	----	0.0002	%		**103**	**100**	**Not Determined**	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	53	134
Toluene-D8	2037-26-5	60	131
4-Bromofluorobenzene	460-00-4	59	127
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EB2405552**	Page	: 1 of 7
Client	: **MACH 1 ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR ROBIN WAGLAND	Contact	: Customer Services EB
Address	: PO BOX 33028 ASHGROVE EAST QLD, AUSTRALIA 4060	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 07 3366 7702	Telephone	: +61-7-3243 7222
Project	: 023-002-069	Date Samples Received	: 19-Feb-2024
Order number	: 023-002-069	Date Analysis Commenced	: 20-Feb-2024
C-O-C number	: ----	Issue Date	: 26-Feb-2024
Sampler	: ROBIN WAGLAND		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 3		
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*
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Soil Preparation, Stafford, QLD
Matt Frost	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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: 5610899)									
EB2405562-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	29	30	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	18	18	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	26	26	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	52	51	2.7	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	7	7	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	104	104	0.0	0% - 20%
EB2405193-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	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	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	6	<5	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5610911)									
EB2405193-003	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	19.9	20.2	1.7	0% - 20%
EB2405551-003	Anonymous	EA055: Moisture Content	----	0.1	%	20.3	19.8	2.7	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5610900)									
EB2405552-001	QA2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5610902)									

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: 5610902) - continued									
EB2405193-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5610905)									
EB2405552-001	QA2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5610902)									
EB2405193-003	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: 5610905)									
EB2405552-001	QA2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 5610902)									
EB2405193-003	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: 5610906)									
EB2405552-001	QA2	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	0.0003	0.0003	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0020	0.0026	24.6	0% - 50%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5610906)									
EB2405552-001	QA2	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0008	0.0006	30.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0005	0.0004	32.3	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: 5610906)									
EB2405552-001	QA2	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 (%)*

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: 5610899)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	65.3 mg/kg	89.0	84.0	123
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
EG005T: Chromium	7440-47-3	2	mg/kg	<2	14.5 mg/kg	98.5	83.0	125
EG005T: Copper	7440-50-8	5	mg/kg	<5	37.4 mg/kg	99.2	86.0	122
EG005T: Lead	7439-92-1	5	mg/kg	<5	45.3 mg/kg	99.1	84.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	12.4 mg/kg	97.1	81.5	118
EG005T: Zinc	7440-66-6	5	mg/kg	<5	150.2 mg/kg	99.9	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5610900)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.09199 mg/kg	103	70.0	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5610902)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	18 mg/kg	84.2	64.0	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5610905)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	378 mg/kg	94.7	63.3	125
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	407 mg/kg	93.8	56.1	122
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5610902)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	22.5 mg/kg	85.7	58.1	124
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5610905)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	502 mg/kg	94.6	61.2	132
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	268 mg/kg	95.8	52.6	130
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080: BTEXN (QCLot: 5610902)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	68.8	68.0	107
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.8	69.0	108
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.7	68.0	109
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	87.0	70.0	114
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	75.8	74.0	116
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.3	74.0	109
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5610906)								

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: 5610906) - continued								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	113	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	109	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	128	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5610906)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	126	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	129	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	123	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	127	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	122	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5610906)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	123	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	119	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	109	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	# 154	54.8	124

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: 5610899)							
EB2405193-005	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	88.4	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	86.3	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	86.0	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	88.9	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	80.0	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	85.5	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	83.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5610900)							
EB2405552-003	QA6	EG035T: Mercury	7439-97-6	0.5 mg/kg	80.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5610902)							
EB2405193-005	Anonymous	EP080: C6 - C9 Fraction	----	8 mg/kg	# 62.9	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5610905)							
EB2405552-003	QA6	EP071: C10 - C14 Fraction	----	379 mg/kg	92.6	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*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5610905) - continued							
EB2405552-003	QA6	EP071: C15 - C28 Fraction	----	407 mg/kg	95.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5610902)							
EB2405193-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	8 mg/kg	# 64.0	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5610905)							
EB2405552-003	QA6	EP071: >C10 - C16 Fraction	----	502 mg/kg	92.6	70.0	130
		EP071: >C16 - C34 Fraction	----	268 mg/kg	104	70.0	130
EP080: BTEXN (QCLot: 5610902)							
EB2405193-005	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	79.1	70.0	130
		EP080: Toluene	108-88-3	2 mg/kg	76.2	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5610906)							
EB2405552-002	QA4	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	# Not Determined	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	# Not Determined	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5610906)							
EB2405552-002	QA4	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	83.2	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	# Not Determined	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	# Not Determined	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	# Not Determined	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	# Not Determined	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5610906)							
EB2405552-002	QA4	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	# Not Determined	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	# 8.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	# 0.0	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	# 0.0	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2405552**	Page	: 1 of 5
Client	: **MACH 1 ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR ROBIN WAGLAND	Telephone	: +61-7-3243 7222
Project	: 023-002-069	Date Samples Received	: 19-Feb-2024
Site	: ----	Issue Date	: 26-Feb-2024
Sampler	: ROBIN WAGLAND	No. of samples received	: 3
Order number	: 023-002-069	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.**
- **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							
EP231D: (n:2) Fluorotelomer Sulfonic Acids	QC-5610906-002	----	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	154 %	54.8-124%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EP080/071: Total Petroleum Hydrocarbons	EB2405193--005	Anonymous	**C6 - C9 Fraction**	----	62.9 %	70.0-130%	**Recovery less than lower data quality objective**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EB2405193--005	Anonymous	**C6 - C10 Fraction**	C6_C10	64.0 %	70.0-130%	**Recovery less than lower data quality objective**
EP231A: Perfluoroalkyl Sulfonic Acids	EB2405552--002	QA4	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EB2405552--002	QA4	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	27619-97-2	8.5 %	64.0-140%	**Recovery less than lower data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EB2405552--002	QA4	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	39108-34-4	0.0 %	65.0-137%	**Recovery less than lower data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EB2405552--002	QA4	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	0.0 %	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
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055) QA2, QA6	**14-Feb-2024**	**----**	----	----	**20-Feb-2024**	28-Feb-2024	✓
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055) QA4	**14-Feb-2024**	**----**	----	----	**20-Feb-2024**	28-Feb-2024	✓

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
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) QA2, QA6	**14-Feb-2024**	**20-Feb-2024**	12-Aug-2024	✓	**22-Feb-2024**	12-Aug-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) QA2, QA6	**14-Feb-2024**	**20-Feb-2024**	13-Mar-2024	✓	**23-Feb-2024**	13-Mar-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) QA2, QA6	**14-Feb-2024**	**20-Feb-2024**	28-Feb-2024	✓	**21-Feb-2024**	28-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP071) QA2, QA6	**14-Feb-2024**	**21-Feb-2024**	28-Feb-2024	✓	**23-Feb-2024**	01-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) QA2, QA6	**14-Feb-2024**	**20-Feb-2024**	28-Feb-2024	✓	**21-Feb-2024**	28-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP071) QA2, QA6	**14-Feb-2024**	**21-Feb-2024**	28-Feb-2024	✓	**23-Feb-2024**	01-Apr-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) QA2, QA6	**14-Feb-2024**	**20-Feb-2024**	28-Feb-2024	✓	**21-Feb-2024**	28-Feb-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) QA2, QA4, QA6	**14-Feb-2024**	**20-Feb-2024**	12-Aug-2024	✓	**22-Feb-2024**	31-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) QA2, QA4, QA6	**14-Feb-2024**	**20-Feb-2024**	12-Aug-2024	✓	**22-Feb-2024**	31-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) QA2, QA4, QA6	**14-Feb-2024**	**20-Feb-2024**	12-Aug-2024	✓	**22-Feb-2024**	31-Mar-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) QA2, QA4, QA6	**14-Feb-2024**	**20-Feb-2024**	12-Aug-2024	✓	**22-Feb-2024**	31-Mar-2024	✓

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)							
Moisture Content	EA055	2	18	**11.11**	**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
Total Mercury by FIMS	EG035T	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**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)
TRH - Semivolatile Fraction	EP071	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).
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.

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).
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.

Company
Address PO Box 3028, Ashgrove East, QLD 4060
Contact Robin Wagland

roject code	023-002-069	Email Invoice to	Robin@machtenvironmental.com.au	Sampler(s)	Robin Wagland	Shipping method	Toll Courier to Eurofins
urchase Order	023-002-069	Email results to	Robin@machtenvironmental.com.au	Phone #	0420 931 207	Shipping date	15/02/24 @8.30
uote ID		Format	Excel	Handed over by	Robin Wagland	Signature	

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