DETAILED SITE INVESTIGATION

VENTIA on behalf of the SOUTH AUSTRALIAN METROPOLITAN FIRE SERVICE

34 AIRPORT ROAD, BROOKLYN PARK

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EXECUTIVE SUMMARY

Echo Risk Consulting was commissioned by Ventia on behalf of the South Australian Metropolitan Fire Service to undertake a Detailed Site Investigation for portion of the Brooklyn Park Station located at 34 Airport Road, Brooklyn Park ('the site') in the context of proposed redevelopment as a carpark.

The objective was to undertake environmental investigations to characterise the nature and extent of per- and poly-fluoroalkyl substances (PFAS) contamination at the site. An assessment of other chemicals associated with past and present land uses has not been completed.

The work has comprised a review of previous investigations, a limited historical review of activities associated with PFAS use at the site along with soil and groundwater investigations.

It is important to note that the investigation focussed on the assessment of PFAS in soil and groundwater across the proposed carpark footprint. No assessment has been undertaken across the balance of the site, nor for any other potential chemicals of interest.

The available information indicated that flushing and washing down of equipment used to store AFFF was undertaken on the area of proposed new carpark. This was allowed to free drain onto the unsealed ground surface. Previous soil investigations identified the presence of PFAS impacts in near surface soils across the site.

The soil investigation conducted by Echo as part of this assessment comprised the drilling of eight grid-based soil bores across the site and sampling of soil from one groundwater well. The following findings were made:

- *The soil conditions encountered generally comprised fill material to a maximum depth of 0.6m below ground level (m bgl). The fill was variable with surface materials comprising layers of sand, gravelly sand/crushed rock and some areas of gravelly clay in the eastern portion of the site. Underlying natural soils comprised dark brown silty clays grading to pale grey or orange brown. At depths of more than 1m bgl, there were some layers of gravelly clay, and the material graded to a brown to red brown silty clay. No contamination indicators were noted during the soil investigation.*
- *PFAS was detected at all locations tested. The highest PFAS results were generally reported from the top of the natural soils. Leachate results indicate that the PFAS is leachable at a neutral pH.*
- *All reported results are well below the adopted site-specific health investigation levels.*
- *Results at one location exceeded the adopted ecological criteria (indirect exposure). This was vertically delineated and given the entire site is to be paved, this exceedance is considered trivial in the context of the proposed development.*

The groundwater investigation comprised the drilling, installation and sampling of two groundwater wells on the proposed carpark site and one groundwater well south of the proposed carpark, along the western boundary of the MFS station:

- *Groundwater was encountered at depths of approximately 2.8-3.3m bgl. The inferred groundwater flow direction was determined to be in a southwesterly direction.*
- *The results indicate that PFAS is present in groundwater at all locations tested. The distribution of results suggest that the site is a source of the PFAS impacts in groundwater, with the highest results reported on the down-gradient side of the site. Elevated results were also reported to the south of the proposed carpark. While the source of these impacts may also be the from the proposed carpark site, the potential for other sources on the wider MFS station site cannot be ruled out.*
- *The results suggest that PFAS impacts in groundwater extend offsite, however the lateral and vertical extent was not assessed as part of this investigation.*

The only potentially complete onsite exposure pathway in terms of the proposed development as a carpark relates to the potential leaching of PFAS from soil into the underlying groundwater. A limited remediation options assessment was considered by Echo which suggests that onsite containment and management of the PFAS impacted soil to reduce the potential to further leaching to groundwater is a preferred solution.

Several potentially complete exposure pathways have been identified offsite. These may occur via:

- *The use of extracted groundwater for potable and recreational purposes.*
- *The use of water for irrigation and through root uptake from the shallow water table.*
- *Discharge of groundwater to water bodies.*

Further works would be required to assess the nature and extent of offsite impacts and provide additional information to inform if these exposure pathways are complete.

Prior to the proposed carpark construction, the contractor must develop a site-specific Construction Environmental Management Plan. This must be provided to the MFS for approval before commencing work.

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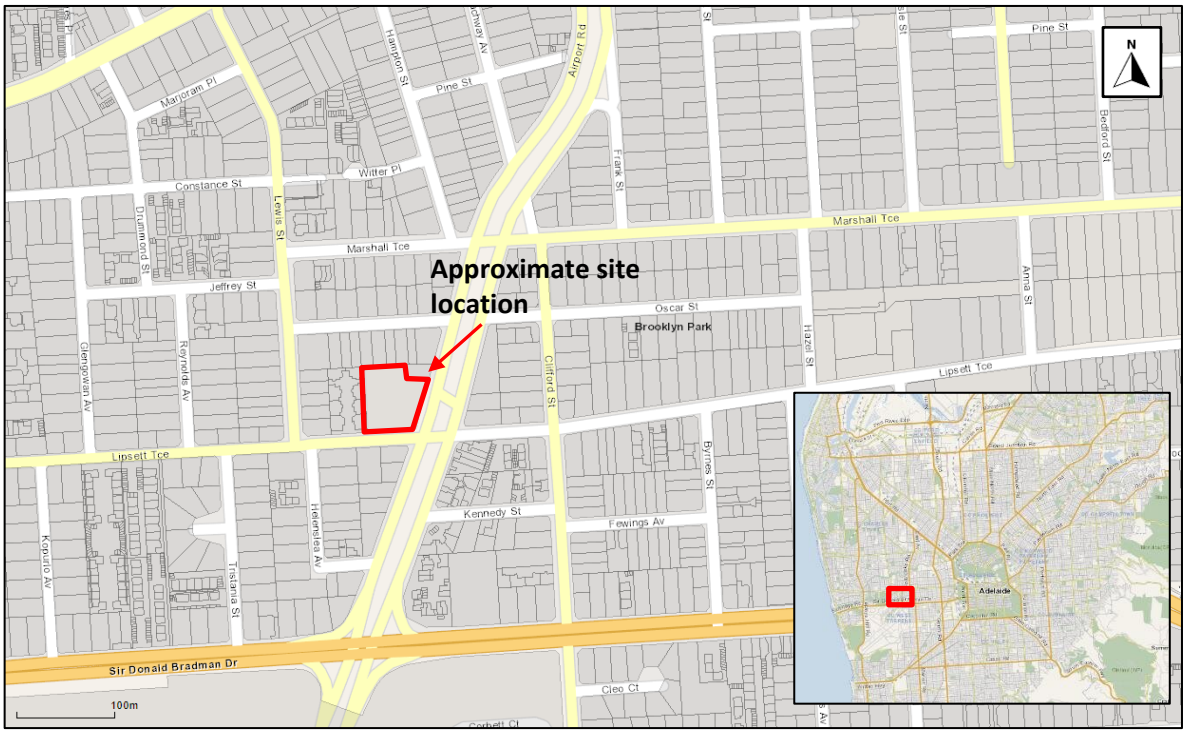
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1 INTRODUCTION

1.1 Background

Echo Risk Consulting (Echo) was commissioned by Ventia (the client) on behalf of the South Australian Metropolitan Fire Service (MFS) to undertake a Detailed Site Investigation (DSI) for portion of the Brooklyn Park (MFS Station located at 34 Airport Road, Brooklyn Park ('the site'). The approximate location of the Brooklyn Park Station is presented in Figure 1, and further site details are provided in Section 2.1.



Source: https://maps.sa.gov.au/SAPPA/

Figure 1: Site Location

Echo understands that a new bitumen paved carpark is to be constructed on the northern portion of the site. An earlier assessment completed by Echo in March 2024 (refer Section 4) identified the presence of PFAS (per- and polyfluoroalkyl substances) within surplus soil that was going to be generated during construction.

1.2 Objective

Given the MFS's commitment to carry out PFAS assessments on their properties (as directed by the EPA), an assessment was required across the proposed carpark footprint to assess the nature and extent of PFAS contamination prior to construction of the carpark. This would enable any potential risk to human health and/or the environment associated with PFAS to be identified early and appropriate remediation/management options to be considered prior to construction of the new carpark.

1.3 Scope of Work

Prior to completing any work, Echo discussed the approach with relevant stakeholders (including MFS Scientific Officers). It is understood the assessment of the proposed carpark footprint is being conducted independently to the broader and systematic assessment of MFS properties around South Australia. On this basis, there was no requirement to prepare detailed scoping documents prior to commencement.

The work completed as part of this assessment has included: -

- A review of readily available historical information to gain an understanding of potential PFAS source areas across the proposed carpark footprint.
- Consideration of previous reports completed for the site.
- Grid-based soil investigations.
- A groundwater sampling and analysis program.
- The preparation of this report, documenting the findings of the sampling programmes and the development of a conceptual site model.
- A limited remediation options assessment associated with the management of PFAS impacted soils in the context of the proposed carpark redevelopment.

This DSI has been prepared with reference to industry standard and guidelines including:

- SA EPA's 'Guidelines for the assessment and remediation of site contamination' (GAR), July 2018, revised November 2019.
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).
- PFAS National Environmental Management Plan Version 2.0 (2020).
- SA EPA's 'Guidelines for regulatory monitoring and testing – Groundwater sampling' April 2019.
- Australian Standard 'Guide to the investigation and sampling of potentially contaminated soil': AS4482.1-2005 (withdrawn: 10 February 2022, but not yet replaced).
- Water Quality Environment Protection Policy (WQEPP 2015).
- NHMRC, NRMMC 2011. Australian Drinking Water Guidelines, version 3.8, updated September 2022. Endorsed by National Health and Medical Research Council and Natural Resource Management Ministerial Council.
- NHMRC 2008 – Guidelines for Managing Risks in Recreational Water, National Health and Medical Research Council
- ANZECC & ARMCANZ 2000 – Australian and New Zealand Guidelines for Fresh and Marine Water Quality (October 2000), Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand.
- Environment Protection Act 1993.
- Environment Protection Regulations 2023.

The scope of work completed by Echo does not purport to be a comprehensive environmental site investigation and focussed on the assessment of PFAS in soil and groundwater across the proposed carpark footprint. No assessment has been undertaken across the balance of the site (except for one groundwater well drilled to assist in determining the groundwater flow direction), nor for any other potential chemicals of interest.

2 SITE INFORMATION

2.1 Site Identification

The site details are summarised in Table 1. A copy of the property parcel report from the South Australian Property Parcel Atlas (SAPPA) is presented in Appendix A.

Table 1: Site Details

Item	Details
Common Name	Brooklyn Park MFS Station
Address	34 Airport Road, Brooklyn Park
Certificates of Title	Volume 5202 Folio 341
Legal Description	Allotment 34, Deposited Plan 40074 in the Hundred of Adelaide
Municipality	City of West Torrens
Zoning	General Neighbourhood

2.2 Site Description and Current Land Use

The Brooklyn Park MFS Station site is an irregular shaped allotment with an area of approximately 3,715 square metres. The site subject to this investigation is the proposed carpark in the northern portion of the larger MFS Station. The proposed carpark has an approximate footprint of 750 square metres. At the time of the assessment, the subject site was vacant and unpaved. A damaged shed was located on the western portion of the site and two small stockpiles (understood to be spoil from adjacent construction works) were in the central and southern portions of the site. Figure 2 shows the approximate site boundary overlain on an aerial image dated 24 July 2024.



Source: http://maps.au.nearmap.com/ (image date: 24 July 2024)

Figure 2: Site Boundary

2.3 Proposed Site use and Users

It is understood the site will continue to operate as an MFS Station. The proposed development will comprise the construction of a new bitumen paved carpark, to be used by site workers and visitors. A proposed construction plan is provided in Appendix B.

The construction plan shows the carpark will be approximately 300mm higher than the adjacent ground level and construction will include the importation of 150mm of PM2/20 and 150mm of PM1/20 compacted quarry rubble prior to the construction of a 40mm thick bitumen surface. A small shed is indicated in the northwestern corner of the site.

3 ENVIRONMENTAL SETTING

3.1 Physical Setting

The site is in a predominately residential setting, and is surrounded by the following:

- North – residences.
- East – Airport Road, beyond which are predominately residences, along with the German Club.
- South – Lipsett Terrace, beyond which are residences.
- West – residences.

The site and surrounding areas are relatively level with a gradual slope in the broader area from the east towards to the west. Topographic plans (Enviro Data SA – NatureMaps) indicate the site has an approximate elevation of 6m Australian Height Datum (AHD).

3.2 Regional Geology

The 1:250,000 scale Adelaide geological map produced by the South Australian Department of Mines and Energy shows the surface geology in the area comprises soils and sediments of the Adelaide Plains including Callabonna Clay and the Pooraka Formation, with Hindmarch Clay in the subsurface.

Reference to the former Department of Mines and Energy Report Book 94/9 "Soils stratigraphy and engineering geology of the Adelaide Plains" indicates the site is situated in the Adelaide Plains in a landform area known as the lower alluvial plain. The general geological sequence in the lower alluvial plain comprises: -

- Quaternary age sediments of fluvial and marine origin of the order of one hundred metres thickness. The dominant formation is Hindmarsh Clay, which is predominantly clay, but has lenses of gravels, silts, and sands.
- Tertiary sediments of marine origin (limestones, sands, and sandstones) up to 500 metres thickness. The Tertiary aquifers generally have better quality water and yields and are highly utilised in some areas.
- Precambrian age basement rock below approximately six hundred metres depth.

3.3 Regional Hydrogeology

Groundwater in the lower alluvial plain occurs in the Quaternary sediments in relatively thin layers (up to a few metres in thickness) of more permeable materials (sands, silts, gravels). There are up to six distinct aquifers within the Quaternary sediments. These aquifers are not highly utilised as the yield and water quality are highly variable.

Information regarding the regional hydrogeology for the site was obtained from the online South Australian Resource Information Gate (SARIG) map produced by the Department of Primary Industries and Resources of South Australia. SARIG indicates that the expected depth to shallow groundwater is between 5 and 10m bgl, however, just to the west of the site are areas where the expected depth to shallow groundwater is between 2 and 5m bgl. The groundwater salinity is expected to range between 1,500 and 3,000 parts per million (ppm) expressed as total dissolved solids (TDS).

The expected regional groundwater flow direction for the Adelaide Plains is generally in a westerly direction, but there may be local variations. Groundwater recharge is likely to occur primarily in the Mount Lofty Ranges (to the east), with the inferred groundwater flow in a north westerly direction. Secondary recharge also occurs through localised rainfall infiltration through the uppermost Quaternary soils.

3.4 Local Groundwater Users

A search of groundwater wells within a 2km radius was conducted using the WaterConnect database produced by the Department for Environment and Water. The results are included in Appendix C. The 2km radius search identified 673 registered groundwater wells or water points that were installed to depths ranging up to 264.7m bgl.

Based on the expected depth to groundwater of 5 to 10m, it was assumed that wells drilled to a depth of up to 15m bgl may be be installed in the uppermost aquifer. Groundwater information for the 440 potentially operational wells with a maximum drill depth of less than 15m, was reviewed. The review excluded drainage wells, and any wells listed as dry, backfilled or abandoned. The standing water levels recorded ranged from 0.8 to 9.14m bgl. The TDS was available for 234 locations, with concentrations ranging from 229 to 11,442mg/L (average of 2,147mg/L).

The purposes for those wells listed were as follows:

- Environmental / Investigation / Monitoring – 158 wells.
- Domestic (including additional use of observation) – 120 wells.
- Irrigation – 5 wells.
- Observation – 3 wells.
- Recreation – 1 well.
- Unknown, or no listed purpose – 153 wells.

3.5 Environmental Receptors

The Location SA Map Viewer (https://location.sa.gov.au/viewer/) indicates the nearest surface water course or body is a first order channel/drain located approximately 300m southwest of the site. This flows in a westerly direction around Adelaide Airport prior to discharging into a perennial lake, which is understood to interact with the Patawalonga River. There are several other concrete lined stormwater drains around the perimeter of Adelaide Airport.

The River Torrens is located approximately 1.4km to the north and 1.8km to the west.

There are no other environmentally significant receptors near the site.

4 PREVIOUS INVESTIGATIONS

Previous investigations/information reviewed as part of the investigation have included:

- 'MFS State Wide Appliance and Station Sampling' Report prepared by GHD for the South Australian MFS and dated May 2019.
- A questionnaire (dated 21 June 2022) completed by MFS personnel who worked at the Brooklyn Park MFS Station when active use of AFFF (aqueous film forming foam) occurred.
- Letter Report: 'Soil Classification – 34 Airport Road, Brooklyn Park' prepared by Echo for Bruce Interiors and Construction and dated 11 April 2024 (ref: EC0170).

4.1 2019 State Wide Sampling (GHD)

This report documents limited sampling conducted across South Australia of various MFS assets. The relevant information relating to the Brooklyn Park Station site includes: -

- Two soil test locations (BROOKLYN_1 and BROOKLYN_2) were assessed along the southern side of the proposed carpark. It is understood the samples collected were surface samples (maximum depth of 0.2m below ground level). PFAS was detected in both soil samples, but results were below the adopted health criteria (residential and commercial/industrial) adopted by GHD. The highest results were from the sample collected along the southern boundary of the proposed new carpark:
    - Perfluorooctane sulfonic acid (PFOS) – 0.093mg/kg.
    - Perfluorooctanoic acid (PFOA) – 0.001mg/kg
    - Perfluorohexane sulfonic acid (PFHxS) – 0.012mg/kg.
    - Sum of PFHxS and PFOS – 0.1mg/kg.
- There was no soil testing conducted across the balance of the Brooklyn Park Station.
- Biota samples were also collected from an existing nectarine tree and grape vine in the northern portion of the site. These plants no longer exist and as such no further consideration of these results has been made by Echo.

4.2 AFFF Historical Use Questionnaire (June 2022)

A copy of the questionnaire was provided to Echo by the MFS. This is attached in Appendix D. The information provided indicates:

- No specific training exercises were carried out on the site involving AFFF.
- Flushing/wash down of AFFF occurred on the gravel area (area of proposed new carpark) after jobs. This was allowed to free drain onto the unsealed ground surface.

4.3 April 2024 Classification (Echo)

In-situ testing to classify surface soil from across portion of the Brooklyn Park Station in the areas of the proposed new carpark. The objective was to chemically classify surplus soil (upper 0.3m) that was to be generated during construction for offsite disposal.

Eight soil bores were drilled to a maximum depth of 0.3m bgl. The subsurface soil profile comprised fill to the maximum depth of investigation. The fill was a mixture of sands and crushed rock / quarry rubble, with dark brown to brown silty or sandy clay identified at some locations in the central and eastern portions of the site. No contamination indicators were observed during sampling.

Representative samples were collected and analysed for a range of potential contaminants of interest. Results were compared to waste disposal criteria.

The reported results for most chemicals tested were below the adopted criteria, except for:

- An isolated result for the heavy metal zinc. A statistical assessment was undertaken on the zinc dataset and statistically, the material was found to meet the chemical criteria for Waste Fill.
- Several elevated results for PFAS. While the results exceeded the Waste Fill criteria, all reported dry wight concentrations were below the Intermediate Waste criteria as outlined in the SA EPA's *'PFAS in waste soils interim guideline'* (July 2023). Leachate analysis was undertaken on the sample with the highest reported PFAS and results for one or more individual PFAS exceeded the Intermediate Waste criteria and the Inkerman Landfill acceptance criteria.

The report concluded that due to the elevated PFAS concentrations including the leachate results, the material is unable to be classified as Waste Fill / Intermediate Waste and disposal to Inkerman, or any other landfill within South Australia was not possible without prior treatment.

5 DATA QUALITY OBJECTIVES

The data quality objective (DQO) process involves an iterative approach to facilitate the systematic planning and verification of contaminated sites assessment projects.

As outlined in ASC NEPM, the first steps of the DQO process comprise the development of qualitative and quantitative statements that define the objectives of the site assessment program and the quantity and quality of data needed to inform risk-based decisions. These steps enable the project team to communicate the goals, decisions, constraints (e.g. time, budget) and uncertainties associated with the project and detail how they are to be addressed. The step comprises the development of a sampling plan to obtain the data required to adequately characterise any site contamination issues and assess their associated potential environmental and human health risks under the proposed land use scenario.

The DQO process for this site is summarised in Table 2.

Table 2: Data Quality Objectives (DQO)

Step 1 – *Statement of the problem*	The site is proposed to be redeveloped as a carpark. Assessment is required to determine the nature and extent of PFAS contamination.
Step 2 – *The decision that needs to result from the investigation*	In considering the proposed future use of the site for ongoing use as a carpark associated with the Brooklyn Park Station, and as part of MFS's commitment to assess PFAS issues on their sites, determine if PFAS is present at concentrations that pose an unacceptable risk to human health and / or the environment?
Step 3 – *Inputs to the decision*	The investigation program will use systematic (grid-based) soil investigation locations to supplement existing information. Onsite groundwater sampling will also be used to characterise conditions underlying the site. Environmental data will be compared to relevant investigation / screening levels.
Step 4 – *Boundaries of the investigation*	The study boundaries are defined as follows: • The site (proposed carpark) has a total area approximately 750 square metres and a plan showing the geographical extent of the proposed investigation are included as Figure 2. • The spatial extent of the investigation is consistent with the boundary shown on Figure 2. • Temporal boundaries of the investigation are limited by the site development work and construction activities. The limit is therefore the commencement of construction site works for the redevelopment of the site. • The investigation is not constrained by any existing site infrastructure. • The soil data collection will assess both surface and deeper soils to delineate the vertical extent of PFAS contamination. • Temporal trends/variations are unlikely to occur within site soils. Additional groundwater investigations may be required in the future to assess temporal trends. Overall, it is considered that the identified boundaries of the study site will not limit the required environmental site characterisation to address the objectives of the investigation.

Step 5 – *Decision rules*	If soil or groundwater data indicate the presence of site contamination that is determined to pose an unacceptable risk to the environment or human health then remediation and / or management of those areas may need to be established with respect to the proposed redevelopment. This may prompt further site-specific investigation, including the delineation of any impacts that are identified.
Step 6 – *Decision error tolerances*	Data quality indicators (DQIs) of completeness, comparability, representativeness, precision, and accuracy as presented in the NEPM are to be used to evaluate data acceptability. Decision error limits that the data will satisfy the DQIs and subsequent decisions of site suitability as acceptable when it is in fact not compliant would be 5% (i.e., tolerable limits of 95% confidence). If statistical analysis is undertaken, it will be assessed with consideration to the limits outlined in Schedule B7 of the NEPM.
Step 7 - *Optimisation of the sample collection design*	The additional assessment works will include: • Undertake grid-based soil investigations across the site. The soil investigation program is outlined in detail in Section 6.1. • Undertake onsite groundwater investigations through the installation and sampling of groundwater monitoring wells onsite. An offsite monitoring well is also proposed (southwestern portion of the larger Brooklyn Park Station) to assist in determining the groundwater flow direction. The groundwater sampling program is outlined in detail in Section 7.1.

6 SOIL INVESTIGATION

6.1 Scope of Work and Rationale

Soil investigations were undertaken on 19 August 2024 under the supervision of an experienced environmental engineer and comprised the following:

- An accredited service locator attended the site to clear the proposed investigation locations of underground services.
- Eight grid-based soil bores (SB1 to SB8, inclusive) were drilled across the site to a maximum depth of 3.5m bgl, which was approximately the depth that groundwater was encountered. Soil samples were also collected from one of the groundwater wells (GW1), installed near the western site boundary.
- Surface soils were partially assessed as part of the April 2024 soil classification. However, PFAS was not tested at all locations and only the upper 0.3m was considered as part of the assessment. The August 2024 sampling density is in accordance with the recommended minimum density for the determination of circular hotspots as outlined in the NSW EPA Contaminated Land Guidelines, 2022[1] and was considered appropriate to meet the objectives of the investigation.

The investigation locations are shown on Figure 3.



Source: http://maps.au.nearmap.com/ (image date: 24 July 2024)

Figure 3: Soil Bore Locations

[1] Sampling design part 1 - application (NSW Environment Protection Authority, August 2022) which is commonly used as best practice in place of Australian Standard AS4482.1 – 2005 (Guide to the Investigation and Sampling of Potentially Contaminated Soil) (*withdrawn: 10 February 2022, but not yet replaced*).

6.2 Methodology

The following methodology was adopted for the soil investigation:

- The soil bores were drilled using push tube techniques to obtain relatively undisturbed samples. To minimise the potential for cross contamination between test locations, the following procedures were implemented:
    - All reuseable equipment (i.e. cutting ends on the push tubes) was decontaminated prior to use and between locations using appropriate PFAS free detergent (i.e. Liquinox) and a three-stage washing process.
    - Drilling was completed with tooling that enables the use of HDPE internal core liners (ezi-probe tools). New liners were used at each test location.
    - During sampling, all equipment and consumables used onsite were selected to minimise the introduction of PFAS from other sources. This included avoiding the use of chemical ice packs, non-stick and waterproof materials, certain food wrappers and treated clothing.
    - A fresh pair of disposable nitrile gloves was used when collected each individual sample.
- The soils were logged and sampled by an experienced environmental professional.
- Representative soil samples were collected at regular depth intervals. This included the collection of samples from the surface and of each new soil horizon encountered, including the top of natural soils. Samples were collected at least every 1.0m once in natural soils to the maximum depth of investigation. Soil not collected for sampling was used to backfill the soil bores.
- The samples will be collected in containers supplied by the analytical laboratory. The containers provided by the laboratory are made of HDPE, with Teflon-free lids.
- After sampling, all samples were placed in a chilled portable cooler pending delivery to the laboratory.
- The soil samples will be transported to a National Association of Testing Authorities (NATA) accredited laboratory for analysis with appropriate chain of custody documentation.

6.3 Soil Analytical Program

Selected samples were analysed in the laboratory for a suite of PFAS (30 compounds). The samples selected for analysis were generally surface or near surface samples (i.e. fill) and the top of the natural material. Deeper samples were analysed at one location (SB1) to provide additional vertical delineation data due to the identification of elevated PFAS results above one or more investigation level.

Four selected soil samples were also analysed for leachable PFAS, to inform the potential risk to groundwater and other sensitive receptors. This was conducted following receipt of the initial results from the samples with the highest reported dry weight concentrations. Leachate testing was conducted at a neutral pH to reflect the leachable fraction from rainfall infiltration. Leachate testing was conducted for selected PFAS only (PFOA, PFOS, 6:2 FTSA and PFHxS).

Detailed results summary tables are attached at the end of this report. Results of the soil analyses are discussed in Section 6.5.

The laboratories used for the soil investigation were Eurofins (primary laboratory) and ALS Laboratory Group (ALS) (secondary laboratory). Both laboratories are approved by the National Association of Testing Authorities (NATA) and the analyses conducted are within their NATA registration.

Field duplicate and blank samples were also collected during the soil investigation and subsequently analysed. A discussion of the quality assurance (QA) and quality control (QC) results and procedures undertaken is presented in Section 8.

6.4 Soil Investigation / Screening Levels

Soil results have been compared with health and ecological assessment criteria as outlined in the PFAS NEMP 2.0 (January 2020). The following investigation exposure scenarios have been considered: -

- Ecological direct exposure.
- Ecological indirect exposure. Given the proposed use of the site as a carpark and use of the site as a fire station, indirect exposure criteria adopted have based on intensely developed sites with no secondary consumers and minimal potential for indirect ecological exposure.
- Echo has also considered HILs derived specifically for urban fire station sites by GHD for PFAS contaminated soil (refer: Letter Report – 'Derivation of site-specific health investigation levels for urban and regional fire stations – South Australia Metropolitan Fire Service (SA MFS),' dated 20 June 2023). Echo understands these levels are endorsed by the EPA as part of the PFAS assessment program being undertaken by the MFS

While ecological exposure criteria have been considered these are unlikely to have relevance in terms of the proposed development which will result in a bitumen paved carpark with no access to underlying soils.

PFAS results have also been compared against the SA EPA's 'PFAS in waste soils interim guideline' (July 2023). This interim guideline is intended to be used to manage PFAS until amendments are made to the Environment Protection Regulations 2009, the current criteria for the classification of waste, and the Standard for the Production and Use of Waste Derived Fill. The interim guideline sets out criteria for Waste Fill (a simple option that requires low detection limits for dry weight concentrations and an option that requires the assessment of leachate as well as dry weight concentration) and for Intermediate Waste soil (both dry weight concentrations and leachate required). Disposal acceptance criteria for the Inkerman Landfill have also been considered.

6.5 Soil Investigation Results

6.5.1 Subsurface Conditions

At the locations assessed by Echo, the soil conditions generally comprised:

- Fill material to a maximum depth of approximately 0.6m bgl. The fill was quite variable with surface materials in the western and central portions of the site comprising layers of red brown sand and pale brown or grey to orange brown gravelly sand/crushed rock. In the eastern portion of the site, fill material was observed to comprise predominantly gravelly clay with some layers of sand or gravelly sand.
- Underlying natural soils comprised dark brown silty clays grading to pale grey or orange brown. At depths of more than 1m bgl, there were some layers of gravelly clay and the material graded to a brown to red brown silty clay.
- Groundwater was encountered at all locations at depth of approximately 2.5 to 3.0m bgl and was present within thin sand/gravels layers.

No odours or staining were observed during the soil investigation.

The soil borehole logs are provided in Appendix E.

6.5.2 Laboratory Testing Results

Chemical test results are summarised in tables attached to this report. The NATA laboratory certificates are provided in Appendix F.

PFAS was reported at every location tested above the laboratory detection limits, with the following key observations:

- The primary PFAS detected included perfluorooctanoic acid (PFOA), perfluorohexanesulfonic acid (PFHxS) and perfluorooctanesulfonic acid (PFOS).
- The only results exceeding the adopted ecological criteria (indirect exposure) were PFOS from SB1 in the southwestern portion of the assessment area. The results ranged up to 0.17mg/kg (SB1-3, 0.6-0.7m) compared to the adopted criteria of 0.14mg/kg. These impacts were vertically delineated with the underlying sample at a depth of 0.9-1.0m reporting results below the adopted ecological criteria.
- All reported results are well below the adopted site-specific health investigation levels.

When compared to the waste disposal criteria, results were generally consistent with the earlier testing conducted of surface soils.

Leachate testing was conducted on four samples which generally reported the highest total PFAS concentrations including SB1-3, SB2-3, SB4-2 and SB7-4:

- Elevated leachate results were reported above the adopted waste disposal criteria from every sample tested.
- While there are no adopted assessment criteria (other than for waste disposal) for leachate concentrations, Echo notes that all reported leachate concentrations exceed one or more of the water quality criteria.

6.6 Discussion

PFAS has been detected in surface and near surface soils across the entire proposed carpark site. The elevated results are relatively widespread across the site. This is consistent with information suggesting the site may have historically been used for the washdown of trucks and equipment.

The highest total PFAS results were generally reported from the top of the natural soils. While the data suggests that concentrations of PFOS generally decrease with depth, this is not evident with other compounds such as PFOA and PFHxS.

All results are well below the adopted site-specific health investigation levels and as such do not represent a potential health risk to site workers in the context of ongoing use as an MFS Station.

The results at one location in the western portion of the site exceed the adopted ecological criteria (indirect exposure). This has been vertically delineated with underlying samples reporting results below the adopted ecological criteria. Given the entire site is to be paved, this exceedance is considered trivial in the context of the proposed development.

7 GROUNDWATER INVESTIGATION

7.1 Scope of Work & Rationale

The groundwater investigation included the installation of three groundwater monitoring wells at the site:

- GW1 installed at the western end of the proposed carpark to assess the concentrations of PFAS in the inferred down-hydraulic gradient portion of the site (based on an expected westerly groundwater flow direction).
- GW2 installed at the eastern end of the proposed carpark to assess the concentrations of PFAS that may be entering the site from the inferred up-hydraulic gradient direction (based on an expected westerly groundwater flow direction).
- GW3 installed to the south of the proposed carpark and west of the main MFS Station building to provide additional coverage across the broader site and assist in confirming the groundwater flow direction.

The locations of the groundwater wells are shown on Figure 4.



Source: http://maps.au.nearmap.com/ (image date: 24 July 2024)

Figure 4: Groundwater Monitoring well Locations

7.2 Groundwater Well Installation

The well drilling logs, construction details and government permit for the groundwater monitoring wells are attached in Appendix G.

The groundwater monitoring wells were drilled on 19 and 20 August 2024. The installation, development and surveying were undertaken as follows:

- The wells were drilled using clean decontaminated solid augers. Between drilling locations, the augers were washed down (on site) using a high-pressure cleaner to remove adhered soil matter.
- The monitoring wells were drilled to a depth of approximately 4m bgl and were installed with a 3-metre length of slotted PVC screen at the base of the well, and solid PVC to the surface.
- A sand pack was installed around the screen extending approximately 0.3m above the top of the screen.
- A bentonite plug was installed above the sand pack to just below the ground surface to prevent infiltration of rainfall.
- A lockable standpipe (GW1 and GW2) or gatic cover (GW3) was installed and concreted in place.
- Following installation, the groundwater wells were developed to remove silt and entrained sediments using dedicated Waterra tubing and footvalves. The well development involved the removal of approximately 60L of water from each of monitoring wells.
- The groundwater wells were surveyed by a licensed surveyor to Australian Height Datum (AHD) to enable a calculation of groundwater elevations and inferred flow direction in the area.

7.3 Groundwater Sampling Methodology

Sampling of the groundwater wells (GW1 to GW3, inclusive) was undertaken on 29 August 2024. The sampling methodology included:

- To minimise the potential for cross contamination between test locations, the following procedures were implemented:
    - All reuseable equipment (i.e. interface probe) was decontaminated prior to use and between locations using appropriate PFAS free detergent (Liquinox) and a three-stage washing process.
    - During sampling, all equipment and consumables used onsite were selected to minimise the introduction of PFAS from other sources. This included avoiding the use of chemical ice packs, non-stick and waterproof materials, certain food wrappers and treated clothing.
    - Sampling was conducted using dedicated HDPE tubing in each well.
    - The sampler wore a clean pair of nitrile disposable gloves to collect each sample in containers provided by the analytical laboratory.
- Prior to sampling, standing water levels were measured from the top of the reference points (top of well casing) using an interface probe water level meter.
- Groundwater sampling was conducted using a peristaltic pump and low flow sampling techniques. This method ensured that the only sampling equipment to be placed within each well (other than the interface probe) was dedicated HDPE tubing. Groundwater drawdown was monitored continually during purging and sampling using a water level meter to ensure low-flow conditions were met.
- Water quality parameters (pH, temperature, conductivity, oxidation-reduction potential and dissolved oxygen) were monitoring during purging (when using low flow sampling equipment) using a water quality meter, with sampling undertaken when these parameters had stabilised in accordance with stabilisation criteria described in the South Australian EPA guideline document – '*Regulatory monitoring and testing – Groundwater sampling*', April 2019. That is three successive readings of at least three parameters as follows:

- electrical conductivity to within 5%.
- pH ± 0.1 unit.
- temperature to within 0.2 degrees.
- dissolved oxygen to within 10%; and
- redox ± 10mV.

- The samples were stored in a chilled portable cooler following sampling and were delivered under similar conditions to the NATA accredited analytical laboratories with accompanying chain of custody documentation.

The groundwater sampling records are presented in Appendix I. Calibration certificates are also presented in Appendix I.

7.4 Groundwater Analytical Program

Groundwater samples from each monitoring well sampled were analysed for a suite of PFAS (30 compounds).

The laboratories used for the soil investigation were Eurofins (primary laboratory) and ALS Laboratory Group (ALS) (secondary laboratory). Both laboratories are approved by NATA and the analyses conducted are within their NATA registration.

QA/QC samples were also collected including field duplicates and blanks. Details of QA/QC procedures and results are discussed in detail in Section 8.

7.5 Environmental Values of Groundwater

The SA EPA's Guidelines for the Assessment and Remediation of Site Contamination (2019) outlines the process to determine environmental values for groundwater. The process has been used to determine the appropriate environmental values of groundwater at the site.

Step 1 – Determination of protected environmental values of groundwater using the SA EPA (2015) Water Quality Environment Protection Policy (WQEPP 2015).

Field measurements during sampling indicated that the concentrations of total dissolved solids (TDS) from onsite wells (converted from electrical conductivity, as presented in Section 7.6.3) ranged from 1,032mg/L (GW2) to 2,643mg/L (GW1).

Based on the most conservative field measurements of salinity onsite and Schedule 1 of the WQEPP 2015, the applicable environmental values are potable use and primary industries (irrigation, livestock and aquaculture).

Step 2 – Application of a buffer distance for protection of surface waters

There are surface water bodies within 2km of the site, the closest of which is a channel/drain located approximately 300m southwest of the site. This is a concrete lined stormwater course which flows in a westerly direction. The River Torrens is also located within 2km of the site (to the north and west).

Step 3 – Review of available groundwater data using WaterConnect (groundwater data)

A search of groundwater wells within a two-kilometre radius was conducted using the SA WaterConnect database as discussed in Section 3.4. The SA WaterConnect output is included in Appendix C. Domestic and irrigation wells are listed within a two-kilometre radius.

Step 4 – Application of EPA Recognised Criteria

The SA EPA guidance indicates there should be consideration of the most sensitive environmental value and respective criterion to provide the highest level of protection for the site. The salinity of the groundwater in the wells sampled as part of this investigation suggests that groundwater may be suitable for potable use along with irrigation, livestock and aquaculture purposes. The outcomes were reviewed in the context of additional site knowledge and subsequent selection of environmental values for the site:

- Although aquaculture and livestock watering are identified as environmental values based on the groundwater salinity, these values are not considered relevant in terms of the setting of the site (in an urban area with significant residential development).
- The identified water bodies near the site (concrete lined drain 300m to the southwest) are potentially seasonal discharge areas for groundwater from the uppermost aquifer. The River Torrens is also located within 2km of the site. Freshwater aquatic ecosystems have been considered a potential relevant environmental value.
- Domestic bores are listed within a 2km radius of the site confirming potential groundwater use for domestic irrigation, recreational (swimming pools) and potentially potable use. Although noting the average salinity in registered groundwater wells (2,147mg/L as discussed in Section 3.4) and a reticulated potable water supply, potable use is considered unlikely.

The environmental values of groundwater are confirmed to be drinking water, recreation and aesthetics, freshwater aquatic ecosystem, and irrigation and general water uses. The EPA recognised environmental values and guidelines are presented in Table 3.

Table 3: EPA Recognised Groundwater Criteria

Environmental Value	Recognised Criteria
Potable water use	ADWG – NHMRC, NRMMC 2011, WHO 2017, PFAS NEMP 2018
Freshwater ecosystem protection	ANZG 2018, PFAS NEMP 2018
Recreation / aesthetics.	NHMRC 2008, WHO 2017, PFAS NEMP 2018
Primary industries - irrigation and general water uses	ANZG 2018 / ANZECC & ARMCANZ 2000

Notes:

- PFAS NEMP 2018 – PFAS National Environmental Management Plan. While the EPA recognises the 2018 version in the GAR, version 2.0 of the PFAS NEMP was published in 2020 and has been adopted.
- ADWG – NHMRC, NRMMC 2011. Australian Drinking Water Guidelines, version 3.8, updated September 2022. Endorsed by National Health and Medical Research Council and Natural Resource Management Ministerial Council.
- NHMRC 2008 – Guidelines for Managing Risks in Recreational Water, National Health and Medical Research Council
- WHO 2017 – World Health Organisation, updated 2022
- ANZG 2018 – Australian and New Zealand Guidelines for Fresh and Marine Water Quality
- ANZECC & ARMCANZ 2000 – Australian and New Zealand Guidelines for Fresh and Marine Water Quality (October 2000), Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand. At the time of reporting, ANZG 2018 defaults to ANZECC & ARMCANZ 2000.

The adopted investigation / screening levels are presented in the groundwater results summary tables attached to this report.

7.6 Groundwater Investigation Results

7.6.1 Groundwater Occurrence

During drilling of the monitoring wells, groundwater was encountered at depths of approximately 2.8-3.3m bgl within bands of sandy and gravelly clay. Following installation, the groundwater levels were measured at depths of between 2.5 and 3.0m bgl, within the screened interval.

No stained or odorous materials were noted during the well drilling or installation.

7.6.2 Groundwater Flow Direction

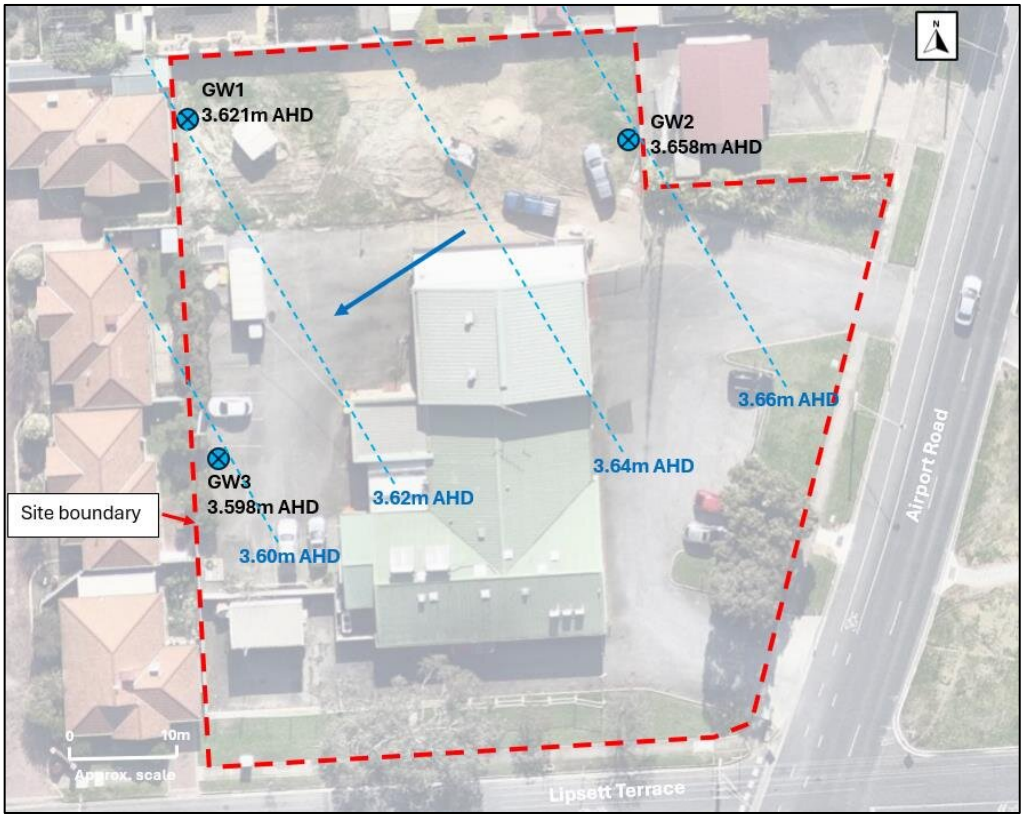
During the 29 August 2024 sampling event, the depth to groundwater in the monitoring wells gauged ranged between 2.536m (GW3) and 3.438m (GW2) below the reference points on the top of well casings (m bTOC). The results of groundwater level gauging undertaken by Echo are presented in Table 4. The relative levels of the monitoring wells were based on the surveyed elevations of the top of the well casing (refer Appendix H).

Table 4: Summary of Groundwater Elevations (August 2024)

Well ID	Surveyed Level top of well casing (m AHD)	Depth to Groundwater Level (m bTOC)*	Groundwater Level Elevation (m AHD)
GW1	6.993	3.372	3.621
GW2	7.096	3.438	3.658
GW3	6.134	2.536	3.598

* m bTOC – metres below the top of casing

The groundwater level elevation data in Table 4 was used to produce Figure 5, below.



Source: http://maps.au.nearmap.com/ (image date: 24 July 2024)

Figure 5: Groundwater Elevations & Indicative Flow Direction (August 2024)

The groundwater flow direction is inferred to be in a west to southwesterly direction, which is generally consistent with the expected regional groundwater flow direction.

7.6.3 Field Measured Water Quality Parameters

Groundwater quality parameters were monitored during purging and prior to sampling. The stabilised values of these parameters measured are summarised in Table 5 and the sampling field forms are attached in Appendix I.

Table 5: Stabilised Groundwater Parameters

Well ID	Sample Date	Temp (Deg C)	pH (pH units)	Electrical Conductivity (µS/cm)	Total Dissolved Solids*(mg/L)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)
GW1	29 Aug 24	18.9	7.00	4,130	2,643	112.9	0.37
GW2	29 Aug 24	18.3	7.65	1,612	1,032	106.1	1.43
GW3	29 Aug 24	20.3	6.99	4,183	2,677	144.2	1.13

*Conversion factor of 0.64 used to convert field conductivity (µS/cm) to TDS (mg/L)

Table 5 indicates the following:

- The pH values were relatively consistent ranging from 6.99 (GW3) to 7.65 (GW2).
- The TDS ranged from 1,032mg/L (GW2) to 2,643mg/L (GW2). The TDS measurements are generally consistent with the expected regional groundwater conditions. A lower TDS was measured in GW2 compared to the other two monitoring wells. The reason for this is not known, but may be a result of localised rainfall infiltration, either onsite of in offsite areas (i.e. Airport Road reserve)
- Dissolved oxygen (DO) readings ranged from 0.37/L GW1 to 1.43mg/L at GW3.
- The recorded redox values ranged from 106.1 (GW2) to 144.2 (GW3).

Overall, the water quality parameters were generally consistent between monitoring well locations, except for the lower TDS measured at GW2 near the eastern site boundary.

7.6.4 Analytical Results

Summary tables of the groundwater results are presented as an attachment to this report. Laboratory certificates are attached in Appendix J.

Elevated results above the adopted water quality criteria were reported as follows:

- PFHxS – The results at all locations exceeded the adopted drinking water criteria of 0.07µg/L. The results at one location (GW1 - 2.9µg/L) also exceeded the adopted recreational water criteria of 2µg/L.
- PFOS – The results at all locations exceeded the adopted drinking water criteria of 0.07µg/L and the adopted freshwater ecosystem protection criteria of 0.13µg/L. The results at two locations (GW1 - 16µg/L and GW3 – 2.4µg/L) also exceeded the adopted recreational water criteria of 2µg/L.
- Sum PFHxS and PFOS – The results at all locations exceeded the adopted drinking water criteria of 0.07µg/L. The results at two locations (GW1 – 18.9µg/L and GW3 – 3.13µg/L) also exceeded the adopted recreational water criteria of 2µg/L.

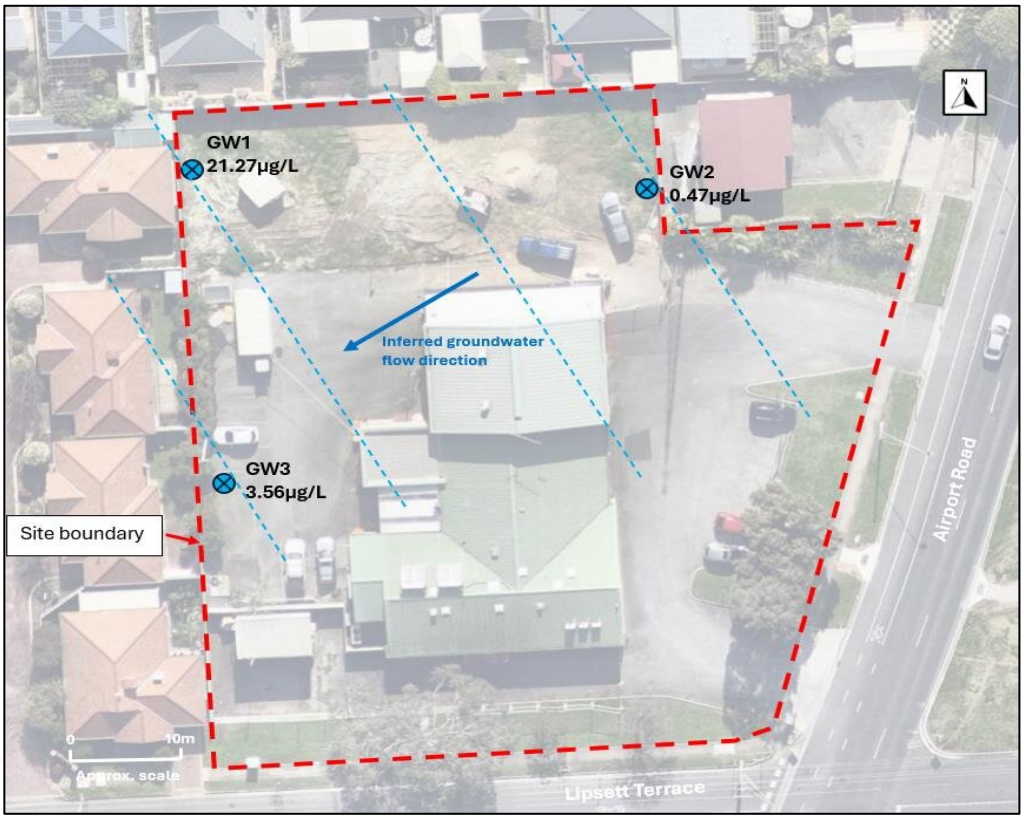
7.7 Discussion

The results indicate that PFAS is present in groundwater at all locations tested. Results near the upgradient site boundary (GW2) are low, but still suggest there may be some levels of PFAS entering the site from offsite areas to the east.

However, the shallow depth to groundwater and the distribution of results indicate that the site appears to be a source of the PFAS impacts identified in groundwater, with the highest results reported on the down-gradient side of the site (GW1).

Elevated results were also reported at GW3, to the south of the proposed carpark, and along the western boundary of the MFS station. While the source of these impacts may also be the from the proposed carpark site, the potential for other sources on the wider MFS station site cannot be ruled out.

The results suggest that PFAS impacts in groundwater extend offsite, however the lateral and vertical extent of the impacts was not assessed as part of this investigation. The distribution of total PFAS (represented by the sum of all 30 PFAS analysed) on the site, and to the south on the balance of the MFS station is presented in Figure 6.



Source: http://maps.au.nearmap.com/ (image date: 24 July 2024)

Figure 6: Total PFAS Concentrations in Groundwater (represented by sum of PFAS)

8 QUALITY ASSURANCE / QUALITY CONTROL

This section presents the results of the QA / QC measures for investigations conducted for the site. QA / QC measures included:

- Appropriate sample labelling, preservation, storage and transport under chain of custody procedures.
- Collection and analyses of field QA / QC samples including duplicate samples, trip blanks and rinse blanks.
- Laboratory analyses conducted within appropriate holding times.
- Use of laboratories that hold NATA accreditation for the analyses undertaken.
- Analysis of laboratory QA / QC samples including matrix spikes, matrix spike duplicates, and surrogates.

8.1 Internal Laboratory QA / QC

The results of the internal quality assurance programs of the laboratory are presented with the NATA laboratory certificates in Appendix F and Appendix J.

Appropriate internal QA / QC was generally reported by the laboratories and all samples were analysed within the recommended holding times.

The laboratory limits of reporting in the investigation were acceptable when compared with relevant guidelines for the main contaminants of concern.

8.2 Duplicate Soil Analyses

Field duplicate soil samples (QC1 and QC2, duplicates of SB2-1) were submitted for analyses for PFAS at the primary and secondary laboratories, respectively.

The frequency of field duplicate analyses is slightly outside the 1 per 20 (or 5%) analyses for all chemicals tested in soil. Initially, 20 samples were selected for analysis and the frequency of duplicates was within the 1 per 20 and in accordance with best practice methodologies. However, two additional samples were tested as part of delineation analyses which reduced the overall frequency slightly. This is not considered to impact the overall useability of the data collected as part of this investigation.

All relative percentage difference (RPD) values calculated for intra and inter laboratory duplicate soil analyses were below the recommended comparison criteria of 50%.

A table summarising the field duplicate results is presented with the soil results summary tables attached to this report.

8.3 Duplicate Groundwater Analyses

Duplicate groundwater samples (QC1 and QC2, duplicates of GW1) were submitted for analyses for PFAS at the primary and secondary laboratories, respectively. The frequency of field duplicate analyses is within the 1 per 20 (or 5%).

Most relative percentage difference (RPD) values calculated for intra and inter laboratory duplicate groundwater analyses were below the recommended comparison criteria of 50%.

Variations were calculated between the primary sample and secondary duplicate for perfluoroheptanesulfonic acid (PFHpS – 64%) and Perfluorononanesulfonic acid (PFNS – 109%). The variations are likely a result of the very low concentrations reported. However, given the consistency of all other individual PFAS results, these variations are not considered to impact the overall useability of the data for this assessment.

A table summarising the field duplicate results is presented with the groundwater results summary tables attached.

8.4 Blank Samples

Rinsate blank (RB), and trip blank (TB) samples were collected during the soil and groundwater investigations. Rinsate samples were collected from decontaminated sampling equipment (i.e. cutting ends on the push tubes, interface probe) where non-dedicated sampling equipment was used, and the trip blank samples were a laboratory supplied sample (placed in the esky during sample transport). A summary of the blank sample analyses is presented in Table 6.

Table 6: Sample Blanks

Date	Work Conducted	Sample Blanks	Analyses
19 August 2024	Soil sampling	Rinsate – RB1	PFAS
		Trip – TB1	PFAS
29 August 2024	Groundwater Sampling	Rinsate – RB1	PFAS
		Trip – TB1	PFAS

All reported concentrations were below laboratory reporting limits indicating that decontamination procedures were acceptable and cross contamination between samples and sampling equipment or during transport did not occur. The results are presented in the laboratory certificates attached in Appendix F and Appendix J.

9 CONCEPTUAL SITE MODEL

An important step in the site assessment process is the development of a Conceptual Site Model (CSM) that identifies the potential sources of contamination, the contaminants of concern, the likely media involved and the pathways by which exposure to any contamination at the site may occur.

For exposure to occur, a complete pathway must exist between the source of contamination and the receptor (i.e. the person or ecosystem components potentially affected). Where the exposure pathway is incomplete, there is no exposure and hence no risk via that pathway. An exposure pathway will typically consist of the following elements:

- Source of contamination (a spill or release of a chemical).
- Release mechanism (migration in soil, leaching to water, emission to air).
- Retention in the transport medium (soil, groundwater, surface water, air).
- Exposure point (where a person contacts contaminated dust or soil, or contaminated groundwater from a well, or occupies a building overlying volatile contamination).
- Exposure route (inhalation, ingestion, absorption through the skin).

The presence of measurable concentrations of contaminants does not automatically imply that a complete exposure pathway exists. The nature and importance of both receptors and exposure routes, will vary according to a site's characteristics, intended end-use and environmental setting.

As outlined previously, this assessment has only considered the potential for PFAS contamination at the site.

9.1 Known and Potential Sources of PFAS Contamination

9.1.1 Soil

PFAS was detected in surface and near surface soils across the proposed carpark site. The elevated results are relatively widespread across the site. This is consistent with information suggesting the site may have historically been used for the washdown of trucks and equipment.

The highest total PFAS results were generally reported from the top of the natural soils. While the data suggests that concentrations of PFOS generally decrease with depth, this is not evident with other compounds such as PFOA and PFHxS.

All reported results are well below the adopted site-specific health investigation levels. Results at one location exceeded the adopted ecological criteria (indirect exposure).

Leachate results indicate that the PFAS is leachable at a neutral pH of 7 (indicative of rainfall).

9.1.2 Groundwater

PFAS is present in groundwater at all locations tested. Results near the upgradient site boundary are low and it is possible that there are some low levels of PFAS entering the site from offsite areas to the east.

The highest results were reported on the western (inferred down-hydraulic gradient) side of the site. Based on the shallow depth to groundwater and the distribution of results, the site appears to be a source of the PFAS impacts identified in groundwater.

Elevated results were also reported to the south of the proposed carpark, and along the western boundary of the MFS station. While the source of these impacts may also be the from the proposed carpark site, the potential for other sources on the wider MFS station site cannot be ruled out.

9.2 Relevant Receptors

The site is to be redeveloped as a carpark for use within the MFS Station. The potential human receptors identified include:

- The future occupiers of the site (site workers) and visitors to the site.
- Construction workers, involved in preparatory earthworks and the installation of services.
- Future maintenance workers involved in repairing or installing underground services.
- Offsite properties via the migration of soil or particulates, the most sensitive of which are residential properties immediately adjacent the site.
- Offsite users of extracted groundwater (i.e. for potable, recreational or irrigation purposes).

Potential environmental receptors may include:

- Flora and fauna (within the soil profile).
- Surface water bodies. There are surface water bodies within 2km of the site, the closest of which is a channel/drain located approximately 300m southwest of the site. This is a concrete lined stormwater course which flows in a westerly direction. The River Torrens is also located within 2km of the site (to the north and west).

9.3 Exposure Pathways

As indicated in the ASC NEPM (Schedule B4), '*The fundamental concept of risk assessment is that there should be an exposure pathway linking the source of contamination and the exposed population. Where this linkage exists, an assessment of the nature and significance of the exposure pathway is required to determine the level of risk.*' Examples of exposure pathways may include incidental ingestion of surface soil or indoor dust, indoor and outdoor inhalation of dust, or consumption of home grown produce.

Potential exposure pathways considered relevant for the site based on the identified receptors are summarised in Table 7.

Table 7: Exposure Pathway Assessment

Receptor	Exposure pathways considered	Complete Exposure Pathways
Human		
Future site occupants (and visitors)	Potential exposure pathways may exist for future site occupants including direct contact (dermal), ingestion of contaminated material and inhalation of particulates or dust.	No complete exposure pathways. All results are below the adopted site-specific health investigation levels. The site will also be sealed with bitumen on completion of the carpark construction, so there will be no access to underlying soils. Groundwater is at relatively shallow depths, but in the context of the proposed carpark, incidental contact risk is negligible. Future onsite groundwater extraction and use of the shallow water table aquifer is highly unlikely.
Construction and maintenance workers	Exposure pathways for workers involved in installation of services and/or other excavations that may include direct contact (dermal), ingestion of contaminated material and inhalation of particulates or dust.	No complete exposure pathways. All results are below the adopted site-specific health investigation levels. During construction it is expected that contact with soils will be minimal and if standard hygiene practices are adopted, there is unlikely to be an unacceptable health risk to construction and maintenance workers. Groundwater is at relatively shallow depths, but in the context of the proposed carpark the only services to be installed are relatively shallow (i.e. stormwater) and groundwater is not expected to be intersected. If deeper excavations are undertaken than may intersect groundwater, further consideration may be warranted.
Off-site properties, the most sensitive of which are residences	Exposure pathways for the offsite human receptors may include inhalation (and to a lesser degree ingestion) of particulates or dust.	No complete exposure pathways. Although PFAS impacts have been identified in surface and near surface soils at the site, a preliminary assessment indicates all reported results are well below the relevant investigation levels for residential land use. The site will also be sealed with bitumen on completion of the carpark construction, which will further limit the generation of any particulates or dust from the site.
	Offsite properties may also have plants (i.e. fruit trees) which interact with groundwater.	Possible complete exposure pathway. Given the shallow depth of groundwater root uptake of contaminated groundwater is possible. Limited testing of biota was conducted onsite historically, but these plants have since been removed. No assessment conducted offsite.
Local groundwater users	Potential exposure pathways may exist for local groundwater users from direct contact (dermal) and ingestion of contaminated groundwater.	Potentially complete pathway exists. Based on the available information, the site appears to be a source of PFAS impacts in groundwater. PFAS exceeds water quality criteria for both drinking water and recreational uses. The lateral extent of the PFAS impacts in groundwater have not been determined. Domestic and irrigation groundwater wells have been identified within a 2km radius of the site, with the nearest registered domestic well located approximately 150m southwest of the site (in the inferred groundwater flow direction). While the salinity of groundwater underlying the site and surrounds may limit its use for potable purposes, these activities cannot be ruled out based on the available

Receptor	Exposure pathways considered	Complete Exposure Pathways
		information. Groundwater may also be extracted offsite for recreational purposes (i.e. filling of swimming pools).
Environmental		
Flora and fauna	Potential exposure pathways may include direct contact, ingestion of contaminated soil, root uptake and bioaccumulation through indirect contact.	No complete exposure pathways exist onsite. Elevated concentrations were reported above the adopted ecological criteria (indirect exposure) at one location. However, the site is proposed to be sealed with a carpark and there will be no access to underlying soils. A possibly complete exposure pathway exists offsite, through root uptake of contaminated groundwater. However, the site and surrounding areas are in a highly disturbed urban environment. While offsite assessments have not been undertaken as part of this investigation, the area is unlikely to be considered to have a high ecological value.
Groundwater	Potential contamination sources include leaching of contaminants into the water table from any impacted soil.	Potentially complete pathway exists. Leachable PFAS contamination has been identified in soil on the site and this appears to have impacted the underlying groundwater. However, following development of the site for use as a carpark, rainfall infiltration will be significantly reduced and as such, this is unlikely to continue to be a complete exposure pathway.
Surface waters	Discharge of groundwater to nearby surface waters. Stormwater transport of contaminants to surface water body receptors	Complete exposure pathways are possible, but unlikely. The closest surface water body is a concrete lined channel/drain located approximately 300m southwest of the site, which may be a seasonal discharge point for groundwater (although this has not been assessed). The River Torrens is located 1.5km north and 1.8km west of the site. No run-off issues have been identified and following completion of the carpark construction, there will not be any exposed soils. During construction, rainfall runoff must be managed.

Potentially complete exposure pathways have been identified, both on and offsite.

The only potentially complete exposure pathway onsite in terms of the proposed development as a carpark relates to the potential leaching of PFAS from soil into the underlying groundwater. Some options to address this pathway are discussed in Section 10.

Several potentially complete exposure pathways have been identified offsite. These may occur via:

- The use of extracted groundwater for potable and recreational purposes.
- The use of groundwater for irrigation and through plant root uptake from the shallow water table.
- Discharge of groundwater to water bodies.

Further works would be required to assess the nature and extent of offsite impacts and provide additional information to inform if these exposure pathways are complete.

10 LIMITED REMEDIATION OPTIONS ASSESSMENT

Echo was requested to consider potential remediation options limited to the subject site in the context of the proposed development as a carpark. It is important to note that this options assessment has been prepared to consider only the leaching of PFAS soil impacts to groundwater. Remediation options to address other potential exposure pathways have not been considered.

10.1 Remediation Goals and Objectives

PFAS has been identified in groundwater underlying the site. Given the PFAS soil impacts at the site have been identified to be leachable and the distribution of PFAS in groundwater, the soil in the area of the proposed car park is the likely source of the groundwater impacts. The goal/objective is to minimise further contamination of groundwater from the infiltration of rainfall through the overlying PFAS impacted soil.

A limited review of remediation options has been undertaken to consider the most appropriate means of addressing the proposed objective. This review is detailed in Section 10.2.

10.2 Review of Remediation Options

An initial remediation options screening process for the remediation of PFAS impacted soil was undertaken. The following aspects were considered:

- Achievement of the remediation goals to the extent necessary.
- Ability to contain and control of waste materials.
- The overall sustainability of the remediation.
- Estimated financial costs (initial and ongoing).
- Timing/duration.
- Meeting the client's operational and logistical goals.
- Ongoing management requirements.

Based on an initial review of the options, a site-specific matrix was prepared to assess their applicability. The matrix provides a semi-qualitative assessment of the relevance of available options for the remedial goals selected, based on the available site information.

For this limited assessment, the following assumptions have been made:

- The remediation area is limited to the extents of the site (i.e. the proposed carpark with a footprint of approximately 750 square metres.
- The highest reported results were identified in the top of the natural soils, which were identified at depths of up to 0.7m bgl. The impacts were not delineated below laboratory detection limits, but it has been assumed that if the upper 1.0m of soil across the site was remediated this would remove the most significant impacts. Echo notes it is possible that leachable impacts extend to greater depths.
- On this basis, the volume of soil to be remediated has been estimated to be 750 cubic metres (1,350 tonnes based on a density of 1.8).

Potential options were evaluated using a screening process which considers the following:

- Applicability (A – to the site conditions and to the achievement of remedial objectives).
- Permissibility (P – meets logistical requirements and requirements of regulators and other third parties).
- Relative cost (C – incorporating both remedial system installation and operating costs as well as longer term costs associated with continued monitoring needs).

- Treatment time acceptability (T).

The scoring system for the evaluation criteria are summarised in Table 8. The formula used for the rating is A x P x (C+T), and ratings are illustrated in Table 9.

Table 8: Screening Matrix Rating

Score	Applicability (A)	Permissibility (P)	Approx. Costs (C)	Treatment Time (T)
0	Not applicable	Not permissible	-	-
1	Unlikely to be applicable	Probably not permissible	Very High (>$1M)	Very High (5-10yrs)
2	Possibly applicable – tested	Probably permissible	High ($500K-$1M)	High (2-5yrs)
3	Application at other sites – mixed results	No permitting problems	Moderate ($250K-$500K)	Moderate (1-2yrs)
4	Some successful application	-	Low ($100K-$250K)	Low (3mths-1yr)
5	Proven technology	-	Very Low (<$100K)	Very Low (<3mths)

Any option that is either not applicable or not permissible will score a zero ranking overall. Once each option is rated, a simple summation was used to eliminate the options that show low overall rating scores. Options showing higher overall rating scores can then be retained for further consideration on a more detailed level (conceptual design and / or costing).

The following options were selected for the final screening. Some limited discussion is also included below regarding their application and benefits:

1. **Onsite physical treatment.**

   There are commercially available products which can be used to treat contaminated soils and bind PFAS to prevent ongoing leaching. The on-site treatment of impacted soil would achieve the remediation objective. However, the highest reported PFAS results in soil were reported near the top of the natural soils (i.e. at depths greater than 0.7m) and overlying soils are also impacted by PFAS. The site is also quite small (750 square metres) with adjacent residences to the north and west. The costs for this option may be lower than disposing of the soil off-site, but the aforementioned factors combine to make onsite treatment logistically difficult. The treatment may require SA EPA endorsement and a temporary treatment license.

2. **Excavation of contaminated soils and off-site disposal.**

   There would be no ongoing management measures or restrictions, but 'disposal' is the least preferred option in the SA EPA's Waste Hierarchy. Options considered include the relocation to another site where PFAS soil might be accepted. However, transport to an unlicenced facility would not be permissible and there are currently no facilities licenced to receive PFAS impacted soil (at the concentrations reported) in South Australia. As such, transport and probable treatment interstate would be required.

3. **On-site containment.**

   Given the site is proposed to be used as a carpark, leaving the PFAS contaminated soils in-situ (in current location) and covering with hardstand which would significantly reduce the potential for rainfall infiltration. Ongoing management measures may need to be implemented by a responsible party.

The results of the remediation option screening are presented in Table 9. The option with the highest rating score is considered the optimal solution.

Table 9: Remediation Option Screening - Soil

Option considered	App (A)	Permiss (P)	Approx. costs (C) High $ to Low $	Treatment time (T) Slow to Fast	Rating
	0-5	0-3	1-5	1-5	A*P*(C+T)
1. Onsite treatment	4	2	3	4	56
2. Off-site disposal	5	2	2	5	70
3. Containment	5	3	5	5	150

10.3 Preferred Remediation Option

Given the rationale discussed in Section 10.2, the optimal remedial approach to manage the PFAS impacted soil and reduce the potential to further leaching to groundwater is containment.

This report does not consider detailed design requirements for the remediation, nor address remedial actions, but if containment was adopted, considerations for the carpark construction should include:

- Ongoing management. This should include controls during construction along with a site management plan to outline management and maintenance requirements into the future.
- Identification. To assist with ongoing management, the installation of a marker layer above the PFAS impacted soil would be prudent.
- The permeability of overlying materials. It is important to ensure pavement surface is not permeable. The use of permeable paving will not be suitable.
- The installation of any services (development plans indicate only stormwater infrastructure is proposed).

11 CONCLUSIONS

Echo has undertaken a Detailed Site Investigation for a portion of the Brooklyn Park Metropolitan Fire Service (MFS) Station. The objective of the assessment was to assess the nature and extent of PFAS contamination across a proposed carpark footprint prior to construction commencing and enable any potential risk to human health and/or the environment associated with PFAS to be identified early.

The investigation has included: -

- A review of readily available historical information to gain an understanding of potential PFAS source areas across the proposed carpark footprint.
- Consideration of previous reports completed for the site.
- Grid-based soil investigations.
- A groundwater sampling and analysis program.
- The preparation of this report, documenting the findings of the sampling programmes and the development of a conceptual site model.
- A limited remediation options assessment associated with the management of PFAS impacted soils in the context of the proposed carpark redevelopment.

It is important to note that the investigation is limited to the assessment of PFAS in soil and groundwater across the proposed carpark footprint. No assessment has been undertaken across the balance of the site, nor for any other potential chemicals of interest.

Historical Information

A detailed review of the site's history has not been undertaken; however limited historical information was reviewed. The available information indicated that flushing and washing down of equipment used to store AFFF was undertaken on the area of proposed new carpark. This was allowed to free drain onto the unsealed ground surface.

Previous soil investigations identified the presence of PFAS impacts in near surface soils across the site.

Soil Investigation

The soil investigation comprised the drilling of eight grid-based soil bores across the site and sampling of soil from one groundwater well.

The soil conditions encountered generally comprised fill material to a maximum depth of 0.6m bgl. The fill was variable with surface materials comprising layers of sand, gravelly sand/crushed rock and some areas of gravelly clay in the eastern portion of the site. Underlying natural soils comprised dark brown silty clays grading to pale grey or orange brown. At depths of more than 1m bgl, there were some layers of gravelly clay, and the material graded to a brown to red brown silty clay. No odours or staining were observed during the soil investigation.

Selected samples from the surface and near surface (within the upper 1.0m) were analysed for PFAS. PFAS was detected at all locations tested. The highest PFAS results were generally reported from the top of the natural soils. Leachate results indicate that the PFAS is leachable at a neutral pH.

All reported results are well below the adopted site-specific health investigation levels. Results at one location (SB1) exceeded the adopted ecological criteria (indirect exposure). This was vertically delineated with underlying samples reporting results below the adopted ecological criteria. Given the entire site is to be paved, this exceedance is considered trivial in the context of the proposed development.

The only potentially complete exposure pathway from the PFAS impacted soil in terms of the proposed development as a carpark relates to the potential leaching of PFAS from soil into the underlying groundwater. A limited remediation options assessment was considered by Echo which suggests that the onsite containment and management of the PFAS impacted soil to reduce the potential for further leaching to groundwater is a preferred solution when considering factors such as cost and applicability.

Groundwater Investigation

The groundwater investigation comprised the drilling, installation and sampling of two groundwater wells on the proposed carpark site and one groundwater well south of the proposed carpark, along the western boundary of the MFS station.

During drilling of the monitoring wells, groundwater was encountered at depths of approximately 2.8-3.3m bgl within bands of sandy and gravelly clay. The inferred groundwater flow direction was determined to be in a southwesterly direction.

Samples from each groundwater well were analysed for PFAS. The results indicate that PFAS is present in groundwater at all locations tested. The distribution of results indicate that the site appears to be a source of the PFAS impacts identified in groundwater, with the highest results reported on the down-gradient side of the site (GW1). Elevated results were also reported at GW3, to the south of the proposed carpark. While the source of these impacts may also be the from the proposed carpark site, the potential for other sources on the wider MFS station site cannot be ruled out.

The results suggest that PFAS impacts in groundwater extend offsite, however the lateral and vertical extent of the impacts was not assessed as part of this investigation. Several potentially complete exposure pathways have been identified which may occur because of offsite migration of PFAS contaminated groundwater including:

- The use of extracted groundwater for potable and recreational purposes.
- The use of groundwater for irrigation and through root uptake from the shallow water table.
- Discharge of groundwater to water bodies.

Further works would be required to assess the nature and extent of offsite impacts and provide additional information to inform if these exposure pathways are complete.

Prior to any proposed carpark construction, the contractor must develop a site-specific Construction Environmental Management Plan which is to be provided to the MFS for approval before commencing work.

RESULTS SUMMARY TABLES – SOIL

	Perfluoroalkyl carboxylic acids (PFCAs)											Perfluoroalkyl sulfonamido substances							Perfluoroalkyl sulfonic acids (PFSAs)								n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				PFAS	
	Perfluorobutanoic acid (PFBA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanoic acid (PFOA)	Leachate - Perfluorooctanoic acid (PFOA)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	N-(2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	Perfluorooctane sulfonamide (FOSA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluoroheptanesulfonic acid (PFHpS)	Perfluorohexanesulfonic acid (PFHxS)	Leachate - Perfluorohexanesulfonic acid (PFHxS)	Perfluorononanesulfonic acid (PFNS)	Perfluorooctanesulfonic acid (PFOS)	Leachate - Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluoropropanesulfonic acid (PFPrS)	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA)	1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA)	1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA)	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2 FTSA)	Sum (PFHxS + PFOS)	Leachate - Sum (PFHxS + PFOS)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/L	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	µg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/L
EQL	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	0.005	0.005	0.01	0.005	0.01	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01
Land Use Criteria (PFAS NEMP, or other)																																
PFAS NEMP 2.0 (January 2020) - Ecological Direct Exposure							10																	1								
PFAS NEMP 2.0 (January 2020) - Ecological Indirect Exposure																								0.14^								
Site-specific HILs for PFAS contaminated soil, 'metropolitan' MFS sites (GHD, 2023)							50																14			14						14	
Waste Disposal Criteria																																
SA EPA Waste Fill Criteria							0.001 / 0.005*	0.05															0.001 / 0.005*	0.05		0.001 / 0.005*	0.05					
SA EPA Intermediate Waste Criteria							10	0.56															1	0.13		1	0.13				1	0.13
SA EPA Low-level Contaminated Waste Criteria																																
PFAS Acceptance Criteria (Inkerman Landfill)							50	5.6																							50	0.7

Field ID	Depth (m)	Fill / Natural	Date																																	
GW1-2	0.2 - 0.3	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.019	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.019	-
SB1-2	0.0 - 0.1	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.16	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.16	-
SB1-3	0.6 - 0.7	Natural	19-Aug-24	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.005	0.011	0.022	0.93	<0.005	0.17	39	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.192	39.93
SB1-4	0.9 - 1.0	Natural	19-Aug-24	<0.005	<0.005	<0.005	0.0054	0.0083	<0.005	0.0075	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.081	-	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.081	-
SB1-5	1.9 - 2.0	Natural	19-Aug-24	<0.005	<0.005	<0.005	<0.005	0.0056	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	0.0053	<0.005	<0.005	0.013	-	<0.005	<0.005	-	0.0052	<0.005	<0.005	<0.005	<0.005	<0.01	0.013	-
SB2-1	0.0 - 0.1	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.012	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.012	-
QC1 (Duplicate of SB2-1)	0.0 - 0.1	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.009	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.009	-
QC2 (Duplicate of SB2-1)	0.0 - 0.1	Fill	19-Aug-24	<0.001	0.0003	0.0002	0.0003	0.0004	<0.0002	0.0002	-	0.0003	<0.0005	<0.0002	0.0009	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	0.0026	<0.0002	0.0006	-	0.0006	0.0094	-	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.01	-
SB2-2	0.3 - 0.4	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.038	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.038	-
SB2-3	0.55 - 0.65	Natural	19-Aug-24	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.029	0.73	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.005	0.0059	0.12	3.4	<0.005	<0.005	1.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.12	5.2
SB3-1	0.0 - 0.1	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.0058	-	<0.005	0.074	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.0798	-
SB3-3	0.4 - 0.5	Natural	19-Aug-24	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.005	0.0074	0.036	-	<0.005	0.012	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.048	-
SB4-1	0.0 - 0.1	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.021	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.021	-
SB4-2	0.25 - 0.35	Natural	19-Aug-24	<0.005	<0.005	<0.005	<0.005	0.0068	<0.005	0.0085	0.23	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.064	2.4	<0.005	0.093	4.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.157	6.6
SB5-1	0.0 - 0.1	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.033	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.033	-
SB5-2	0.25 - 0.35	Natural	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.018	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.018	-
SB6-1	0.0 - 0.1	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.11	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.11	-
SB6-3	0.45 - 0.55	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.0057	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.0057	-
SB6-4	0.6 - 0.7	Natural	19-Aug-24	<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	<0.005	<0.01	<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	<0.005	-
SB7-1	0.0 - 0.1	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	0.0057	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.0057	-
SB7-3	0.3 - 0.4	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.0055	-	<0.005	0.034	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.0395	-
SB7-4	0.6 - 0.7	Natural	19-Aug-24	<0.005	<0.005	<0.005	<0.005	0.0053	<0.005	0.012	0.68	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.31	9.1	<0.005	<0.005	0.18	0.02	<0.005	<0.005	<0.005	<0.005	<0.01	0.310	9.28
SB8-2	0.3 - 0.4	Fill	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.013	-	<0.005	0.065	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.078	-
SB8-3	0.4 - 0.5	Natural	19-Aug-24	<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	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.013	-	<0.005	0.017	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.03	-

^ Indirect exposure criteria based on intensely developed sites with no secondary consumers and minimal potential for indirect ecological exposure

Note: PFAS waste disposal criteria are adopted based on the SA EPA's 'PFAS in waste soils interim guideline' (July 2023)

* Without leachate dry weight concentrations must be below 0.001mg/kg. With leachate, results must be below 0.005mg/kg and meet leachate criteria.

			Field ID	SB2-1	QC1		SB2-1	QC2	
			Matrix Type	Soil	Soil		Soil	Soil	
			Date	19/08/2024	19/08/2024	RPD (%)	19/08/2024	19/08/2024	RPD (%)
	Unit	EQL							
PFAS									
Perfluorobutanoic acid (PFBA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.001	NC
Perfluorodecanoic acid (PFDA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	0.0003	NC
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	0.0002	NC
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	0.0003	NC
Perfluorohexanoic acid (PFHxA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	0.0004	NC
Perfluorononanoic acid (PFNA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0002	NC
Perfluorooctanoic acid (PFOA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	0.0002	NC
Perfluoropentanoic acid (PFPeA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	0.0003	NC
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0005	NC
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0002	NC
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	0.0009	NC
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0005	NC
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0005	NC
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0005	NC
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	mg/kg	0.01		<0.01	<0.01	NC	<0.01	<0.0002	NC
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0005	NC
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	mg/kg	0.01		<0.01	<0.01	NC	<0.01	<0.0002	NC
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0002	NC
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0002	NC
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	0.0026	NC
Perfluoroheptanesulfonic acid (PFHpS)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0002	NC
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	0.0006	NC
Perfluorononanesulfonic acid (PFNS)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	0.0006	NC
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.005		0.012	0.009	29	0.012	0.0094	24
Perfluoropentanesulfonic acid (PFPeS)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0002	NC
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0005	NC
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0005	NC
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0005	NC
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	mg/kg	0.005		<0.005	<0.005	NC	<0.005	<0.0005	NC
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	mg/kg	0.01		<0.01	<0.01	NC	<0.01	<0.0005	NC
Sum (PFHxS + PFOS)	mg/kg	0.005		0.012	0.009	29	0.012	0.01	18

*** NC = No Comparison as results below detection limits**

RESULTS SUMMARY TABLES – GROUNDWATER

				Perfluoroalkyl carboxylic acids (PFCAs)											Perfluoroalkyl sulfonamido substances							Perfluoroalkyl sulfonic acids (PFSAs)								n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				PFAS
				Perfluorobutanoic acid (PFBA)'	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanoic acid (PFOA)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	Perfluorooctane sulfonamide (FOSA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluoroheptanesulfonic acid (PFHpS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorononanesulfonic acid (PFNS)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluoropropanesulfonic acid (PFPrS)	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA)	1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA)	1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA)	1H,1H,2H,2H-perfluorooctanesulfonic acid(6:2 FTSA)	Sum (PFHxS + PFOS)
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01
PFAS NEMP 2.0 (2020) - Freshwater Criteria (based on 95% species protection)										220																	0.13								
PFAS NEMP 2.0 (2020) - Drinking Water Quality Guideline										0.56															0.07		0.07								0.07
PFAS NEMP 2.0 (2020) - Recreational Water Quality Guideline										10															2		2								2
Well ID	**Field ID**	**Date**	**Laboratory**																																
GW1	GW1	29 Aug 2024	Eurofins	0.08	< 0.01	< 0.01	0.07	0.59	< 0.01	0.33	0.1	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.18	0.25	< 0.01	0.29	2.9	0.05	16	0.37	0.06	< 0.01	< 0.01	< 0.01	< 0.05	18.9
	QC1	29 Aug 2024	Eurofins	0.08	< 0.01	< 0.01	0.07	0.53	< 0.01	0.33	0.1	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.17	0.26	< 0.01	0.27	2.1	0.04	10	0.38	0.07	< 0.01	< 0.01	< 0.01	< 0.05	12.1
	QC2	29 Aug 2024	ALS	< 0.1	< 0.02	< 0.02	0.09	0.68	< 0.02	0.3	0.12	< 0.05	< 0.02	< 0.02	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.02	0.15	0.24	0.02	0.15	2.95	0.17	11.7	0.3	0.05	< 0.05	< 0.05	< 0.05	< 0.05	14.6
GW2	GW2	29 Aug 2024	Eurofins	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.04	< 0.01	< 0.01	0.08	< 0.01	0.31	0.02	0.01	< 0.01	< 0.01	< 0.01	< 0.05	0.39
GW3	GW3	29 Aug 2024	Eurofins	< 0.05	< 0.01	< 0.01	0.01	0.09	< 0.01	0.04	0.02	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.01	0.06	0.73	< 0.01	2.4	0.1	0.02	< 0.01	< 0.01	< 0.01	< 0.05	3.13

			Field ID	GW1	QC1		GW1	QC2	
			Matrix Type	Groundwater	Groundwater		Groundwater	Groundwater	
			Date	29/08/2024	29/08/2024	RPD (%)	29/08/2024	29/08/2024	RPD (%)
	Unit	EQL							
PFAS									
Perfluorobutanoic acid (PFBA)	µg/L	0.05	0.08	0.08	0	0.08	< 0.1	NC
Perfluorodecanoic acid (PFDA)	µg/L	0.01	< 0.01	< 0.01	NC	< 0.01	< 0.02	NC
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	< 0.01	< 0.01	NC	< 0.01	< 0.02	NC
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	0.07	0.07	0	0.07	0.09	25
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	0.59	0.53	11	0.59	0.68	14
Perfluorononanoic acid (PFNA)	µg/L	0.01	< 0.01	< 0.01	NC	< 0.01	< 0.02	NC
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.33	0.33	0	0.33	0.3	10
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	0.1	0.1	0	0.1	0.12	18
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	< 0.01	< 0.01	NC	< 0.01	< 0.05	NC
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	< 0.01	< 0.01	NC	< 0.01	< 0.02	NC
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	< 0.01	< 0.01	NC	< 0.01	< 0.02	NC
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	0.05	< 0.05	< 0.05	NC	< 0.05	< 0.05	NC
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	0.05	< 0.05	< 0.05	NC	< 0.05	< 0.05	NC
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	0.05	< 0.05	< 0.05	NC	< 0.05	< 0.05	NC
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	0.05	< 0.05	< 0.05	NC	< 0.05	< 0.02	NC
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	0.05	< 0.05	< 0.05	NC	< 0.05	< 0.05	NC
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	0.05	< 0.05	< 0.05	NC	< 0.05	< 0.02	NC
Perfluorooctane sulfonamide (FOSA)	µg/L	0.05	0.18	0.17	6	0.18	0.15	18
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.01	0.25	0.26	4	0.25	0.24	4
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.01	< 0.01	< 0.01	NC	< 0.01	0.02	NC
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	0.01	0.29	0.27	7	0.29	0.15	**64**
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.01	2.9	2.1	32	2.9	2.95	2
Perfluorononanesulfonic acid (PFNS)	µg/L	0.01	0.05	0.04	22	0.05	0.17	**109**
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	16	10	46	16	11.7	31
Perfluoropentanesulfonic acid (PFPeS)	µg/L	0.01	0.37	0.38	3	0.37	0.3	21
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.01	0.06	0.07	15	0.06	0.05	18
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	0.01	< 0.01	< 0.01	NC	< 0.01	< 0.05	NC
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	0.01	< 0.01	< 0.01	NC	< 0.01	< 0.05	NC
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	0.01	< 0.01	< 0.01	NC	< 0.01	< 0.05	NC
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	0.05	< 0.05	< 0.05	NC	< 0.05	< 0.05	NC
Sum (PFHxS + PFOS)	µg/L	0.01	18.9	12.1	44	18.9	14.6	26

*** NC = No Comparison as one or both results below detection limits**

APPENDIX A SAPPA REPORT

SAPPA Parcel Report

Date Created: October 9, 2024

The South Australian Property and Planning Atlas is available at the Plan SA website https://sappa.plan.sa.gov.au/



Address Details

Unit Number:	
Street Number:	34
Street Name:	AIRPORT
Street Type:	RD
Suburb:	BROOKLYN PARK
Postcode:	5032

Property Details:

Council:	CITY OF WEST TORRENS
State Electorate:	WEST TORRENS (2014), WEST TORRENS (2018), WEST TORRENS (2022)
Federal Electorate:	HINDMARSH (2013), HINDMARSH (2016), HINDMARSH (2019)
Hundred:	ADELAIDE
Valuation Number:	2123308055
Title Reference:	CT5202/341
Plan No. Parcel No.:	D40074A34

Zoning details next page

Scale ≈ 1:598 (on A4 page)

25 metres≈

The information provided, is not represented to be accurate, current or complete at the time of printing this report.

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Government of South Australia
Attorney-General's Department

Zone Details

Zones

General Neighbourhood (Z2102) - GN

Overlays

Aircraft Noise Exposure (O0301) - ANEF 20

The Aircraft Noise Exposure Overlay seeks to ensure development sensitive to aircraft noise is designed to minimise noise intrusion and provide appropriate interior acoustic amenity.

Airport Building Heights (Regulated) (O0303) - All structures over 15 metres

The Airport Building Heights (Regulated) Overlay seeks to ensure building height does not pose a hazard to the operation and safety requirements of commercial and military airfields.

Affordable Housing (O0306)

The Affordable Housing Overlay seeks to ensure the integration of a range of affordable dwelling types into residential and mixed use development.

Building Near Airfields (O0601)

The Building Near Airfields Overlay seeks to ensure development does not pose a hazard to the operational and safety requirements of commercial and military airfields.

Hazards (Flooding) (O2403)

The Hazards (Flooding) Overlay seeks to minimise flood hazard risk to people, property, infrastructure and the environment.

Prescribed Wells Area (O4804)

The Prescribed Wells Area Overlay seeks to ensure sustainable water use in prescribed wells areas.

Regulated and Significant Tree (O5404)

The Regulated and Significant Tree Overlay seeks to mitigate the loss of regulated trees through appropriate development and redevelopment.

Stormwater Management (O5710)

The Stormwater Management Overlay seeks to ensure new development incorporates water sensitive urban design techniques to capture and re-use stormwater.

Traffic Generating Development (O6001)

The Traffic Generating Development Overlay aims to ensure safe and efficient vehicle movement and access along urban transport routes and major urban transport routes.

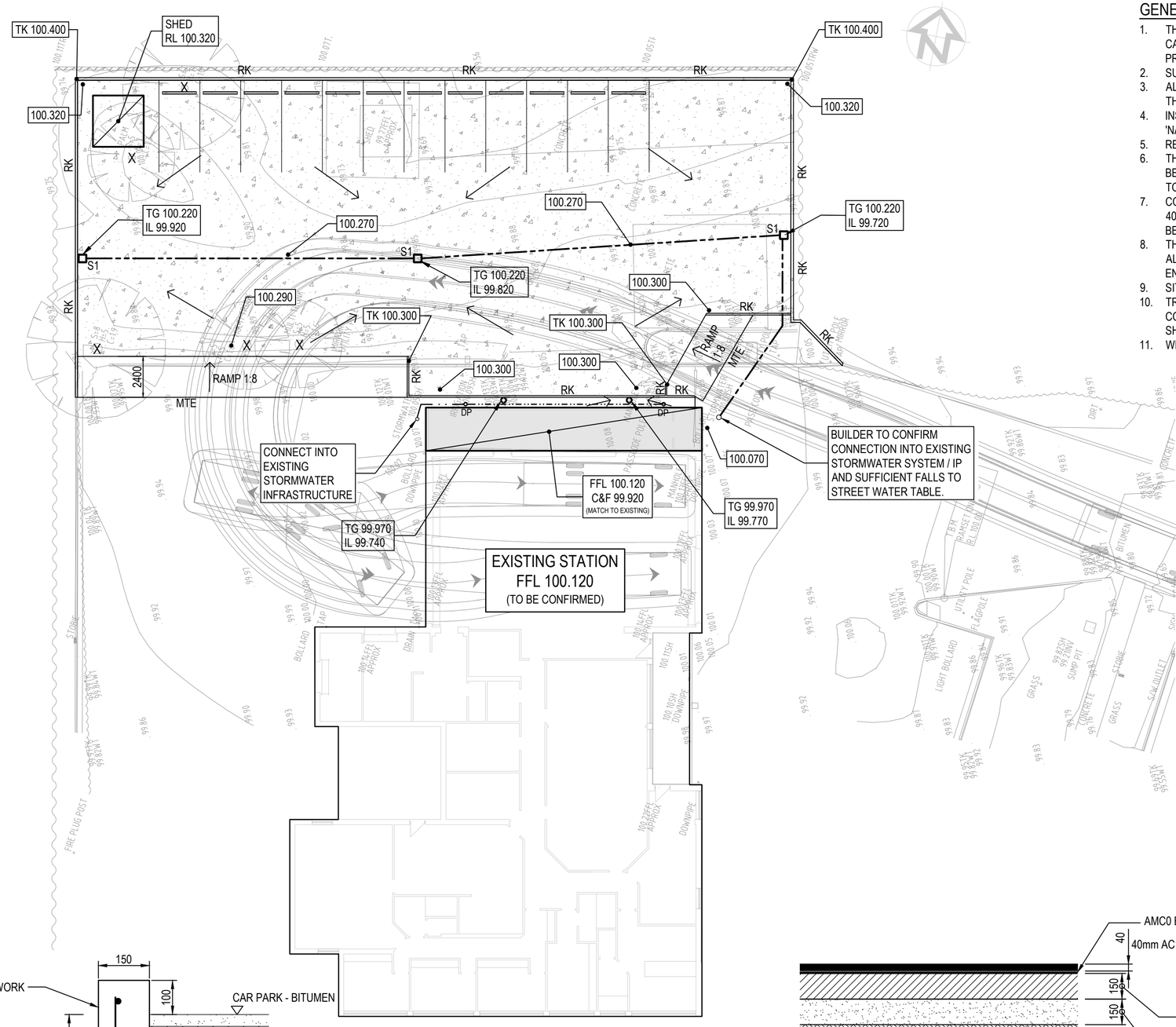
Urban Transport Routes (O6301)

The Urban Transport Routes Overlay seeks to ensure safe and efficient vehicle movement and access along urban transport routes.

Urban Tree Canopy (O6302)

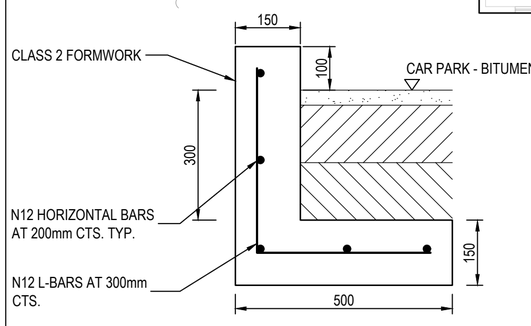
The Urban Tree Canopy Overlay seeks to preserve and enhance urban tree canopy through the planting of new trees and retention of existing mature trees where practicable.

APPENDIX B PROPOSED CONSTRUCTION PLAN



CIVIL LAYOUT PLAN

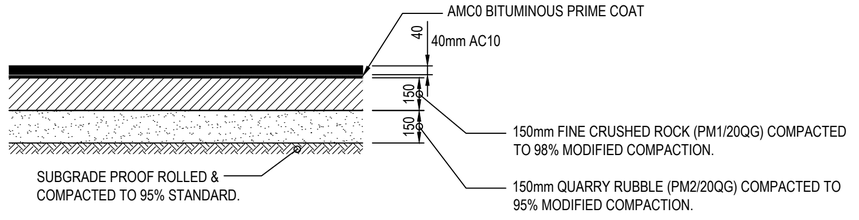
SCALE 1:200



NOTE:
PROVIDE 3 x R10 DOWELS ACROSS CONTRACTION JOINTS PLACED AT 6m MAXIMUM CENTRES

RETAINING KERB (RK)

SCALE 1:10



SECTION THROUGH BITUMEN PAVING

SCALE 1:10

GENERAL NOTES

1. THIS ENGINEERING SURVEY PLAN, SHOULD NOT BE TAKEN AS A CADASTRAL OR IDENTIFICATION SURVEY. BOUNDARY DATA SHOWN IS PROVIDED AS A GUIDE ONLY.
2. SURVEYED BY OTHERS.
3. ALL SITE LEVELS AND DETAILS MUST BE CHECKED AND APPROVED BY THE OWNER/BUILDER PRIOR TO COMMENCEMENT OF ANY WORK.
4. INSTALLATION OF STORMWATER SYSTEMS TO COMPLY WITH AS3500.5 'NATIONAL PLUMBING AND DRAINAGE CODE'.
5. REFER TO ARCHITECTURAL SITE PLAN FOR SET OUT DIMENSIONS.
6. THE FINISHED GROUND LEVEL ADJACENT TO EXTERNAL FOOTING SHALL BE SET DOWN TO SUIT REQUIRED PAVING LEVELS AND FALLS. REFER TO ENGINEERING REPORT FOR PAVING DETAILS.
7. COVER TO PIPES SHALL COMPLY WITH AS 3500.5. PIPES LESS THAN 400mm BELOW THE FINISHED SURFACE UNDER THE DRIVEWAYS SHALL BE ENCASED IN 100mm OF CONCRETE.
8. THE STORMWATER DRAINAGE SYSTEM SHALL BE INSTALLED AS SHOWN. ALTERATIONS TO THE SYSTEM MUST BE APPROVED BY THIS OFFICE TO ENSURE THAT THE INTEGRITY OF THE DESIGN IS MAINTAINED.
9. SITE CLASSIFICATION TO AS2870-2011 : CLASS P
10. TREE REMOVAL TO BE CONFIRMED WITH OWNER PRIOR TO COMMENCEMENT OF ANY WORK ON SITE ANY CHANGES TO THE EXTENT SHOWN ON THIS DRAWING MUST BE CONFIRMED WITH THIS OFFICE
11. WHEELSTOPS & LINEMARKING BY OTHERS.

LEGEND

Ø90	DN90 STORMWATER PIPE
Ø150	DN150 STORMWATER PIPE
DP	DOWNPIPES (SHOWN DP) SHALL BE SEALED TO THE UNDERGROUND STORMWATER SYSTEM
SUMP TG 99.920 IL 99.720	DESIGN LEVEL: TG-TOP OF GRATE IL- INVERT LEVEL
	SURFACE FALL
RK	RETAINING KERB. MATCH IN WITH EXISTING
MTE	MATCH TO EXISTING
S1	450 SQ SUMP (CLASS C GRATED COVER, U.N.O)
	150 PVC RISER + GRATE
X	EXISTING TREE TO BE REMOVED
100.000	FINISHED DESIGN LEVEL
	NEW BITUMEN PAVING. REFER TO DETAIL.

GAMA CONSULTING
a: Suite 3, No.83 Fullarton Rd,
KENT TOWN, SA 5067
T: 08 7123 4050
admin@gamaconsulting.com.au
www.gamaconsulting.com.au

REV.	DATE	AMENDMENTS	INIT.
1	23/05/24	ISSUED FOR CONSTRUCTION	TF
0	20/03/24	ISSUED FOR CONSTRUCTION	TF

Government of South Australia
Department for Infrastructure and Transport

© COPYRIGHT - GOVERNMENT OF SOUTH AUSTRALIA - DIT
SETTING OUT OF THE WORK IS THE RESPONSIBILITY OF THE CONTRACTOR
ALL DIMENSIONS TO BE VERIFIED ON SITE
DISCREPANCIES TO BE REPORTED IMMEDIATELY TO THE SUPERINTENDENT
THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DOCUMENTS

CONTRACT EXECUTION

CONTRACTOR _____ DATE _____

WITNESS _____ DATE _____

CONTRACT NAME
BROOKLYN PARK MFS STATION
PPE STORAGE SOLUTION

SITE ADDRESS
34 AIRPORT ROAD
BROOKLYN PARK, SA

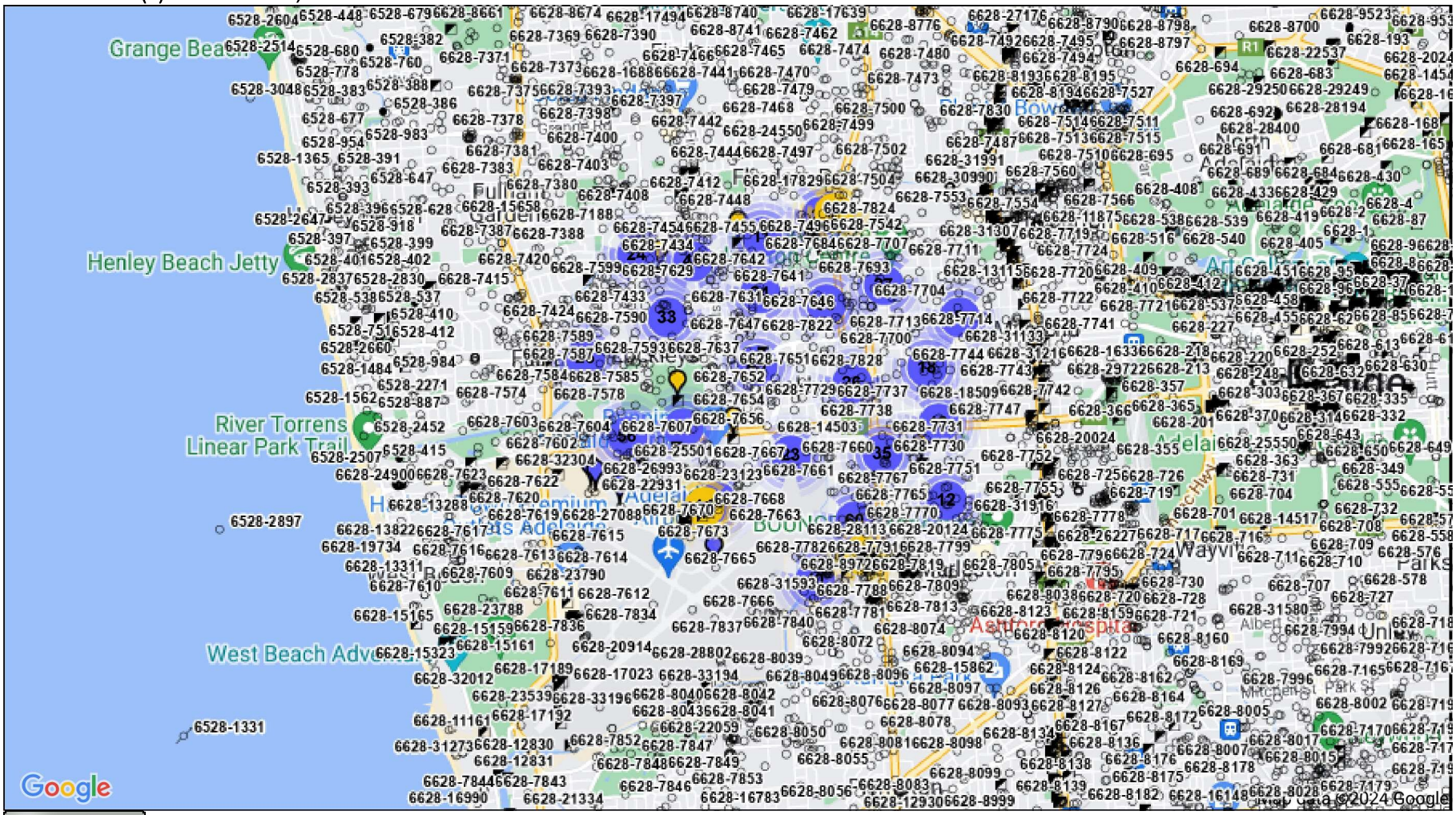
DRAWING TITLE
CIVIL SERVICES, CARPARK, DRAINAGE PLAN
& DETAILS

CONTRACT NO.	DRAWN BY - CHECKED BY
XXX-A-20XX	IB TF
PSC JOB NO.	SCALE AND SHEET SIZE
230230-C01	1:200 @ A2
DIT ASSET NO.	SHEET NO.
09159	XXX
DIT DRAWING NO.	REVISION
XXXX-SD-2023	1

APPENDIX C WATERCONNECT (2KM SEARCH DATA)

Government of South Australia WaterConnect

Unit Number(s) 6628-33226, Radius 2km



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Unit_No	Unit_Number	dh_name	network	Obs_No	drillhole_class	Aquifer	Orig_drilled_depth	Orig_drilled_date	max_drill_depth	max_drill_date	late_open_depth	late_open_date	late_permit_no	cased_to	case_min_diam	purpose	latest_status	dtw	swl	rswl	water_level_date	TDS	EC	salinity_date	pH	pH_date	yield	yield_date
6628-7434	662807434				WW	Qpah			91.44	24/01/1946	91.44	24/01/1946						6.1	6.1	1.9	24/01/1946	1128	2042	24/01/1946			10.1	24/01/1946
6628-7455	662807455				WW	Qpah		1/07/1934	18.29	2/01/1946	18.29	2/01/1946						9.14	9.14	-1.14	2/01/1946	2770	4957	2/01/1946			12.63	2/01/1946
6628-7456	662807456	EWS 41			WW	Tomw(T1)	141.43	27/11/1945	141.43	27/11/1945	141.43	27/11/1945		121.31	203	UKN		12.8	12.8	-4.8	27/11/1945	3531	6287	26/09/1949			12	27/11/1945
6628-7457	662807457				WW	Tomw(T2)	254.2	1/04/1931	254.51	5/01/1946	254.51	5/01/1946		239.27	152			0	0	5.9	1/04/1931	3331	5939	5/02/1946				
6628-7458	662807458				WW	Qpah		1/01/1946	12.19	5/01/1946	12.19	5/01/1946						6.71	6.71	2.29	5/01/1946	1744	3143	5/01/1946			6.32	5/01/1946
6628-7459	662807459				WW	Qpah			13.72	5/01/1946	13.72	5/01/1946						7.62	7.62	-1.62	5/01/1946	1527	2756	5/01/1946			6.32	5/01/1946
6628-7460	662807460				WW	Qpah			11.58		11.58															1.26	
6628-7496	662807496				WW	Tomw(T1)	149.96	11/03/1946	149.96	11/03/1946	149.96	11/03/1946		91.44	152			14.02	14.02	-6.52	6/03/1948	857	1554	29/02/1952			10.1	6/03/1948
6628-7503	662807503				WW	Qpah																785	1424	26/08/1914				
6628-7538	662807538	EWS 19	CENT_ADEL	ADE002	WW	Tomw(T1)	149.35	3/11/1945	149.35	3/11/1945	145.4	23/02/2022	94316	128	76	OBS	RHB	11.24	10.24	3.21	10/09/2024	860	1560	23/04/2013	8.3	23/04/2013	7.5	4/10/1949
6628-7539	662807539	HOLBROOKS BRIDGE 1			ENG	Qpah	9.14	6/10/1960	9.14	6/10/1960	9.14	6/10/1960					UKN											
6628-7540	662807540				WP	Qpah																942	1705	1/12/1972	7	1/12/1972		
6628-7541	662807541				WW	Tomw(T1)			182.88	1/12/1972	182.88	1/12/1972		48.77	152			18.29	18.29	-8.09	1/12/1972	846	1535	1/12/1972	7	1/12/1972	12.63	1/12/1972
6628-7542	662807542	UNDERDALE 6			ENG	Qpah	16.2	9/03/1973	16.2	9/03/1973	16.2	9/03/1973		14.4	152		UKN					2067	3715	9/03/1973	7	9/03/1973	0.63	9/03/1973
6628-7543	662807543	UNDERDALE 1			ENG	Qpah	20.05	5/12/1972	20.05	5/12/1972	20.05	5/12/1972					UKN					2138	3840	6/12/1972	8	6/12/1972		
6628-7544	662807544	UNDERDALE 2			ENG	Qpah	18.1	13/12/1972	18.1	13/12/1972	18.1	13/12/1972					UKN					2253	4045	14/12/1972	7	14/12/1972		
6628-7545	662807545	UNDERDALE 5			ENG	Qpah	16.8	13/03/1973	16.8	13/03/1973	16.8	13/03/1973					UKN					2372	4255	14/03/1973	7.5	14/03/1973	0.25	14/03/1973
6628-7546	662807546				WW	Tomw(T1)			144	9/01/1974	144	9/01/1974		126	152			19.46	19.46	-13.56	9/01/1974	888	1610	20/11/1986	7.8	20/11/1986	6.8	9/01/1974
6628-7593	662807593	EWS 21	CENT_ADEL	ADE004	WW	Tomw(T1)	145.69	29/10/1945	145.69	29/10/1945	0	21/03/1997	40410			OBS	BKF	10.48	10.51	-2.01	29/06/1995	732	1328	13/11/1984	7.2	13/11/1984	10	18/10/1949
6628-7595	662807595				WW	Qpah			8.23	16/03/1936	8.23	16/03/1936						4.57	4.57	3.43	16/03/1936	2199	3950	16/03/1936			6.32	16/03/1936
6628-7596	662807596				WW	Tomw(T1)	198.12	1/01/1931	198.12	1/01/1931	198.12	1/01/1931						6.1	6.1	0.2	1/01/1931	729	1324	26/02/1952			12.63	1/01/1946
6628-7597	662807597				WW	Qpah												3.66	3.66	2.34	2/01/1946	1744	3143	2/01/1946			12.63	2/01/1946
6628-7598	662807598				WW	Qpah		1/08/1934	20.12	23/08/1934	20.12	23/08/1934						3.66	3.66	3.04	23/08/1934	4590	8111	25/02/2019	7.38	25/02/2019		
6628-7607	662807607	KOOYONGA GC 2			WW	Tomw(T1)	147.83	14/05/1928	147.83	14/05/1928	147.83	14/05/1928		117	165		UKN	9.14	9.14	-1.14	5/02/1951	2115	3802	7/01/1952			5.68	5/02/1951
6628-7608	662807608	KOOYONGA GC 4			WW	Tomw(T1)	142.04	24/10/1952	152.4	18/02/1960	0	27/11/2009	165690		IRR		BKF	33.53	33.53	-29.53	18/03/1970	972	1760	28/05/1996	7.2	28/05/1996	7.58	1/01/1972
6628-7626	662807626				WW	Qpah			2.74	30/04/1970	2.74	30/04/1970						1.83	1.83	2.17	30/04/1970	827	1500	30/04/1970	7.5	30/04/1970		
6628-7627	662807627				WW	Qpah			6.4	16/03/1936	6.4	16/03/1936						5.33	5.33	2.67	16/03/1936	2327	4177	16/03/1936				
6628-7628	662807628				WW	Qpah			31.09	26/10/1949	31.09	26/10/1949						9.75	9.75	-0.15	26/10/1949	1230	2225	26/10/1949			2.27	26/10/1949
6628-7629	662807629				WW	Qpah			9.14	3/01/1946	9.14	3/01/1946						5.18	5.18	3.82	3/01/1946	1713	3088	3/01/1946			6.32	3/01/1946
6628-7630	662807630				WW	Tomw(T2)	264.57	1/01/1932	264.57	1/01/1932	264.57	1/01/1932		252.98	152			15.24	15.24	-5.24	18/01/1946	3098	5532	31/01/1946			6.32	18/01/1946
6628-7631	662807631				WW	Qpah			7.62			16/01/1952						5.18	5.18	2.82	16/01/1952	2575	4614	16/01/1952			0.61	16/01/1952
6628-7632	662807632				WW	Qpah			11.58	17/09/1951	11.58	17/09/1951						5.18	5.18	2.82	17/09/1951	2030	3652	17/09/1951			0.51	17/09/1951
6628-7633	662807633				WW	Qpah			17.37	23/10/1941	17.37	23/10/1941						3.66	3.66	3.94	23/10/1941	2845	5098	23/10/1941				
6628-7634	662807634				WW	Qpah			12.19	22/03/1951		22/03/1951						3.66	3.66	4.24	22/03/1951	3146	5616	22/03/1951				
6628-7635	662807635				WW	Qpah			3.66	16/03/1951		16/03/1951						3.05	3.05	4.75	16/03/1951	3603	6411	16/03/1951				
6628-7636	662807636				WW	Qpah			3.35	14/04/1949		14/04/1949						3.05	3.05	4.35	14/04/1949	5777	10139	14/04/1949				
6628-7637	662807637				WW	Qpah			12.19	7/06/1949		7/06/1949						3.05	3.05	3.25	7/06/1949	2387	4284	7/06/1949				
6628-7638	662807638				WW	Qpah			4.27	14/04/1949		14/04/1949						2.29	2.29	4.21	14/04/1949	4215	7471	14/04/1949				
6628-7639	662807639				WW	Qpah			4.27	14/04/1949		14/04/1949						2.29	2.29	4.51	14/04/1949	4490	7944	14/04/1949				
6628-7640	662807640	EWS 31			WW	Tomw(T1)	146.3	16/11/1945	146.3	16/11/1945	0	31/03/1967					BKF	10.66	10.66	-0.66	25/09/1949	871	1580	21/04/1955			10.1	25/09/1949
6628-7641	662807641				WW	Qpah			9.14	17/08/1970		17/08/1970										2966	5300	17/08/1970	8	17/08/1970		
6628-7642	662807642				WW	Qpah			36.58	1/01/1950	36.58	1/01/1950						7.62	7.62	2.78	1/01/1950	1285	2324	1/01/1950			11.37	1/01/1950
6628-7643	662807643				WW	Qpah			22.86	17/02/1969	22.86	17/02/1969		22.86	152			5.18	5.18	4.82	17/02/1969	1770	3190	17/02/1969	7.5	17/02/1969	1.89	17/02/1969
6628-7644	662807644				WW	Qpah			13.72	20/02/1969	13.72	20/02/1969						3.05	3.05	6.95	20/02/1969	1830	3297	20/02/1969	7	20/02/1969	1.26	20/02/1969
6628-7645	662807645				WW	Qpah			4.88	1/04/1957	4.88	1/04/1957				DRN		4.27	4.27	4.83	1/04/1957	1145	2072	1/04/1957				
6628-7646	662807646				WW	Qpah			4.88	21/03/1957	4.88	21/03/1957				DRN		4.57	4.57	4.73	21/03/1957	857	1554	21/03/1957				
6628-7647	662807647				WW	Qpah	10.97	1/01/1951	10.97	1/01/1951	10.97	19/03/1952		0.91	152			8.23	8.23	1.77	19/03/1952	2230	4005	19/03/1952			1.26	19/03/1952
6628-7648	662807648				WW	Qpah			7.62	23/12/1971	7.62	23/12/1971		7.62	152			6.1	6.1	1.9	23/12/1971	408	741	23/12/1971	7	23/12/1971	2.53	23/12/1971
6628-7649	662807649				WW	Qpah			10.67	13/08/1934	10.67	13/08/1934										2598	4656	13/08/1934			12.63	1/01/1934
6628-7650	662807650				WW	Qpah			14.02	6/10/1934	14.02	6/10/1934										2084	5507	6/10/1934				
6628-7651	662807651				WW	Qpah			6.1	17/11/1970	6.1	17/11/1970										1804	3250	7/02/1985	7.3	7/02/1985		
6628-7652	662807652				WW	Qpah			9.45	18/08/1934	9.45	18/08/1934						7.32	7.32	-0.72	18/08/1934	2084	3747	18/08/1934				
6628-7653	662807653				WW	Qpah			9.45	18/08/1934	9.45	18/08/1934						7.32	7.32	-0.72	18/08/1934	2144	3854	18/08/1934				
6628-7654	662807654				WW	Qpah			9.14	27/07/1945	9.14	27/07/1945						3.66	3.66	2.34	27/07/1945	3055	5457	27/07/1945				
6628-7655	662807655				WW	Qpah			12.8	26/10/1959	12.8	26/10/1959		3.66	152			3.05	3.05	2.95	26/10/1959	1601	2888	26/10/1959			2.53	26/10/1959
6628-7656	662807656	KOOYONGA GC 3			WW	Tomw(T1)	152.4	1/01/1948	217.08	17/03/1966	0	18/01/2010	134289				BKF	12.19	12.19	-6.29	17/03/1966	931	1688	29/09/1987	7.5	29/09/1987	12.88	1/01/1972
6628-7657	662807657	KOOYONGA GC 6			WW	Tomw(T1)	217.02	8/03/1962	217.02	8/03/1962	0	15/10/1987	19902				BKF	0	0	4.1	18/09/1987	966	1750	29/09/1987	7.8	29/09/1987	12.63	16/03/1962
6628-7658	662807658	KOOYONGA GC 5			WW	Tomw(T1)			216.71	10/09/1965	0	10/12/1986	39403		IRR		BKF	6.1	6.1	-0.1	7/10/1965	2818	5040	23/05/1996	6.7	23/05/1996	12.63	7/10/1965
6628-7659	662807659	KOOYONGA GC 1			WW	Tomw(T1)	143.87	9/02/1928	174.35	26/08/1952	174.35	26/08/1952		161	152			6.4	6.4	-0.4	26/08/1952	1142	2067	16/06/1953			13.89	26/08/1952
6628-7660	662807660	EWS 96	CENT_ADEL	ADE007	WW	Tomw(T1)	144.48	5/12/1949	258	25/08/1983	137.4	2/03/2022	92514			OBS	RHB	2.73	1.97	4.07	9/09/2024	1746	3147	20/07/1983	8	20/07/1983	12.63	5/12/1949
6628-7661	662807661	ADELAIDE AIRPORT 5	CENT_ADEL	ADE038	WW	Tomw(T1)	213.36	29/10/1962	213.36	29/10/1962	206	12/07/1979		186	152	OBS	RHB	6.57	6.55	-2.65	10/09/1982	744	1350	1/02/1972	7	1/02/1972	12	12/07/1979
6628-7662	662807662	ADELAIDE AIRPORT 1			WW	Tomw(T1)	147.83	19/04/1949	147.83	19/04/1949	147.83	19/04/1949		114.3	203			5.49	5.49	-0.79	19/04/1949	809	1451	19/03/1958			17.68	19/04/1949
6628-7663	662807663	ADELAIDE AIRPORT 4 TCWQ 12	CENT_ADEL	ADE009	WW	Tomw(T1)	213.97	17/09/1962	213.97	17/09/1962	0	9/03/2004	64954	194	203	OBS	BKF	0.98	2.06	2.2	27/09/2003	761	1380	21/01/1983	7.4	21/01/1983		
6628-7664	662807664	ADELAIDE AIRPORT 3			WW	Tomw(T1)	213.36	1/10/1962	213.36	1/10/1962	213.36	1/10/1962		194.5	203							813	1474	1/01/1962				
6628-7665	662807665	EWS 15			WW	Tomw(T1)	140.21	20/12/1934	140.21	20/12/1934	140.21	13/07/1948		116.74	152			0	0	4	13/07/1948	813	1474	13/07/1948			5.05	13/07/1948
6628-7667	662807667	EWS LOCKLEYS			WW	Tomw(T1)	161.54	11/09/1934	161.54	11/09/1934	161.54	11/09/1934		155.25	152			0	0	4.3	11/09/1934	742	1347	11/09/1934			3.54	11/09/1934
6628-7668	662807668	AIRPORT 11			ENG	Qpah	10.67	27/07/1953	10.67	27/07/1953	10.67	27/07/1953					UKN	1.83	1.83		27/07/1953							
6628-7669	662807669	AIRPORT 1			ENG	Qpah	10.67	9/07/1953	10.67	9/07/1953	10.67	9/07/1953					UKN											
6628-7670	662807670	AIRPORT 2			ENG	Qpah	10.67	13/07/1953	10.67	13/07/1953	10.67	13/07/1953					UKN	1.22	1.22		13/07/1953							
6628-7671	662807671	AIRPORT 3			ENG	Qpah	10.67	14/07/1953	10.67	14/07/1953	10.67	14/07/1953					UKN	1.22	1.22		14/07/1953							
6628-7672	662807672	AIRPORT 4			ENG	Qpah	10.67	15/07/1953	10.67	15/07/1953	10.67	15/07/1953					UKN	1.22	1.22		15/07/1953							
6628-7673	662807673	AIRPORT 5			ENG	Qpah	10.67	16/07/1953	10.67	16/07/1953	10.67	16/07/1953					UKN	1.22	1.22		16/07/1953							
6628-7674	662807674	AIRPORT 6			ENG	Qpah	10.67	17/07/1953	10.67	17/07/1953	10.67	17/07/1953					UKN	1.22	1.22		17/07/1953							
6628-7675	662807675	AIRPORT 7			ENG	Qpah	10.67	20/07/1953	10.67	20/07/1953	10.67	20/07/1953					UKN	1.22	1.22		20/07/1953							
6628-7676	662807676	AIRPORT 8			ENG	Qpah	10.67	21/07/1953	10.67	21/07/1953	10.67	21/07/1953					UKN	1.22	1.22		21/07/1953							
6628-7677	662807677	AIRPORT 9			ENG	Qpah	10.67	22/07/1953	10.67	22/07/1953	10.67	22/07/1953					UKN	1.22	1.22		22/07/1953							
6628-7678	662807678	AIRPORT 10			ENG	Qpah	10.67	23/07/1953	10.67	23/07/1953	10.67	23/07/1953					UKN											
6628-7679	662807679	AIRPORT 12			ENG	Qpah	10.67	28/07/1953	10.67	28/07/1953	10.67	28/07/1953					UKN	1.83	1.83		28/07/1953							
6628-7680	662807680	AIRPORT 13			ENG	Qpah	10.67	29/07/1953	10.67	29/07/1953	10.67	29/07/1953					UKN	1.83	1.83		29/07/1953							
6628-7681	662807681	AIRPORT 14			ENG	Qpah	10.67	30/07/1953	10.67	30/07/1953	10.67	30/07/1953					UKN											
6628-7682	662807682				WW	Qpah			30.48	1/01/1950	30.48	1/01/1950						12.19	12.19	-3.89	1/01/1950						10.1	1/01/1950
6628-7683	662807683				WW	Qpah			36.58	1/01/1950	36.58	1/01/1950						10.67	10.67	-1.87	1/01/1950	1430	2583	1/01/1950			11.37	1/01/1950
6628-7684	662807684				WW	Qpah			36.58	1/01/1950	36.58	1/01/1950						10.97	10.97	-3.77	1/01/1950	1370	2476	1/01/1950			15.16	1/01/1950
6628-7685	662807685				WW	Qpah			35.05	6/11/1961	35.05	6/11/1961										2001	3600	6/11/1961				
6628-7686	662807686				WW	Qpah			12.19	26/08/1914	12.19	26/08/1914										1328	2400	26/08/1914			10.1	1/01/1914
6628-7687	662807687				WW	Qpah			12.19	1/12/1972	12.19	1/12/1972		9.14	152			7.62	7.62	3.38	1/12/1972	1664	3000	1/12/1972	7.5	1/12/1972	12.63	1/12/1972
6628-7688	662807688				WW	Qpah			10.97	1/01/1950	10.97	1/01/1950						3.05	3.05	7.95	1/01/1950						10.1	1/01/1950
6628-7689	662807689	UNDERDALE 4			ENG	Qpah	14.55	7/03/1973	14.55	7/03/1973	14.55	7/03/1973		12.5	152		UKN					2310	4146	7/03/1973			0.25	7/03/1973
6628-7690	662807690	UNDERDALE 3			ENG	Qpah	30.3	1/02/1973	30.3	1/02/1973	30.3	1/02/1973					UKN					1479	2670	26/01/1973	7	26/01/1973	0.25	2/02/1973
6628-7691	662807691	TCWQ 13	CENT_ADEL	ADE032	WW	Tomw(T1)	204	11/12/1973	204	11/12/1973	204	11/12/1973		188	203	OBS	BKF	13.36	13.78	-1.7	11/09/2005	810	1470	20/11/1986	7.8	20/11/1986	12.5	11/12/1973
6628-7692	662807692				WW	Tomw(T1)			153.62	6/12/1967	153.62	6/12/1967		109.73	152			48.77	48.77	-36.97	6/12/1967	855	1551	6/12/1967	6.7	6/12/1967	10.1	6/12/1967
6628-7693	662807693	UNDERDALE HIGH			WW	Tomw(T1)	152.4	14/12/1967	152.4	14/12/1967	0	16/06/2015	239991				BKF	11.58	11.58	-0.98	12/08/2014	757	1372	12/08/2014	7.6	27/11/1986	7.58	14/12/1967
6628-7694	662807694				WW	Qpah			42.67	1/01/1950	42.67	1/01/1950						4.57	4.57	5.23	1/01/1950						10.1	1/01/1950
6628-7695	662807695				WW	Qpah			6.1	30/11/1944	6.1	30/11/1944										2399	4304	30/11/1944				
6628-7696	662807696				WW	Qpah			8.53	4/07/1930	8.53	4/07/1930										1999	3597	4/07/1930				
6628-7697	662807697				WW	Qpah			18.29	13/07/1934	18.29	13/07/1934						3.05	3.05	5.45	13/07/1934	871	1580	13/07/1934				
6628-7698	662807698				WW	Qpah		1/01/1962	7.01	30/01/1962	7.01	30/01/1962										2585	4632	30/01/1962				
6628-7699	662807699				WW	Tomw(T1)	147.83	1/01/1967	147.83	1/01/1967	147.83	26/10/1967		121.92	152			18.29	18.29	-10.29	26/10/1967	790	1433	16/02/1983	8	16/02/1983	10.61	26/10/1967
6628-7700	662807700				WW	Qpah	5	16/04/1972	5	16/04/1972	5	16/04/1972		5	102			2.9	2.9	5.1	16/09/1975	302	549	16/09/1975	7.5	16/09/1975	0.3	16/09/1975
6628-7701	662807701				WW	Qpah																2684	4805	26/08/1914				
6628-7702	662807702				WW	Qpah	12.19	20/07/1934	12.19	20/07/1934	12.19	20/07/1934										3117	5566	20/07/1934				
6628-7703	662807703				WW	Tomw(T1)	149.05	23/10/1934	149.05	23/10/1934	149.05	23/10/1934		126.09	127			6.4	6.4	3.1	23/10/1934	700	1271	27/02/1952			12.63	23/10/1934
6628-7704	662807704	EWS 40			WW	Tomw(T1)	144.02	16/01/1946	144.02	16/01/1946	0	22/06/1988	94885				BKF	8.84	8.84	0.96	17/09/1949	643	1169	21/12/1951			15.16	17/09/1949
6628-7705	662807705				WW	Qpah		1/09/1934	39.32	1/08/1940	39.32	1/08/1940						1656	2987	1/08/1940			8.84	1/01/1940
6628-7706	662807706				WW	Qpah			10.06	29/11/1955	10.06	29/11/1955		10.06	89			5.33	5.33	5.67	29/11/1955							
6628-7707	662807707				WW	Tomw(T1)		2/10/1934	147.83	27/02/1952	147.83	27/02/1952										729	1324	27/02/1952				
6628-7708	662807708				WW	Tomw(T1)	146.3	28/07/1934	146.3	28/07/1934	146.3	28/07/1934		129.54	102			7.62	7.62	3.98	28/07/1934	709	1271	27/02/1952				
6628-7709	662807709				WW	Tomw(T1)			144.78	13/12/1937	144.78	13/12/1937						22.86	22.86	-10.86	13/12/1937	771	1400	13/12/1937			7.58	13/12/1937

Unit_No	Unit_Number	dh_name	network	Obs_No	drillhole_class	Aquifer	Orig_drilled_depth	Orig_drilled_date	max_drill_depth	max_drill_date	late_open_depth	late_open_date	late_permit_no	cased_to	case_min_diam	purpose	latest_status	dtw	swl	rswl	water_level_date	TDS	EC	salinity_date	pH	pH_date	yield	yield_date
6628-7710	662807710				WW	Qpah																2027	3647	2/09/1914				
6628-7711	662807711				WW	Tomw(T1)	121	1/02/1934	138.99	1/09/1934	138.99	1/09/1934		114.3		152		8.23	8.23	3.97	22/02/1934	671	1218	27/02/1952			6.32	22/02/1934
6628-7712	662807712				WW	Qpah			8.23	18/09/1934	8.23	18/09/1934						4.57	4.57	6.43	18/09/1934	3412	6080	18/09/1934			0.16	18/09/1934
6628-7713	662807713				WW	Qpah			4.57	24/10/1961	4.57	24/10/1961						2.74	2.74	6.96	24/10/1961	2830	5063	24/10/1961				
6628-7714	662807714				WW	Qpah			3.7	7/08/1975	3.7	7/08/1975						3.2	3.2	6.6	7/08/1975	628	1140	7/08/1975	7.7	7/08/1975		
6628-7715	662807715				WW	Qpah			7.32	4/10/1949	7.32	4/10/1949						3.96	3.96	7.04	4/10/1949	3031	5414	4/10/1949			1.26	4/10/1949
6628-7716	662807716				WW	Qpah			8.53	11/08/1934	8.53	11/08/1934		3.05		127		3.66	3.66	8.74	11/08/1934	1530	2761	11/08/1934				
6628-7726	662807726				WW	Qpah																3517	6262	22/10/1914				
6628-7727	662807727				WW	Qpah			7.32	23/09/1968	7.32	23/09/1968										1955	3518	23/09/1968	6.5	23/09/1968		
6628-7728	662807728				WW	Qpah	30.48	1/01/1934	30.48	1/01/1934	30.48	14/11/1934		29.57				4.88	4.88	2.02	4/09/1934	2560	4590	14/11/1934				
6628-7729	662807729				WW	Qpah			9.14	5/10/1965	9.14	5/10/1965						2.44	2.44	4.56	5/10/1965	3250	5798	5/10/1965	6.7	5/10/1965	1.26	5/10/1965
6628-7730	662807730				WW	Qpah			9.45	28/03/1958	9.45	28/03/1958						2.13	2.13	5.87	28/03/1958	229	416	28/03/1958				
6628-7731	662807731				WW	Qpah		1/01/1949	5.49	22/01/1951	5.49	22/01/1951						3.05	3.05	4.95	22/01/1951	1716	3094	22/01/1951			0.44	22/01/1951
6628-7732	662807732				WW	Qpah																2770	4957	26/08/1914				
6628-7733	662807733				WW	Qpah			9.75	11/12/1945	9.75	11/12/1945						4.27	4.27	3.13	11/12/1945	2541	4556	11/12/1945				
6628-7734	662807734				WW	Qpah																2445	4386	26/08/1914				
6628-7735	662807735				WW	Qpah			15.24	22/10/1946	15.24	22/10/1946						3.05	3.05	3.45	22/10/1946	4012	7120	22/10/1946				
6628-7736	662807736				WW	Qpah		1/01/1945	72.24	14/08/1945	72.24	14/08/1945						9.14	9.14	-0.64	26/07/1945	1000	1811	14/08/1945			7.58	26/07/1945
6628-7737	662807737				WW	Qpah		1/01/1914	9.14	2/08/1945	9.14	2/08/1945										742	1347	1/01/1951			22.73	1/01/1945
6628-7738	662807738	EWS 5A			WW	Tomw(T1)	137.16	12/03/1951	137.16	12/03/1951	137.16	12/03/1951		115.52		203		19.81	19.81	-12.21	12/03/1951	657	1195	23/03/1955			17.05	12/03/1951
6628-7739	662807739	EWS 5	CENT_ADEL	ADE006	WW	Tomw(T1)	204.22	13/11/1934	204.22	13/11/1934	0	30/04/1999	46735		OBS	BKF		8.41	8.41	-0.63	15/09/1998	761	1380	17/02/1975	7.9	17/02/1975	18.95	15/12/1948
6628-7743	662807743				WW	Qpah			9.14	7/10/1914	9.14	7/10/1914										2330	4183	7/10/1914				
6628-7744	662807744				WW	Qpah		1/01/1932	39.62	20/09/1949	39.62	20/09/1949										2159	3881	26/09/1949			7.58	1/01/1949
6628-7745	662807745				WW	Qpah			4.57	11/02/1945	4.57	11/02/1945						1.52	1.52	7.48	11/02/1945	871	1580	11/02/1945			0.25	11/02/1945
6628-7746	662807746				WW	Tomw(T1)	118.87	14/07/1971	118.87	14/07/1971	118.7	14/07/1971		109.73		152	OPR	9.14	9.14	-0.14	14/07/1971	910	1650	24/02/2005	7.6	24/02/2005	10.1	14/07/1971
6628-7747	662807747				WW	Qpah		1/01/1940	12.19	1/04/1940	0	16/11/2016					BKF	4.57	4.57	5.43	1/04/1940	2845	5089	1/04/1940			0.57	1/04/1940
6628-7748	662807748				WW	Qpah							3894																
6628-7749	662807749				WW	Qpah			4.88	2/01/1958		2/01/1958						4.88	4.88	3.82	2/01/1958	3860	6859	2/01/1958				
6628-7751	662807751	EWS 82	CENT_ADEL	ADE008	WW	Tomw(T2)	132.59	22/09/1950	132.59	22/09/1950	0	23/08/1985	35719		OBS	BKF		5.9	5.9	4.92	29/06/1995	468	851	13/11/1984	8.5	13/11/1984	25	29/09/1950
6628-7752	662807752				WW	Qpah			6.1	10/09/1974	6.1	10/09/1974						4.57	4.57	7.03	10/09/1974	1586	2860	10/09/1974	7.6	10/09/1974		
6628-7753	662807753				WW	Qpah			4.88	22/10/1973	4.88	22/10/1973						2.74	2.74	9.06	22/10/1973	2372	4255	23/10/1973	8	23/10/1973		
6628-7764	662807764				WW	Tomw(T1)	117.35	1/01/1932	117.35	1/01/1932	117.35	27/02/1952						0	0	6.2	20/09/1935	757	1374	27/02/1952			3.79	20/09/1935
6628-7765	662807765				WW	Qpah			4.88	27/11/1967	4.88	27/11/1967						2.13	2.13	4.27	27/11/1967	1830	3297	27/11/1967	7	27/11/1967		
6628-7766	662807766				WW	Qpah			8.53	30/11/1944	8.53	30/11/1944										2299	4127	30/11/1944				
6628-7767	662807767				WW	Qpah			6.1	30/01/1968	6.1	30/01/1968						3.96	3.96	5.04	30/01/1968	2615	4686	30/01/1968	7	30/01/1968	0.3	30/01/1968
6628-7768	662807768				WW	Qpah			16.76		16.76											2344	4207					
6628-7769	662807769				WW	Qpah			9.14	25/05/1937	9.14	25/05/1937						3.05	3.05	4.85	25/05/1937	2156	3875	25/05/1937				
6628-7770	662807770				WW	Qpah			6.1	6/01/1969	6.1	6/01/1969						2.13	2.13	5.17	6/01/1969	2485	4456	6/01/1969	6.5	6/01/1969		
6628-7772	662807772				WW	Qpah	9	1/03/1977	9	1/03/1977	9	1/03/1977	1249	8.83		152		3	3	5	1/03/1977	2047	3680	28/07/1977	7.4	28/07/1977		
6628-7773	662807773				WW	Tomw(T1)			112.78	27/06/1935	112.78	27/06/1935						0	0	8.4	27/06/1935	728	1322	27/06/1935			15.16	27/06/1935
6628-7774	662807774				WW	Qpah			11.28	18/09/1934	11.28	18/09/1934						7.62	7.62	3.38	18/09/1934	2584	4630	18/09/1934			0.63	18/09/1934
6628-7782	662807782				WW	Tomw(T1)	144.78	23/11/1945	144.78	23/11/1945	144.78	23/11/1945		122.22		203		11.58	11.58	-5.58	23/10/1946	813	1474	19/10/1949			10.74	24/10/1949
6628-7783	662807783				WW	Qpah			9.14	6/04/1934	9.14	6/04/1934						4.57	4.57	1.43	6/04/1934	1956	3520	6/04/1934			18.95	6/04/1934
6628-7784	662807784				WW	Qpah			9.14	1/01/1934	9.14	1/01/1934						3.66	3.66	2.34	1/01/1934	1959	3525	1/01/1934			18.95	1/01/1934
6628-7785	662807785				WW	Tomw(T1)	174.35	27/08/1934	174.35	27/08/1934	174.35	28/02/1952		112.78		127	UKN	6	6	6	24/08/1935	800	1451	28/02/1952			11.37	1/01/1952
6628-7786	662807786				WW	Qpah			9.75	6/04/1934	9.75	6/04/1934						4.12	4.12	3.88	6/04/1934	1570	2832	6/04/1934			5.05	6/04/1934
6628-7787	662807787				WW	Qpah		1/01/1934	9.14	24/02/1934	9.14	24/02/1934						4.57	4.57	3.43	24/02/1934	2101	3777	14/03/1934			5.05	24/02/1934
6628-7788	662807788				WW	Qpah			17.07		17.07																		
6628-7789	662807789				WW	Qpah																							
6628-7791	662807791	CENTRAL BOTTLE CO-OP			WW	Tomw(T1)			141.73	7/11/1967	0	5/06/1988	94963				BKF					832	1510	25/11/1986	7.3	25/11/1986	15.16	1/01/1967
6628-7802	662807802				WW			1/01/1914	70.1	13/12/1933	70.1	13/12/1933						2.44	2.44	8.46	13/12/1933	799	1449	13/12/1933			7.58	13/12/1933
6628-7806	662807806				WW	Qpah			78.03		78.03																	8.84	
6628-7807	662807807				WW	Qpah			65.53	8/03/1954	65.53	8/03/1954						14.63	14.63	-4.73	8/03/1954	1085	1965	8/03/1954			10.1	8/03/1954
6628-7808	662807808				WW	Qpah	73.15	1/01/1934	73.15	1/01/1934	73.15	10/12/1934		60.96		102		3.35	3.35	5.85	10/12/1934	814	1476	10/12/1934			17.68	10/12/1934
6628-7814	662807814	GOVT PRINTER 2			ENG	Qpah	15.39	19/05/1967	15.39	19/05/1967	15.39	19/05/1967		4.67		152	UKN											
6628-7815	662807815	GOVT PRINTER 1			ENG	Qpah	30.63	15/05/1967	30.63	15/05/1967	30.63	15/05/1967		5.16		152	UKN											
6628-7816	662807816	GOVT PRINTER 3			ENG	Qpah	15.39	6/12/1967	15.39	6/12/1967	15.39	6/12/1967		4.47		152	UKN											
6628-7817	662807817	GOVT PRINTER 5			ENG	Qpah	15.39	31/05/1967	15.39	31/05/1967	15.39	31/05/1967		6.4		152	UKN											
6628-7818	662807818	GOVT PRINTER 4			ENG	Qpah	15.39	25/05/1967	15.39	25/05/1967	15.39	25/05/1967		4.83		152	UKN											
6628-7819	662807819				WW	Qpah	25	10/11/1972	25	10/11/1972	25	10/11/1972					BKF	5	5	4.3	28/01/1973	1530	2760	28/01/1973	7	28/01/1973		
6628-7820	662807820				WW	Qpah	76	8/03/1973	76	8/03/1973	76	8/03/1973		73.34		112		3.25	3.25	6.75	23/11/1975	1225	2336	23/11/1975	7.6	23/11/1975	5.05	23/11/1975
6628-7821	662807821				WW	Qpah			65.53	8/02/1954	65.53	8/02/1954		62.48		102		14.63	14.63	-4.83	8/02/1954	1085	1965	8/02/1954			10.1	8/02/1954
6628-7822	662807822				WW	Qpah			7.62	8/12/1967	7.62	8/12/1967						4.27	4.27	5.63	8/12/1967	1900	3420	8/12/1967	6.7	8/12/1967		
6628-7823	662807823				WW	Qpah	7.62	1/01/1968	7.62	1/01/1968	7.62	23/12/1971		4.27		152		6.1	6.1	1.9	23/12/1971	408	741	23/12/1971	7	23/12/1971	2.53	23/12/1971
6628-7827	662807827				WW	Qpah	15	20/09/1978	15	20/09/1978	15	20/09/1978	4253	15		100		6	6	4	20/09/1978	2227	4000	24/09/1978	7.1	24/09/1978	0.82	20/09/1978
6628-7828	662807828				WW	Qpah	6.1	14/08/1978	6.1	14/08/1978	6.1	3/10/1978	2259	6.09		100	DRN	4.57	4.57	2.73	14/08/1978	1440	2600	14/08/1978	7.7	14/08/1978		
6628-7829	662807829				WW	Qpah	15	1/09/1978	15	1/09/1978	15	1/09/1978	4254	15		100		4.5	4.5	5.5	1/09/1978	849	1540	20/09/1978	6.9	20/09/1978	0.75	1/09/1978
6628-8972	662808972				ENG	Qpah	15	12/01/1979	15	12/01/1979	15	12/01/1979	90047	15		75		3.3	3.3		11/01/1979	2256	4050	1/01/1979	7.6	1/01/1979		
6628-10693	662810693				WW	Qpah	7.31	18/04/1979	7.31	18/04/1979	7.31	18/04/1979	5603	7.31		100	DOM	OPR	3.65	3.65	1.35	18/04/1979	2086	3750	19/04/1979	7.7	19/04/1979	2.5	18/04/1979
6628-10995	662810995		CENT_ADEL	ADE123	WW	Qpah(Q1)	15	20/02/1979	15	20/02/1979	15	20/02/1979	4493	6		100	OBS		1.49	1.49	6.24	4/02/2010	2510	4500	20/02/1979	7.4	20/02/1979	2.5	20/02/1979
6628-11509	662811509				WW	Qpah	3.5	1/01/1979	3.5	1/01/1979	3.5	1/01/1979	6233	3.5		30		1.5	1.5	2.5	1/01/1979	747	1355	1/01/1979				
6628-11549	662811549		CENT_ADEL	ADE119	WW	Qpah(Q1)	10.8	15/04/1980	10.8	15/04/1980	10.8	15/04/1980	90678	10.8		100	OBS		2.66	2.66	4.21	10/09/1984	1945	3500	15/04/1980	7.9	15/04/1980	0.9	15/04/1980
6628-11586	662811586				WW	Qpah	10.97	6/02/1981	10.97	6/02/1981	10.97	6/02/1981	8085	10.97		100		2.13	2.13	3.87	6/02/1981	1923	3460	13/02/1981	7.8	13/02/1981	6.82	6/02/1981
6628-11595	662811595				WW	Qpah	14.32	23/01/1979	14.32	23/01/1979	14.32	23/01/1979	3174	14.32		100		5.48	5.48	2.52	23/01/1979	2294	4190	23/01/1979	7.5	23/01/1979	1.5	23/01/1979
6628-11748	662811748				WW	Qpah		1/01/1980		1/01/1980		1/01/1980	6699									1945	3500	8/02/1980	7.5	8/02/1980		
6628-11772	662811772				WW	Qpah	9	18/09/1981	9	18/09/1981	9	18/09/1981	9381	9		100		3	3	6	18/09/1981	2482	4450	18/09/1981	7.5	18/09/1981	1.5	18/09/1981
6628-11861	662811861				WW	Qpah	6.5	4/04/1981	6.5	4/04/1981	6.5	4/04/1981	8411					4.5	4.5	5.9	4/04/1981	1625	2930	19/11/1981	8.1	19/11/1981		
6628-11893	662811893				WW	Qpah	4		4			28/03/1984					BKF					1951	3510	6/01/1982	7.5	6/01/1982		
6628-11942	662811942				WW	Qpah	7.32	4/01/1979	7.32	4/01/1979	7.32	4/01/1979	90037					3.66	3.66	0.34	4/01/1979	761	1380	19/03/1982	7.3	19/03/1982	1	4/01/1979
6628-11971	662811971				WW	Qpah	10.9	15/04/1982	10.9	15/04/1982	10.9	15/04/1982	10248	10.9		95	DRN		2.7	2.7	6.3	15/04/1982						1.25	15/04/1982
6628-12053	662812053				WW	Qpah	9.1	24/09/1982	9.1	24/09/1982	9.1	24/09/1982	10982	9.1		100	DOM	OPR	3	3	7	24/09/1982	994	1800	24/09/1982	7.8	24/09/1982	1.8	24/09/1982
6628-12054	662812054				WW	Qpah	8.2	15/11/1982	8.2	15/11/1982	8.2	15/11/1982	11065	8.2		95	DOM	OPR	3.6	3.6	4.4	15/11/1982	1845	3320	15/11/1982	7.3	15/11/1982	1	15/11/1982
6628-12099	662812099				WW	Qpah	7.3	14/12/1982	7.3	14/12/1982	7.3	14/12/1982	11444	7.3		95	DOM	OPR	2.1	2.1	5.9	14/12/1982	1463	2640	14/12/1982	7.5	14/12/1982	1.5	14/12/1982
6628-12129	662812129				WW	Qpah	10.9	3/02/1983	10.9	3/02/1983	10.9	3/02/1983	11807	10.9		95			3.6	3.6	3.4	3/02/1983	1804	3250	3/02/1983	7.3	3/02/1983	1.5	3/02/1983
6628-12154	662812154				WW	Qpah	16.7		16.7			23/02/1983	11938	16.7		125	DOM	OPR	5.1	5.1	5.9	23/02/1983	1973	3550	23/02/1983	7.5	23/02/1983	1	23/02/1983
6628-12182	662812182				WW	Qpah	9.1	8/03/1983	9.1	8/03/1983	9.1	8/03/1983	12194	9.1		95			3.04	3.04	4.96	8/03/1983	2171	3900	8/03/1983	7.2	8/03/1983	1.5	8/03/1983
6628-12251	662812251	GH 34	CENT_ADEL	ADE144	WW, ENG	Qpah(Q1)	10.5	14/02/1983	10.5	14/02/1983	10.5	14/02/1983	92582	4.5		33	INV	ABD	4.2	4.29	3.84	21/09/1991							
6628-12289	662812289				WW	Qpah	8	1/01/1983	8	1/01/1983	8	1/01/1983	12434	7		100	IRR	OPR											
6628-12334	662812334				WW	Qpah	9.14	1/06/1983	9.14	1/06/1983	9.14	1/06/1983	12692	9.14		102		BKF					2199	3950	1/04/1983	7.4	1/04/1983		
6628-12363	662812363				WW	Qpah	7.3		7.3		7.3	2/06/1983	12867					1.5	1.5	3.7	2/06/1983	2909	5200	2/06/1983			1	2/06/1983
6628-12366	662812366				WW	Qpah	10	4/06/1983	10	4/06/1983	10	4/06/1983	12869	10		150			7	7	4.7	4/06/1983	2284	4100	20/05/1983	7.2	20/05/1983		
6628-12452	662812452	DUAL COMPLETION	CENT_ADEL	ADE146	WW	Tomw(T2)	258	25/08/1983	258	25/08/1983	256.5	25/08/1983	92514	253.5		50	OBS		0.18	-0.18	6.22	9/09/2024	813	1474	19/03/1986	8.1	19/03/1986		
6628-12478	662812478				WW	Qpah	14.6	23/02/1982	14.6	23/02/1982	14.6	23/02/1982	91876	14.6		95	DRN	OPR	3	3	4	23/02/1982						2	1/01/1983
6628-12479	662812479				WW	Qpah	9	19/08/1983	9	19/08/1983	9	19/08/1983	13247	9		100	DOM	OPR	4	4	3	19/08/1983	1608	2900	5/09/1983	8.1	5/09/1983	0.5	19/08/1983
6628-12536	662812536				WW	Qpah	14.6	1/11/1983	14.6	1/11/1983	14.6	1/11/1983	93116	14.6		100	DRN	OPR											
6628-12537	662812537				WW	Qpah	8	28/10/1983	8	28/10/1983	8	28/10/1983	11689	6		102			2	2	4.5	28/10/1983	1479	2670	1/11/1983	8	1/11/1983		
6628-12562	662812562				WW	Qpah	7.3	13/09/1983	7.3	13/09/1983	7.3	13/09/1983	13132	7.3		75			1.8	1.8	7.2	13/09/1983	938	1700	13/09/1983	5.9	13/09/1983	1.6	13/09/1983
6628-12664	662812664				WW	Qpah	12.6	15/12/1983	12.6	15/12/1983	12.6	15/12/1983	12406	12.6		95	DOM	OPR	3.3	3.3	3.7	15/12/1983	2113	3799	15/12/1983	7.7	15/12/1983	1.6	15/12/1983
6628-12799	662812799				WW	Qpah	10.8	17/02/1984	10.8	17/02/1984	10.8	17/02/1984	13947	10.8		95	DRN	OPR	2.4	2.4	4.6	17/02/1984	1754	3160	17/02/1984			1.6	17/02/1984
6628-12800	662812800				WW	Qpah	11	31/01/1984	11	31/01/1984	11	31/01/1984	12070	11		95	DOM	OPR	4	4	3	31/01/1984	2199	3950	31/01/1984			1.5	31/01/1984
6628-12822	662812822				WW	Qpah	14	1/03/1984	14	1/03/1984	14	1/03/1984	14009	14		100	DOM	OPR					1867	3360	1/03/1984	7.4	1/03/1984	0.5	1/03/1984
6628-12855	662812855				WW	Qpah	18	2/04/1984	18	2/04/1984	18	2/04/1984	14327	18		100	DOMSTK	OPR					1828	3292	3/02/1989	7.8	3/02/1989	0.6	2/04/1984
6628-12974	662812974				WW	Qpah	4.7	1/01/1984	4.7	1/01/1984	4.7	1/01/1984	13505	2.2		208	DOM	OPR	2.2	2.2	3.7	1/01/1984							
6628-12979	662812979				WW	Tomw(T1)	226	9/07/1984	226	9/07/1984	226	9/07/1984	93631	192		152	IRR	OPR	12	12	0.4	9/07/1984	1033	1871	7/08/2013	7.8	26/07/1984	10	9/07/1984
6628-12982	662812982				WW	Qpah	8	30/05/1984	8	30/05/1984	8	30/05/1984	14559	8		75			2	2	4	30/05/1984							
6628-12994	662812994				WW	Qpah	12.8	22/11/1983	12.8	22/11/1983	12.8	22/11/1983	13401	12.8		95	DOM	OPR	4.2	4.2	6.8	22/11/1983						1.5	22/11/1983
6628-12995	662812995				WW	Qpah	13	21/11/1983	13	21/11/1983	13	21/11/1983	13650	13		95	DOM	OPR	2	2	5	21/11/1983						1.5	21/11/1983
6628-13027	662813027				WW	Qpah	10.97	27/07/1984	10.97	27/07/1984	10.97	27/07/1984	15090	10.97		102	DOM	OPR	5.48	5.48	5.52	27/07/1984	1906	3430	21/09/1984	7.4	21/09/1984	1.51	27/07/1984

Unit_No	Unit_Number	dh_name	network	Obs_No	drillhole_class	Aquifer	Orig_drilled_depth	Orig_drilled_date	max_drill_depth	max_drill_date	late_open_depth	late_open_date	late_permit_no	cased_to	case_min_diam	purpose	latest_status	dtw	swl	rswl	water_level_date	TDS	EC	salinity_date	pH	pH_date	yield	yield_date
6628-13056	662813056				WW	Qpah	5	15/10/1984	5	15/10/1984	5	15/10/1984	15281	2	1	DOM		2	2	1	15/10/1984	4085	7240	15/10/1984	6.8	15/10/1984	0.25	15/10/1984
6628-13081	662813081				WW	Qpah	11	14/09/1984	11	14/09/1984	11	14/09/1984	15280	11	100	DOM	OPR	4	4	4	14/09/1984	2132	3830	14/09/1984	7.2	14/09/1984	1.5	14/09/1984
6628-13125	662813125				WW	Qpah	30	28/12/1984	30	28/12/1984	30	28/12/1984	93931	30	100	IRR	OPR	6	6	2.2	28/12/1984	1923	3460	3/01/1985	7.6	3/01/1985	1	28/12/1984
6628-13191	662813191				WW	Qpah	9.1	8/01/1985	9.1	8/01/1985	9.1	8/01/1985	16077	9.1	95	DOM	OPR	3	3	8	8/01/1985						0.5	8/01/1985
6628-13192	662813192				WW	Qpah	4.3	14/09/1984	4.3	14/09/1984	4.3	14/09/1984	15235	4.3	32	DOM	OPR	1.8	1.8	2.2	14/09/1984	929	1684	14/09/1984	7.3	14/09/1984	1	14/09/1984
6628-13228	662813228				WW	Qpah	5.6	4/03/1985	5.6	4/03/1985	5.6	4/03/1985	14580	5.6	75	MON	OPR	3.5	3.5	3.9	4/03/1985	2301	4130	5/03/1985	7.4	5/03/1985		
6628-13232	662813232				WW	Qpah	10	28/12/1984	10	28/12/1984	10	28/12/1984	15383	8	152			3.5	3.5	4.5	28/12/1984						1.26	28/12/1984
6628-13237	662813237				WW	Qpah	9.1	16/01/1985	9.1	16/01/1985	9.1	16/01/1985	15234	9.1	50	IRR	OPR	3	3	1	16/01/1985	2216	3980	16/01/1985	7.6	16/01/1985	0.25	16/01/1985
6628-13264	662813264				WW	Qpah	11	29/11/1984	11	29/11/1984	11	29/11/1984	15656	11	95	DOM	OPR	2	2	7	29/11/1984						1.25	29/11/1984
6628-13273	662813273				WW	Qpah	20	10/03/1984	20	10/03/1984	20	10/03/1984	16232	20	100	DOM	OPR					2160	3880	10/03/1985	7.7	10/03/1985	2.5	10/03/1984
6628-13275	662813275				WW	Qpah	10	29/03/1985	10	29/03/1985	10	29/03/1985	16433	10	100	DOM	OPR	2	2	6	29/03/1985	2426	4350	29/03/1985	7.5	29/03/1985	0.5	29/03/1985
6628-13286	662813286				WW	Qpah	9.1	28/02/1985	9.1	28/02/1985	9.1	28/02/1985	16256	9.1	95	DRN	OPR	3	3	4	28/02/1985	2347	4210	28/02/1985	7.5	28/02/1985	1.5	28/02/1985
6628-13395	662813395				WW	Qpah	11	10/07/1985	11	10/07/1985	11	10/07/1985	16839	11	95			3.7	3.7	4.3	10/07/1985	2143	3850	10/07/1985	7.3	10/07/1985	1.5	
6628-13452	662813452				WW	Qpah	13	12/09/1985	13	12/09/1985	13	12/09/1985	16837	13	95			4.5	4.5	1.5	12/09/1985	1620	2920	12/09/1985	7.9	12/09/1985	5	
6628-13540	662813540				WW	Qpah	14	8/01/1986	14	8/01/1986	14	8/01/1986	17710	10	100	DOM	OPR	2.1	2.1	3.9	16/01/1986	2426	4350	8/01/1986	7.8	8/01/1986	0.5	1/01/1985
6628-13564	662813564				WW	Qpah	7.9	3/01/1986	7.9	3/01/1986	7.9	3/01/1986	17595	7.9	100	DOM	OPR	2.4	2.4	6.6	24/01/1986	2088	3754	3/01/1986	7.3	3/01/1986	1	3/01/1986
6628-13590	662813590				WW	Qpah	11	14/02/1986	11	14/02/1986	11	14/02/1986	18019	11	95			3	3	7	13/03/1986	2517	4510	24/03/1987	7.4	24/03/1987	1	14/02/1986
6628-13617	662813617				WW	Qpah	9.1	12/03/1986	9.1	12/03/1986	9.1	12/03/1986	18058	9.1	95	DRN	OPR	2.4	2.4	7.6	12/03/1986						1.25	12/03/1986
6628-13618	662813618				WW	Qpah	9.1	12/03/1986	9.1	12/03/1986	9.1	12/03/1986	18059	9.1	95	DRN	OPR	2.4	2.4	7.6	12/03/1986						1.25	12/03/1986
6628-13619	662813619				WW	Qpah	9.1	12/03/1986	9.1	12/03/1986	9.1	12/03/1986	18057	9.1	95	DRN	OPR	2.4	2.4	7.6	16/04/1986	2443	4380	12/03/1986	7.3	12/03/1986	1.25	12/03/1986
6628-13621	662813621				WW	Qpah	9.1	28/03/1986	9.1	28/03/1986	9.1	28/03/1986	18156	9.1	100			3	3	5	16/04/1986	1984	3570	24/03/1986	7.5	24/03/1986	1.2	28/03/1986
6628-13630	662813630				WW	Qpah	11	1/01/1986	11	1/01/1986	11	1/01/1986	17791	11	152			4	4	7	8/05/1986	2295	4120	6/05/1986	7.3	1/01/1986	0.76	6/05/1986
6628-13846	662813846				WW	Qpah	12.5	1/08/1983	12.5	1/08/1983	12.5	1/08/1983	12055	12.1	100			4.6	4.6	6.4	1/08/1983	1889	3400	1/11/1983	7.9	1/11/1983	0.1	1/08/1983
6628-13849	662813849				WW	Qpah	10	1/01/1987	10	1/01/1987	10	1/01/1987	19161	10	102			4	4	4	1/01/1987						0.63	20/01/1987
6628-13864	662813864				WW	Qpah	11	19/01/1987	11	19/01/1987	11	19/01/1987	19178	11	95			2.1	2.1	5.9	22/01/1987	2194	3940	22/01/1987	6.9	19/01/1987	1.25	19/01/1987
6628-13899	662813899				WW	Qpah	11	4/02/1987	11	4/02/1987	11	4/02/1987	19229	11	95			3	3	4	13/03/1987	1754	3160	13/03/1987	7.3	4/02/1987	1.25	4/02/1987
6628-13900	662813900				WW	Qpah	13.7	27/06/1986	13.7	27/06/1986	13.7	27/06/1986	18544	13.7	95			7.3	7.3	2.7	13/03/1987	2460	4410	13/03/1987	6.9	27/06/1986	1.2	27/06/1986
6628-13912	662813912				WW	Qpah	9	1/03/1987	9	1/03/1987	0	19/01/2006	19527				BKF	3	3	7	25/03/1987	1917	3450	25/03/1987	7.4	24/03/1987	0.3	1/03/1987
6628-13913	662813913				WW	Qpah	10	1/03/1987	10	1/03/1987	10	1/03/1987	19552	10	100			8	8	4	25/03/1987	1479	2670	25/03/1987	7.6	24/03/1987	0.4	1/03/1987
6628-13924	662813924				WW	Qpah	11	1/02/1976	11	1/02/1976	11	1/02/1976	19455	11	100			4	4	6	2/04/1987	2727	4880	2/04/1987	7.6	1/01/1987	0.3	1/02/1987
6628-13941	662813941				WW	Qpah	12.5	1/04/1987	12.5	1/04/1987	12.5	1/04/1987	19704	9	150			5.5	5.5	4.5	29/04/1987	1608	2900	29/04/1987	7	1/01/1987	0.5	1/04/1987
6628-14020	662814020				WW	Qpah	13	1/01/1983	13	1/01/1983	13	1/01/1983	12887	12	100			4	4	4	1/01/1983	2397	4300	1/01/1983	6.7	1/01/1983	0.3	1/01/1983
6628-14024	662814024				WW	Qpah	8	1/07/1987	8	1/07/1987	8	1/07/1987	19774	8	160	DRN		5.5	5.5	5.3	2/11/1987	2312	4150	2/11/1987	8.7	1/01/1987		
6628-14185	662814185				WW	Qpah	14	29/04/1988	14	29/04/1988	14	29/04/1988	20955	14	100			4	4	3	29/04/1988	1995	3590	8/04/1988	7.2	29/03/1988	0.5	8/04/1988
6628-14193	662814193				WW	Qpah	9.14	4/06/1987	9.14	4/06/1987	9.14	4/06/1987	19948	9.14	102	DRN	OPR	3.05	3.05	3.55	2/05/1988	1770	3190	2/05/1988	7.2	1/01/1987	0	
6628-14229	662814229				WW	Tomw(T1)	138	5/06/1988	138	5/06/1988	0	2/12/1998	47117			IND	BKF	3.6	3.6	2.7	6/07/1988	849	1540	6/07/1988			20	31/05/1988
6628-14278	662814278				WW	Qpah	8.5	3/03/1988	8.5	3/03/1988	8.5	3/03/1988	20912	8.5	32			2	2	2	19/10/1988	1216	2200	19/10/1988	8.1	3/03/1988	40	3/03/1988
6628-14333	662814333				WW	Qpah	11	3/01/1989	11	3/01/1989	11	3/01/1989	20735	11	100	DOM	OPR	4	4	1	3/01/1989						0.5	3/01/1989
6628-14356	662814356				WW	Qpah	8	1/07/1988	8	1/07/1988	8	1/07/1988	21246	8	150	DOM	OPR	3	3	5	11/10/1988	1826	3290	11/10/1988	7.4	1/07/1988	0.25	1/07/1988
6628-14359	662814359				WW	Qpah	10	1/07/1988	10	1/07/1988	10	1/07/1988	21227	10	150	DOM	OPR	5	5	5	11/10/1988	1928	3470	11/10/1988	7.8	1/07/1988	0.3	1/07/1988
6628-14395	662814395				WW	Qpah	11.1	5/04/1989	11.1	5/04/1989	11.1	5/04/1989	22576	11.1	100	DOM	OPR	2.1	2.1	1.9	8/05/1989	1479	2670	8/05/1989	7.6	5/04/1989	1.2	5/04/1989
6628-14396	662814396				WW	Qpah	12	5/04/1989	12	5/04/1989	12	5/04/1989	22586	12	100	DOM	OPR	2.1	2.1	1.9	8/05/1989	1697	3059	8/05/1989	7.6	5/04/1989	1.2	5/04/1989
6628-14432	662814432				WW	Qpah	12	22/05/1989	12	22/05/1989	12	22/05/1989	22962			DOM	OPR					1979	3561	19/07/1989	7.4			
6628-14503	662814503				WW	Qpah	12	10/10/1988	12	10/10/1988	12	10/10/1988	21795	12	100	DOM	OPR	6	6	0	19/10/1988	2909	5200	19/10/1988	7.4	10/10/1988	0.2	10/10/1988
6628-14513	662814513 GH 1				ENG	Qpah	10	7/05/1980	10	7/05/1980	10	7/05/1980				INV	ABD											
6628-14635	662814635				WW	Qpah	5.5	1/01/1987	5.5	1/01/1987	5.5	1/01/1987	23280	3	150	IRR	OPR	5.3	5.3	2.7	1/01/1987						0.01	1/01/1987
6628-14965	662814965				WW	Qpah	9.7	23/09/1989	9.7	23/09/1989	9.7	23/09/1989	22872	9.7	50	DOM	OPR	2.4	2.4	2.6	16/10/1989	2227	4000	16/10/1989	7.5	25/09/1989	1	23/09/1989
6628-14967	662814967				WW	Qpah	17		17		17		23360	17	100	DOM	OPR	7.6	7.6	4.4	16/10/1989	1502	2709	16/10/1989	7.3		1.2	
6628-14971	662814971				WW	Qpah	11.2		11.2		11.2		23361	11.2	100	DOM	OPR	4.1	4.1	1.9	20/10/1989	1133	2051	20/10/1989	7.4		1.2	
6628-14997	662814997				WW	Qpah	9	1/08/1988	9	1/08/1988	9	1/08/1988	20990	9	150	DRN		8	8	3.6	1/08/1989							
6628-15120	662815120				WW	Qpah	12	15/11/1989	12	15/11/1989	12	15/11/1989	23263	12	100	DOM	OPR	2.3	2.3	2.7	28/11/1989	2426	4350	28/11/1989	7.8	15/11/1989	2.1	15/11/1989
6628-15121	662815121				WW	Qpah	8	14/10/1989	8	14/10/1989	8	14/10/1989	23291	8	100	DOM	OPR	2.4	2.4	3.6	20/11/1989	2354	4222	20/11/1989	7.7	14/10/1989	1.2	14/10/1989
6628-15204	662815204				WW	Qpah	10	28/01/1990	10	28/01/1990	10	28/01/1990	23772	10	102	DOM	OPR	6	6	0.5	6/02/1990	1968	3540	6/02/1990	7.6	28/01/1990		
6628-15234	662815234				WW	Qpah	10.5	2/03/1990	10.5	2/03/1990	10.5	2/03/1990	24602	10.5	100	DRN		2.8	2.8	3.2	4/04/1990	1078	1951	4/04/1990	7.7	2/02/1990	1.2	2/03/1990
6628-15262	662815262				WW	Qpah	14	18/04/1990	14	18/04/1990	14	18/04/1990	24161	14	100	DOM	OPR	7	7	1	16/05/1990	1912	3440	18/09/1990	7.6	18/09/1990		
6628-15265	662815265				WW	Qpah							5625			DRN												
6628-15384	662815384				WW	Qpah	12	17/10/1990	12	17/10/1990	12	17/10/1990	24656	12	100	DOM	OPR					1984	3570	12/11/1990	7.9	18/10/1990		
6628-15386	662815386				WW	Qpah	11	17/10/1990	11	17/10/1990	11	17/10/1990	24759	11	95	DOM	OPR	4	4	2	12/11/1990	1351	2440	12/11/1990	7.9	19/10/1990		
6628-15401	662815401				WW	Qpah	9	19/12/1990	9	19/12/1990	9	19/12/1990	25064	8.5	152	DOM	OPR	4	4	3.9	19/12/1990							
6628-15402	662815402				WW	Qpah	10	8/01/1991	10	8/01/1991	10	8/01/1991	25059	10	152	DOM	OPR	4	4	3.8	8/01/1990							
6628-15440	662815440				WW	Qpah	9.6	4/12/1990	9.6	4/12/1990	9.6	4/12/1990	24850	9.6	95	IRR	OPR	2.4	2.4	0.6	4/12/1990	3539	6300	4/12/1990	7.9	4/12/1990	1.25	4/12/1990
6628-15510	662815510				WW	Qpah	13	8/04/1991	13	8/04/1991	13	8/04/1991	25471	13	80	DOM	OPR	7	7	-5.26	8/04/1991							
6628-15525	662815525				WW	Qpah	10.3	20/04/1991	10.3	20/04/1991	10.3	20/04/1991	25418	10.3	102	DOM	OPR	4	4	3.3	20/04/1991							
6628-15605	662815605				WW	Qpah	9.8	26/08/1991	9.8	26/08/1991	9.8	26/08/1991	25721	9.8	102	DOMOBS	OPR	4	4	4.1	26/08/1991							
6628-15609	662815609				WW	Qpah	9	4/09/1991	9	4/09/1991	9	4/09/1991	26056	9	100	DOM	OPR	2.4	2.4	3.7	20/09/1991	1428	2579	20/09/1991	7.4	20/09/1991	1	4/09/1991
6628-15610	662815610				WW	Qpah	10.5	21/08/1991	10.5	21/08/1991	10.5	21/08/1991	25360	10.5	100	DOM	OPR	3.6	3.6	2.4	23/09/1991	1878	3381	23/09/1991	7.9	21/08/1991	1.5	21/08/1991
6628-15631	662815631				WW	Qpah	9	20/09/1991	9	20/09/1991		20/09/1991	26152	9	95	DOM	OPR	3	3	3.1		1010	1829	20/09/1991	7.9	20/09/1991		
6628-15632	662815632				WW	Qpah	9	20/09/1991	9	20/09/1991	9	20/09/1991	25312	9	95	DOM	OPR	3.5	3.5	0.5	20/09/1991	933	1691	20/09/1991	7.8	20/09/1991	1	20/09/1991
6628-15714	662815714				WW	Qpah	11	4/11/1991	11	4/11/1991	11	4/11/1991	26355	11	100	DOM	OPR	4	4	2	4/11/1991	1100	1991	4/11/1991	7.1	4/11/1991	1	4/11/1991
6628-15715	662815715				WW	Qpah	12	1/11/1991	12	1/11/1991	12	1/11/1991	26209	12	100	DOM	OPR	4	4	4	1/11/1991	1799	3241	1/11/1991	7.2	1/11/1991	2.5	1/11/1991
6628-15731	662815731				WW	Qpah	9	30/03/1991	9	30/03/1991	9	30/03/1991	25548			DOM	OPR	5	5	3	30/03/1991	1973	3550	30/03/1991	7.1	30/03/1991		
6628-15738	662815738				WW	Qpah	12	21/11/1991	12	21/11/1991	12	21/11/1991	26454	12	95	DOM	OPR	4	4	1.2	21/11/1991	2375	4261	21/11/1991	7.8	21/11/1991	1.2	21/11/1991
6628-15794	662815794				WW	Qpah	12	10/12/1991	12	10/12/1991	12	10/12/1991	26317	12	95	DOM	OPR	4	4	4	10/12/1991	2008	3611	10/12/1991	7.3	10/12/1991	1.2	10/12/1991
6628-15822	662815822				WW	Qpah	10	1/11/1991	10	1/11/1991	10	1/11/1991	95873	10	100	DRN		4	4	4.4	1/11/1991	2056	3700	1/11/1991	7.4	1/11/1991	1.5	1/11/1991
6628-15857	662815857				WW	Qpah	15	14/01/1992	15	14/01/1992	15	14/01/1992	26767	15	100	DOM	OPR	4.5	4.5	1.8	20/01/1992	2432	4361	20/01/1992	7.2	14/01/1992		
6628-15859	662815859				WW	Qpah	13	16/11/1991	13	16/11/1991	13	16/11/1991	26354	13	100	DOM	OPR	3.6	3.6	3.1	17/01/1992	2421	4341	17/01/1992	7.7	16/11/1991	0.2	16/11/1991
6628-15873	662815873				WW	Qpah	15	2/02/1991	15	2/02/1991	15	2/02/1991	26859	15	95	DOM	OPR	8	8	4.3	10/02/1992	1513	2729	10/02/1992	7.8	2/02/1992	1.1	2/02/1991
6628-15918	662815918				WW	Qpah	7	4/02/1992	7	4/02/1992	7	4/02/1992	26958	6.5	5	DOM	OPR	2	2	2.5	2/03/1992	1256	2271	2/03/1992	7.8	1/02/1992	0.8	4/02/1992
6628-15941	662815941				WW	Qpah	13.5	19/02/1992	13.5	19/02/1992	13.5	19/02/1992	27031	13.5	95	DOM	OPR	6	6	5.5	24/03/1992	2054	3692	24/03/1992	7.7	19/02/1992	0.6	19/02/1992
6628-16016	662816016				WW	Qpah	13.5	16/04/1992	13.5	16/04/1992	13.5	16/04/1992	27541	13.5	95	DRN	OPR	4	4	5.2	14/05/1992	77	140	14/05/1992	7.2	16/04/1992	1	16/04/1992
6628-16079	662816079				WW	Qpah	10	9/02/1992	10	9/02/1992	10	9/02/1992	26645	7	100	DOM	OPR											
6628-16080	662816080				WW	Qpah	14.2	24/06/1992	14.2	24/06/1992	14.2	24/06/1992	27868	14	100	DOM	OPR	7	7	2.7	24/06/1992	2306	4139	24/06/1992	7.1	24/06/1992	2	24/06/1992
6628-16170	662816170				WW	Qpah	15.2	26/10/1992	15.2	26/10/1992	15.2	26/10/1992	28422	15.2	100	DOM	OPR	5	5	2.3	29/10/1992	2194	3940	29/10/1992	7.8	26/10/1992	1.5	26/10/1992
6628-16239	662816239				WW	Qpah			12	24/01/1993		24/01/1993	28861	12	100	DOM		4	4	2.8	25/02/1993	1681	3030	25/02/1993	6.4	25/02/1993	2.5	24/01/1993
6628-16331	662816331				WW	Qpah	18	21/04/1993	18	21/04/1993	15	21/04/1993	29471	15	100	DOM						2204	3959	3/05/1993	7.1	3/05/1993		
6628-16332	662816332				WW	Qpah	21	12/04/1993	21	12/04/1993	21	12/04/1993	29223	21	100	DOM						2357	4231	3/05/1993	6.9	3/05/1993		
6628-16337	662816337				WW	Qpah	15	22/03/1993	15	22/03/1993	15	22/03/1993	29101	15	100	DOM						2233	4011	24/03/1993	7.2	24/03/1993		
6628-16338	662816338				WW	Qpah	13	26/10/1989	13	26/10/1989	13	26/10/1989	23349	13	100	DOM		4	4	4.6								
6628-16339	662816339				WW	Qpah(Q1)	15	21/12/1992	15	21/12/1992	15	21/12/1992	28693	15	100	DOM						807	1463	30/04/2012	7.3	6/01/1993		
6628-16341	662816341				WW	Qpah	18	13/03/1993	18	13/03/1993	18	13/03/1993	28968	18	100	DOM						1922	3459	24/03/1993	7.4	24/03/1993		
6628-16343	662816343				WW	Qpah	12	27/01/1993	12	27/01/1993	12	27/01/1993	28522	12	95	DRN		5	5	4.4	2/03/1993	2218	4161	2/03/1993	7.1	2/03/1993	1.5	27/01/1993
6628-16344	662816344				WW	Qpah	13.5	7/11/1992	13.5	7/11/1992	13.5	7/11/1992	28473	13.5	95	DOM						2194	3940	24/11/1992	7.4	24/11/1992	1	7/11/1992
6628-16345	662816345				WW	Qpah	7.6	14/02/1993	7.6	14/02/1993	7.6	14/02/1993	28689			DOM						2165	3890	17/03/1993	7.8	17/03/1993	0.77	14/02/1993
6628-16346	662816346				WW	Qpah	15	6/11/1992	15	6/11/1992	15	6/11/1992	27822	15	190	DRN						1658	2990	24/11/1992	7.2	24/11/1992	0.5	6/11/1992
6628-16451	662816451				WW	Qpah	8	24/09/1993	8	24/09/1993	8	24/09/1993	30097	4	102							994	1800	24/09/1993	7.1	24/09/1993	0.3	24/09/1993
6628-16509	662816509				WW	Qpah	12	20/10/1993	12	20/10/1993	12	20/10/1993	30339	12	95	DOM						2154	3870	15/12/1993	6.9	15/12/1993	1.2	20/10/1993
6628-16598	662816598				WW	Qpah	15	11/03/1994	15	11/03/1994	15	11/03/1994	31280	15	100	DOM						2267	4070	30/03/1994	7.1	30/03/1994		
6628-16599	662816599				WW	Qpah	15	2/04/1994	15	2/04/1994	15	2/04/1994	31316	12	100	DOM						2075	3730	7/04/1994	7.3	7/04/1994		
6628-16600	662816600				WW	Qpah	6	1/03/1994	6	1/03/1994	6	1/03/1994	31125	6	152	DOM		3.6	3.6	3.8	1/03/1994	1792	3170	1/03/1994	8.2	1/03/1994		
6628-16674	662816674				WW	Qpah	14	7/04/1994	14	7/04/1994	14	7/04/1994	31456	14	100	DRN						947	1714	7/04/1994	6.7	7/04/1994		
6628-16675	662816675				WW	Qpah	10.66	14/02/1990	10.66	14/02/1990	10.66	14/02/1990	23791	10.66	102	DOM		9.14	9.14	-1.74	14/02/1990						0.3	14/02/1990
6628-16702	662816702				WW	Qpah	12	17/08/1994	12	17/08/1994	12	17/08/1994	32359	12	100	DRN											0.5	17/08/1994
6628-16722	662816722				WW	Qpah	16	1/11/1994	16	1/11/1994	16	1/11/1994	32809	16	100	DOM						2437	4370	1/11/1994	6.8	1/11/1994		
6628-16723	662816723				WW	Qpah	18	27/10/1994	18	27/10/1994	18	27/10/1994	32814	18	100	DOM						1895	3410	27/10/1994	6.3	27/10/1994	60	27/10/1994
6628-16748	662816748				WW	Qpah	12	3/08/1994	12	3/08/1994	12	3/08/1994	32241	12	100	DOM						927	1680	3/08/1994	7.3	3/08/1994	4	3/08/1994
6628-16778	662816778				WW	Qpah	14	14/10/1994	14	14/10/1994	14	14/10/1994	32602	14	100	DOM						2064	3710	1/01/1995	6.2	1/01/1995	0.8	14/10/1994
6628-16808	662816808				WW	Qpah	20.5	29/11/1994	20.5	29/11/1994	20.5	29/11/1994	32710	20.5	100	DOM						1222	2210	29/11/1994	6.7	29/11/1994		
6628-16811	662816811				WW	Qpah	12	28/11/1994	12	28/11/1994	12	28/11/1994	33033	12	100	DOM						1600	2870	24/02/2005	7.8	24/02/2005		

Unit_No	Unit_Number	dh_name	network	Obs_No	drillhole_class	Aquifer	Orig_drilled_depth	Orig_drilled_date	max_drill_depth	max_drill_date	late_open_depth	late_open_date	late_permit_no	cased_to	case_min_diam	purpose	latest_status	dtw	swl	rswl	water_level_date	TDS	EC	salinity_date	pH	pH_date	yield	yield_date
6628-16882	662816882				WW	Qpah	18	15/02/1995	18	15/02/1995	18	15/02/1995	33792	18		DOM						2227	4000	15/02/1995	7.2	15/02/1995		
6628-16885	662816885				WW	Qpah	17.5	2/01/1995	17.5	2/01/1995	17.5	2/01/1995	33512	15	100	DOM											4	2/01/1995
6628-16904	662816904				WW	Qpah	22.5	12/11/1994	22.5	12/11/1994	22.5	12/11/1994	32857	22.5		DOM						2025	3640	12/11/1994	7.1	12/11/1994	1	12/11/1994
6628-16906	662816906				WW	Qpah	18	23/12/1994	18	23/12/1994	18	23/12/1994	33199	18	100	DOM						1546	2790	23/12/1994	6.9	23/12/1994	1	23/12/1994
6628-16933	662816933				WW	Qpah	23	27/11/1994	23	27/11/1994	23	27/11/1994	32872	23	150	ENVRCL						2664	4770	27/11/1994	7	27/11/1994	3	27/11/1994
6628-16934	662816934				WW	Qpah	12	11/02/1995	12	11/02/1995	12	11/02/1995	33497	12	100	DOM						1979	3560	11/02/1995	7	11/02/1995		
6628-16962	662816962				WW	Qpah	15	30/12/1994	15	30/12/1994	15	30/12/1994	33251	13.5	100	DOM						1995	3590	30/12/1994	6.9	30/12/1994		
6628-16966	662816966				WW	Qpah	15	3/01/1995	15	3/01/1995	10.5	3/01/1995	33195	10.5	100	DOM						2488	4460	3/01/1995	7.1	3/01/1995		
6628-17000	662817000	SZ 2			ENG	Qpah	15.2		15.2		15.2																	
6628-17003	662817003	SZ 4			ENG	Qpah	13.6	4/08/1993	13.6	4/08/1993	13.6	4/08/1993																
6628-17021	662817021	SZ 32			ENG	Qpah	6.4	24/02/1994	6.4	24/02/1994	6.4	24/02/1994					UKN											
6628-17022	662817022	SZ 33			ENG	Qpah	6.7		6.7		6.7																	
6628-17026	662817026	SZ 39			ENG	Qpah	4.13		4.13		4.13																	
6628-17030	662817030	SZ 44			ENG	Qpah	1.5		1.5		1.5																	
6628-17106	662817106				WW	Qpah	12	10/03/1995	12	10/03/1995	12	10/03/1995	34269	12	100	DOM						2121	3810	10/03/1995	6.8	10/03/1995		
6628-17138	662817138	BH 10			WW	Qpah	8	9/02/1995	8	9/02/1995	8	9/02/1995	34178	8	50	INV												
6628-17139	662817139	BH 18			WW	Qpah	8	9/02/1995	8	9/02/1995	8	9/02/1995	34178	7.5	50	INV												
6628-17140	662817140	BH 21			WW	Qpah	8	9/02/1995	8	9/02/1995	8	9/02/1995	34178	8	50	INV												
6628-17141	662817141	BH 22			WW	Qpah	8.5	9/02/1995	8.5	9/02/1995	8.5	9/02/1995	34178	8.5	50	INV												
6628-17142	662817142				WW	Qpah	18	3/04/1995	18	3/04/1995	18	3/04/1995	34613	18	100	DOM						2108	3790	3/04/1995	7.6	3/04/1995	1.5	3/04/1995
6628-17160	662817160				WW	Qpah	16	28/02/1995	16	28/02/1995	16	28/02/1995	34327	16	100	DOM						2397	4300	28/02/1995	7.2	28/02/1995		
6628-17174	662817174				WW	Qpah	24	25/03/1995	24	25/03/1995	24	25/03/1995	34641	24	100	DOM						2369	4250	25/03/1995	7.1	25/03/1995	3	25/03/1995
6628-17238	662817238				WW	Qpah	16.5	26/04/1995	16.5	26/04/1995	16.5	26/04/1995	34172	16.5	100	DOM						1647	2970	26/04/1995	7.3	26/04/1995		
6628-17239	662817239				WW	Qpah	18	9/05/1995	18	9/05/1995	18	9/05/1995	34784	18	100	DOM						2262	4060	9/05/1995	7	9/05/1995	5	9/05/1995
6628-17317	662817317				WW	Qpah	12	10/07/1995	12	10/07/1995	12	10/07/1995	33784	12	100	DOM						1872	3370	10/07/1995	7.2	10/07/1995		
6628-17322	662817322				WW	Qpah	14	28/06/1995	14	28/06/1995	14	28/06/1995	34890	14	100	DOM						2075	3730	28/06/1995	7.2	28/06/1995	2.5	28/06/1995
6628-17329	662817329				WW	Qpah	30	9/08/1995	30	9/08/1995	30	9/08/1995	35035	29	94	DOM						1094	1980	9/08/1995			0.5	9/08/1995
6628-17331	662817331				WW	Qpah	16.5	7/09/1995	16.5	7/09/1995	16.5	7/09/1995	35303	16.5	100	DOM		4.6	4.6	0.6	7/09/1995	2426	4350	25/08/2001	7.6	7/09/1995	1	7/09/1995
6628-17332	662817332				WW	Qpah	9.5	21/07/1995	9.5	21/07/1995	9.5	21/07/1995	35387	9.5	100	DOM						2245	4030	21/07/1995	7.1	21/07/1995	1.25	21/07/1995
6628-17334	662817334				WW	Qpah	15	8/09/1995	15	8/09/1995	15	8/09/1995	35470	15	100	DOM						1984	3570	8/09/1995	6.9	8/09/1995		
6628-17410	662817410				WW	Qpah	16	19/10/1995	16	19/10/1995	16	19/10/1995	35900	16	100	DOM						2510	4500	19/10/1995	7.6	19/10/1995	2	19/10/1995
6628-17470	662817470				WW	Qpah	16.2	14/11/1995	16.2	14/11/1995	16.2	14/11/1995	36179	16.2	100	DOM		6.7	6.7	5.5	14/11/1995	1412	2550	14/11/1995	6.4	14/11/1995	1	14/11/1995
6628-17472	662817472				WW	Qpah	12.5	15/11/1995	12.5	15/11/1995	12.5	15/11/1995	36176	12.5	100	DOM											2	15/11/1995
6628-17478	662817478				WW	Qpah	17	9/11/1995	17	9/11/1995	17	9/11/1995	36215	17	100	DOM						1810	3260	9/11/1995	7.3	9/11/1995	1.5	9/11/1995
6628-17546	662817546				WW	Qpah	18	27/10/1995	18	27/10/1995	18	27/10/1995	35958	18		DOM						2835	5070	27/10/1995	7.3	27/10/1995	0.5	27/10/1995
6628-17555	662817555				WW	Qpah	18	9/01/1996	18	9/01/1996	18	9/01/1996	36616	18	100	DOM						2103	3780	9/01/1996	7.1	9/01/1996		
6628-17623	662817623				WW	Qpah	12	17/01/1996	12	17/01/1996	12	17/01/1996	36604	12	100	DOM						2132	3830	17/01/1996	7.2	17/01/1996	2	17/01/1996
6628-17777	662817777				WW	Qpah	18	13/02/1996	18	13/02/1996	18	13/02/1996	36885	18	100	DOM						2210	3970	13/02/1996	7.4	13/02/1996	2	13/02/1996
6628-17796	662817796				WW	Qpah	18	21/02/1996	18	21/02/1996	18	21/02/1996	37020	18	100	DOM						2664	4770	21/02/1996	7.2	21/02/1996	1.5	21/02/1996
6628-17833	662817833				WW	Qpah	10	29/02/1996	10	29/02/1996	10	29/02/1996	37210	10	100	DOM						1979	3560	29/02/1996	7.2	29/02/1996	1.25	29/02/1996
6628-17852	662817852				WW	Qpah	12	1/10/1995	12	1/10/1995	12	1/10/1995	34968	12	100	DOM						2295	4120	1/10/1995	7.3	1/10/1995	1	1/10/1995
6628-18013	662818013	FOWLER 1			ENG		2.44	31/12/1957	2.44	31/12/1957	2.44	31/12/1957					UKN											
6628-18016	662818016	FOWLER 4			ENG		3.04	31/12/1957	3.04	31/12/1957	3.04	31/12/1957					UKN											
6628-18059	662818059	T 8			WW	Qpah	7.5	26/10/1995	7.5	26/10/1995	7.5	26/10/1995	37552	7.5		OBS						11442	19390	3/11/1995	7.3	3/11/1995		
6628-18060	662818060				WW	Qpah	30	30/08/1996	30	30/08/1996	30	30/08/1996	38288	30	94	DOM						2227	4000	30/08/1996	7.6	30/08/1996	0.5	30/08/1996
6628-18079	662818079				WW	Qpah	12	23/10/1996	12	23/10/1996	12	23/10/1996	38830	12	150	DOM						2323	4170	23/10/1996	7.4	23/10/1996	1.5	23/10/1996
6628-18081	662818081				WW	Qpah	15	4/10/1996	15	4/10/1996	15	4/10/1996	38078	15	100	DOM						1636	2950	4/10/1996	7.1	4/10/1996	1	4/10/1996
6628-18106	662818106				WW	Qpah	12	6/12/1996	12	6/12/1996	12	6/12/1996	39425	12	100	DOM		4	4	2.9	6/12/1996	1928	3470	6/12/1996			0.2	6/12/1996
6628-18108	662818108				WW	Qpah	14	1/07/1996	14	1/07/1996	14	1/07/1996	38092	14	102	DOM		6.5	6.5	5	1/07/1996	1973	3550	1/07/1996	6.7	1/07/1996		
6628-18109	662818109				WW	Qpah	8.3	17/11/1996	8.3	17/11/1996	8.3	17/11/1996	36921	3	102	DOM		4.1	4.1	1.9	17/11/1996	1396	2520	17/11/1996	7.4	17/11/1996		
6628-18155	662818155				WW	Qpah	18	3/01/1997	18	3/01/1997	18	3/01/1997	37026	18	100	DOM		6.5	6.5	2.7	3/01/1997	2601	4661				1	3/01/1997
6628-18157	662818157				WW	Qpah	18	2/01/1997	18	2/01/1997	18	2/01/1997	39631	18	100	DOM		4.9	4.9	0.8	2/01/1997	2613	4682				2	2/01/1997
6628-18181	662818181				WW	Qpah	10	17/05/1995	10	17/05/1995	10	17/05/1995	35170	10	100	DRN											0.75	17/05/1995
6628-18435	662818435				WW	Qpah	18	21/03/1997	18	21/03/1997	18	21/03/1997	40516	18	100	DOM		10.1	10.1	2.8	21/03/1997	1127	2040				1	21/03/1997
6628-18478	662818478				WW	Qpah	14	17/04/1997	17	17/04/1997	17	17/04/1997	40567	14	100	DOM		4.8	4.8	-0.8	17/04/1997	1877	3381				1.5	17/04/1997
6628-18479	662818479				WW	Qpah	20	3/03/1997	20	3/03/1997	20	3/03/1997	40435	20	100	DOM		7.3	7.3	-0.4	3/03/1997	1939	3490	3/03/1997			1	3/03/1997
6628-18509	662818509				WW	Qpah	12	10/06/1997	12	10/06/1997	12	10/06/1997	41539	12	100	DOM		5	5	5.1	10/06/1997	1698	3060	10/06/1997			0.8	10/06/1997
6628-18553	662818553				WW	Qpah	20	10/04/1997	20	10/04/1997	20	10/04/1997	40758	20	100	DOM		9.5	9.5	1	10/04/1997	1826	3290	10/04/1997			1	10/04/1997
6628-18565	662818565				WW	Qpah	13	27/06/1997	13	27/06/1997	13	27/06/1997	41719	13	100	DRN		4.3	4.3	2.5	27/06/1997	2069	3720	27/06/1997				
6628-18599	662818599				WW	Qpah	20	9/07/1997	20	9/07/1997	20	9/07/1997	41833	20	100	DRN		8	8	0	9/07/1997	2818	5040	9/07/1997			1.1	9/07/1997
6628-18717	662818717				WW	Qpah	14	28/10/1997	14	28/10/1997	14	28/10/1997	42875	14	100	DOM		6	6	2.1	28/10/1997	1939	3490	9/11/1997			0.8	28/10/1997
6628-18746	662818746				WW	Qpah	30	3/01/1998	30	3/01/1998	30	3/01/1998	41672	30	94	DOM		7	7	4.5	3/01/1998	1995	3590	3/01/1998			0.5	3/01/1998
6628-18754	662818754				WW	Qpah	14	9/12/1997	14	9/12/1997	13.5	9/12/1997	43435	13.5	100	DOM		5	5	2.7	9/12/1997	2448	4390	9/12/1997			1.5	9/12/1997
6628-18757	662818757				WW	Qpah	12	18/01/1998	12	18/01/1998	12	18/01/1998	43702	6	127	DOM		6	6	4.3	18/01/1998	1546	2790	18/01/1998				
6628-18780	662818780	KOOYONGA GC 7			WW	Tomw(T1)	221	6/12/1996	221	6/12/1996	216	6/12/1996	39402	195	152	IRR	OPR	10	10	-4	6/12/1996	1138	2060	24/04/2020	7.7	23/02/2005	8.4	4/12/1996
6628-18790	662818790				WW	Qpah	22	20/12/1997	22	20/12/1997	13	20/12/1997	43149	22	94	DOM		4.5	4.5	3.4	20/12/1997	2301	4130	7/02/1998			0.5	18/12/1997
6628-18793	662818793				WW	Qpah	8	19/12/1997	8	19/12/1997	8	19/12/1997	41707	8	150	IRR		4.5	4.5	3.5	19/12/1997							
6628-18825	662818825				WW	Qpah	20	19/01/1998	20	19/01/1998	20	19/01/1998	43701	20	100	DOM		7.2	7.2	2.8	19/01/1998	2001	3600	19/01/1998				
6628-18854	662818854				WW	Qpah	13.5	23/02/1998	13.5	23/02/1998	13.5	23/02/1998	44157	13.5	100	DOM		4.5	4.5	3.5	23/02/1998	2036	3660	23/02/1998				
6628-19206	662819206				WW	Qpah	13	2/07/1997	13	2/07/1997	13	2/07/1997	41127	12.5	100	DOM		4.5	4.5	5.4	2/07/1997	1815	3279	2/07/1997			0.25	1/07/1997
6628-19207	662819207				WW	Qpah	10	16/10/1998	10	16/10/1998	10	16/10/1998	46388	10	102	DOM		3	3	7	16/10/1998	1513	2730	16/10/1998				
6628-19316	662819316				WW	Qpah	13.5	3/12/1998	13.5	3/12/1998	13.5	3/12/1998	46876	13.5	100	DOM		5	5	3.3	3/12/1998	2329	4180	3/12/1998				
6628-19321	662819321				WW	Qpah	12	14/01/1999	12	14/01/1999	12	14/01/1999	47648	12	100	DOM		4	4	2.7	14/01/1999	2216	3980	14/01/1999			1	14/01/1999
6628-19365	662819365				WW	Qpah	6	30/12/1998	6	30/12/1998	6	30/12/1998	47182	6	145	DRN		4	4	3.1	30/12/1998							
6628-19366	662819366				WW	Qpah	6	30/12/1998	6	30/12/1998	6	30/12/1998	47183	6	145	DRN		4	4	2.8	30/12/1998							
6628-19427	662819427				WW	Qpah	12	12/03/1999	12	12/03/1999	12	12/03/1999	48007	12	100	DOM		6	6	2	12/03/1999	2194	3940	12/03/1999			1.2	12/03/1999
6628-19428	662819428				WW	Tomw(T1)	140	20/11/1998	140	20/11/1998	140	20/11/1998	46840	117	170	IND	OPR	3	3	3.3	20/11/1998	845	1532	2/03/2005	8.1	2/03/2005	31	18/11/1998
6628-19429	662819429				WW	Qpah	14	30/01/1999	14	30/01/1999	14	30/01/1999	48236	14	100	DOM		4.5	4.5	3.1	30/01/1999	2132	3830	30/01/1999			1	30/01/1999
6628-19488	662819488				WW	Qpah	30	26/09/1998	30	26/09/1998	30	26/09/1998	46275	29	94	DOM		9	9	0.4	26/09/1998	2290	4110	16/02/2018	7.19	16/02/2018	0.5	23/09/1998
6628-19527	662819527				WW	Qpah	12	11/05/1999	12	11/05/1999	12	11/05/1999	48903	12	100	DOM		5.4	5.4	2	11/05/1999	999	1810	11/05/1999			1	11/05/1999
6628-19567	662819567				WW	Qpah	12	30/07/1999	12	30/07/1999	12	30/07/1999	49778	12	100	DOM		6.6	6.6	1.4	30/07/1999	1714	3090	30/07/1999			1	30/07/1999
6628-19590	662819590				WW	Qpah	12	6/05/1999	12	6/05/1999	12	6/05/1999	48286	12	100	DOM		5	5	3	6/05/1999	1928	3470	6/05/1999				
6628-19710	662819710				WW	Qpah	12	11/09/1999	12	11/09/1999	11	11/09/1999	49970	11	100	DOM		4.5	4.5	2.7	11/09/1999	1289	2330	11/09/1999			1	11/09/1999
6628-19976	662819976				WW	Qpah	12	30/11/1999	12	30/11/1999	12	30/11/1999	50886	12	100	DOM		4.5	4.5	3.4	30/11/1999	2574	4610	30/11/1999			1	30/11/1999
6628-20101	662820101				WW	Qpah	12	29/11/1999	12	29/11/1999	12	29/11/1999	50871	12	100	DOM		4	4	2.3	29/11/1999	1832	3300	29/11/1999			1	29/11/1999
6628-20122	662820122				WW	Qpah	30	29/01/2000	30	29/01/2000	30	29/01/2000	51207	30	94	DOM		10	10	-1.9	29/01/2000	2454	4400	29/01/2000			0.5	24/01/2000
6628-20125	662820125				WW	Qpah	25	17/11/1999	25	17/11/1999	25	17/11/1999	49841	25	94	DOM		7	7	2.1	17/11/1999	1474	2660	17/11/1999			0.5	15/11/1999
6628-20135	662820135				WW	Qpah	16.5	22/10/1994	16.5	22/10/1994	16.5	22/10/1994	26813	16.5	100	DOM		3.9	3.9	3.9	22/10/1994	1720	3100	22/10/1994				
6628-20150	662820150				WW	Qpah	15	27/02/2000	15	27/02/2000	15	27/02/2000	48200	15	100	DOM		7.8	7.8	2.2	27/02/2000	1995	3590	27/02/2000			1	27/02/2000
6628-20191	662820191				WW	Qpah	18	29/03/2000	18	29/03/2000	14	29/03/2000	52053	18	100	DOM		6.6	6.6	3	29/03/2000	2380	4270	29/03/2000			1	29/03/2000
6628-20201	662820201				WW	Qpah	17	13/04/2000	17	13/04/2000	17	13/04/2000	52388	17	96	DOM		7	7	3.2	13/04/2000	2681	4800	13/04/2000			2	13/04/2000
6628-20238	662820238				WW	Qpah	19.5	8/06/2000	19.5	8/06/2000	19.5	8/06/2000	51964	19.5	100	DOM		5.5	5.5	2.5	8/06/2000	2307	4140	8/06/2000			1.5	8/06/2000
6628-20400	662820400				WW	Qpah	12.5	27/10/2000	12.5	27/10/2000	12	27/10/2000	53801	9	100	REC		3.5	3.5	3.7	27/10/2000	2477	4440	27/10/2000			2.5	27/10/2000
6628-20407	662820407				WW	Qpah	16	21/11/2000	16	21/11/2000	14	21/11/2000	54004	14	100	DOM		6	6	2.9	21/11/2000	1591	2870	21/11/2000			0.8	21/11/2000
6628-20422	662820422				WW	Qpah	18	15/04/1998	18	15/04/1998	18	15/04/1998	44759	18	100	DOM		7.5	7.5	3.6	15/04/1998	1642	2960	15/04/1998			0.4	15/04/1998
6628-20451	662820451				WW	Qpah	13.5	22/11/2000	13.5	22/11/2000	13.5	22/11/2000	53962	13.5	100	DOM						2245	4030	22/11/2000			2.5	22/11/2000
6628-20452	662820452				WW	Qpah	18	12/12/2000	18	12/12/2000	18	12/12/2000	53629	18	110	REC		3	3	10.2	12/12/2000	2143	3850	12/12/2000			1	12/12/2000
6628-20453	662820453				WW	Qpah	18	27/12/2000	18	27/12/2000	16	27/12/2000	54196	16	100	DOM		6	6	4.3	27/12/2000	1726	3110	27/12/2000			1	27/12/2000
6628-20454	662820454				WW	Qpah	15	23/12/2000	15	23/12/2000	12	23/12/2000	54145	12	100	DOM		5.4	5.4	3.8	23/12/2000	2177	3910	23/12/2000			1	23/12/2000
6628-20503	662820503				WW	Qpah	7.5	30/01/2001	7.5	30/01/2001	7.5	30/01/2001	54535	7.5	100	DOM		4.5	4.5	3.9	30/01/2001	1670	3010	30/01/2001			1	30/01/2001
6628-20505	662820505				WW	Qpah	18	6/02/2001	18	6/02/2001	18	6/02/2001	54473	18	100	DOM		7.5	7.5	2.8	6/02/2001	2561	4590	6/02/2001			0.9	6/02/2001
6628-20506	662820506				WW	Qpah	7.5	30/01/2001	7.5	30/01/2001	7.5	30/01/2001	54509	7.5	150	DOM		4.5	4.5	4.1	30/01/2001	1861	3350	30/01/2001			1	30/01/2001
6628-20507	662820507				WW	Qpah	12	31/01/2001	12	31/01/2001	12	31/01/2001	54587	12	100	DOM		5.2	5.2	0.7	31/01/2001	2380	4270	31/01/2001			1.5	31/01/2001
6628-20552	662820552	KOOYONGA GC 8			WW	Tomw(T1)	221	17/11/2000	221	17/11/2000	221	17/11/2000	53352	195	152	IRR	OPR	11.3	11.3	-7.3	17/11/2000	757	1373	24/04/2020			10	15/01/2000
6628-20557	662820557				WW	Qpah	4	25/04/2001	4	25/04/2001	4	25/04/2001	54798		100	DOM		1.86	1.86	2.14	25/04/2001	1116	2020	25/04/2001				
6628-20578	662820578				WW	Qpah	15	29/03/2001	15	29/03/2001	15	29/03/2001	55200	15	100	DOM		7.8	7.8	0.3	29/03/2001	1867	3360	29/03/2001			0.8	29/03/2001
6628-20651	662820651				WW	Qpah	8.84	1/07/2001	8.84	1/07/2001	8.84	1/07/2001	54690			DOM		4.5	4.5	2.3	1/07/2001	2149	3860	13/08/2001				
6628-20652	662820652				WW	Qpah	8.84	1/07/2001	8.84	1/07/2001	8.84	1/07/2001	54697			DOM		4.5	4.5	2.3	1/07/2001	1614	2910	13/08/2001				

Unit_No	Unit_Number	dh_name	network	Obs_No	drillhole_class	Aquifer	Orig_drilled_depth	Orig_drilled_date	max_drill_depth	max_drill_date	late_open_depth	late_open_date	late_permit_no	cased_to	case_min_diam	purpose	latest_status	dtw	swl	rswl	water_level_date	TDS	EC	salinity_date	pH	pH_date	yield	yield_date
6628-20687	662820687				WW	Qpah	30	17/01/1999	30	17/01/1999	30	17/01/1999	46125	30	94	DOM		13	13	-3.8	17/01/1999	1396	2520	17/01/1999			0.5	12/01/1999
6628-20766	662820766				WW	Qpah	30	29/10/2001	30	29/10/2001	30	29/10/2001	56574	28	100	DOM		6	6	3.3	29/10/2001	2058	3700	29/10/2001			0.44	29/10/2001
6628-20774	662820774				WW	Qpah	18	24/11/2001	18	24/11/2001	18	24/11/2001	56634	18	105	DRN		6.8	6.8	4.1	24/11/2001	1714	3090	24/11/2001			1	20/11/2001
6628-20846	662820846				WW	Qpah	7	6/02/2002	7	6/02/2002	7	6/02/2002	57296	6	32	DOM		2.8	2.8	1.2	6/02/2002	1027	1860	6/02/2002			1	6/02/2002
6628-20854	662820854	KOOYONGA GC 9			WW	Tomw(T1)	224	11/01/2002	224	11/01/2002	224	11/01/2002	56795	196	152	IND	OPR	15	15	-9	11/01/2002	719	1303	24/04/2020			20	8/01/2002
6628-20963	662820963				WW	Qpah	13.5	8/04/2002	13.5	8/04/2002	13.5	8/04/2002	57020	9	100	DOM		4	4	1.9	8/04/2002	1519	2740	8/04/2002			1	8/04/2002
6628-21036	662821036				WW	Qpah	29	13/12/2000	29	13/12/2000	29	13/12/2000	54137	9	94	DOM		9	9	0.1	13/12/2000	1423	2570	13/12/2001				
6628-21128	662821128				WW	Qpah	6	1/10/2001	6	1/10/2001	6	1/10/2001	56490	1	100	DRN	DRY				1/10/2001							
6628-21129	662821129				WW	Qpah	6	1/10/2001	6	1/10/2001	6	1/10/2001	56491	1	100	DRN	DRY				1/10/2001							
6628-21140	662821140				WW	Qpah	16	13/02/2002	16	13/02/2002	16	13/02/2002	57307	6	100	DOM		5.4	5.4	3.5	13/02/2002	1541	2780	13/02/2002			0.8	13/02/2002
6628-21326	662821326				WW	Qpah			18	23/07/2003	18	23/07/2003	62217	9	100	DRN		5.1	5.1	3.3	23/07/2003	1957	3520	1/12/2003				
6628-21471	662821471				WW	Qpah	12	12/05/2003	12	12/05/2003	12	12/05/2003	62078	9	100	DOM		3.5	3.5	4.5	12/05/2003	1815	3270	12/05/2003			1	12/05/2003
6628-21539	662821539				WW	Qpah	6	15/09/2003	6	15/09/2003	0	15/03/2019	339469			DOM	BKF	2	2	2	15/09/2003	1440	2600	15/09/2003			1	15/09/2003
6628-21541	662821541				WW	Qpah	12	23/09/2003	12	23/09/2003	11	23/09/2003	63070	9	100	DOM		4.5	4.5	3.5	23/09/2003	2681	4800	23/09/2003			1.3	23/09/2003
6628-21558	662821558				WW	Qpah	13.5	11/12/2003	13.5	11/12/2003	13.5	11/12/2003	63672	10.5	100	DOM		5	5	1.4	11/12/2003	2889	5164	11/12/2003			1.88	11/12/2003
6628-21561	662821561				WW	Qpah	14	13/10/2003	14	13/10/2003	14	13/10/2003	63227	11	100	DRN		6	6	2	13/10/2003	2995	5350	13/10/2003			4.5	13/10/2003
6628-21562	662821562				WW	Qpah	18	18/09/2003	18	18/09/2003	18	18/09/2003	63116	13	100	DRN		4	4	1.9	18/09/2003	2097	3770	18/09/2003			2.25	18/09/2003
6628-21612	662821612				WW	Qpah			26	3/02/2004	26	3/02/2004	63641	20	125	DOM		6	6	2.7	3/02/2004	2471	4430	3/02/2004			1	3/02/2004
6628-21644	662821644				WW	Qpah	19	6/09/2003	19	6/09/2003	19	6/09/2003	62699	19	105	DRN		6.2	6.2	4.1	6/09/2003	2188	3930	6/09/2003			1.5	6/09/2003
6628-21645	662821645				WW	Qpah	14	24/08/2003	14	24/08/2003	14	24/08/2003	62480	14	105	DOM		4.9	4.9	1.5	24/08/2003	860	1560	24/08/2003			2	24/08/2003
6628-21746	662821746				WW	Qpah	4	20/02/2001	4	20/02/2001	4	20/02/2001	54814					4	4	0	20/02/2001							
6628-21836	662821836				WW	Qpah	25	15/07/2004	25	15/07/2004	25	15/07/2004	65896	13	100	DOM							2069	3720	15/07/2004			1.5	15/07/2004
6628-21846	662821846				WW	Qpah	10.5	7/07/2004	10.5	7/07/2004	10.5	7/07/2004	65840	8.5	100	DOM		4.3	4.3	0.7	7/07/2004	3161	5640	7/07/2004			1	7/07/2004
6628-21922	662821922				WW	Qpah	7	18/02/2004	7	18/02/2004	7	18/02/2004	64888	4	52	MON		5.5	5.5	2.7	18/02/2004							
6628-22279	662822279				WW	Qpah	33	31/08/2005	33	31/08/2005	31	31/08/2005	101096	22	100			6	6	3.3	31/08/2005	2278	4090	31/08/2005			2.5	30/08/2005
6628-22289	662822289	MW 1			WW	Qpah	5.4	9/08/2005	5.4	9/08/2005	5.4	9/08/2005	109281	2.5	100	MON		1.67	1.67	2.43	9/08/2005							
6628-22290	662822290	MW 2			WW	Qpah	5.4	9/08/2005	5.4	9/08/2005	5.4	9/08/2005	109282	2.4	50	MON		1.63	1.63	2.37	9/08/2005							
6628-22291	662822291	MW 3			WW	Qpah	5.4	9/08/2005	5.4	9/08/2005	5.4	9/08/2005	109283	2.4	50	MON		1.69	1.69	2.41	9/08/2005							
6628-22339	662822339				WW	Qpah	30	12/02/2004	30	12/02/2004	11	12/02/2004	64482	9	94	DOM		11	11	-3.6	12/02/2004	1687	3040	11/01/2006			0.5	10/04/2004
6628-22419	662822419	MW 14			WW	Qpah	5.5	21/08/2004	5.5	21/08/2004	5.5	21/08/2004	100302	2.5	50	MON		3.1	3.1	4.8	21/08/2004							
6628-22423	662822423	MW 15			WW	Qpah	5.5	24/08/2004	5.5	24/08/2004	5.5	24/08/2004	100303	2.5	50	MON		3	3	4.7	24/08/2004							
6628-22424	662822424	MW 16			WW	Qpah	5	24/08/2004	5	24/08/2004	5	24/08/2004	100304	2	50	MON		2.9	2.9	4.6	24/08/2004							
6628-22425	662822425	MW 17			WW	Qpah	5.5	25/08/2004	5.5	25/08/2004	5.5	25/08/2004	100305	2.5	50	MON		3.2	3.2	4.5	25/08/2004							
6628-22426	662822426	MW 18			WW	Qpah	5.5	25/08/2004	5.5	25/08/2004	5.5	25/08/2004	100306	1.5	50	MON												
6628-22477	662822477				WW	Qpah	6	4/04/2006	6	4/04/2006	6	4/04/2006	116672	1	50	INV		2	2	2.7	4/04/2006	2477	4440	4/04/2006			6	4/04/2006
6628-22597	662822597				WW	Tomw(T1)	144	4/03/2005	144	4/03/2005	122.5	12/02/2011	199011				RHB	18	18	-5.8	12/02/2011	831	1508	14/03/2014			5	12/02/2011
6628-22715	662822715	MW 4			WW	Qpah	4.5	20/01/2006	4.5	20/01/2006	4.5	20/01/2006	113015	1.5	50	MON		1.36	1.36	2.64	20/01/2006							
6628-22716	662822716	MW 5			WW	Qpah	4.5	20/01/2006	4.5	20/01/2006	4.5	20/01/2006	113016	1.5	50	MON		1.45	1.45	2.55	20/01/2006							
6628-22749	662822749				WW	Qpah	15.1	17/01/2007	15.1	17/01/2007	15.1	17/01/2007	123758	12.2	100			5.1	5.1	2.9	17/01/2007	2482	4450	17/01/2007			1	17/01/2007
6628-22802	662822802				WW	Qpah	12.5	30/07/2006	12.5	30/07/2006	0	30/07/2006	118928	12.5	100		BKF											1	30/07/2006
6628-22929	662822929	MW 3			WW	Qpah	4	18/05/2007	4	18/05/2007	4	18/05/2007	130350	1	50	INV		2	2	1.1	18/05/2007							
6628-22931	662822931	MW 1			WW	Qpah	4	18/05/2007	4	18/05/2007	4	18/05/2007	130352	1	50	INV		2	2	1	18/05/2007							
6628-23062	662823062				WW	Qpah	13.5	5/09/2007	13.5	5/09/2007	13.5	5/09/2007	134372	9	26	INV		3.5	3.5	3.1	5/09/2007							
6628-23063	662823063				WW	Qpah	14	4/09/2007	14	4/09/2007	14	4/09/2007	134370	9	26	INV		3.5	3.5	3.3	4/09/2007							
6628-23064	662823064				WW	Qpah	13.5	3/09/2007	13.5	3/09/2007	13.5	3/09/2007	134368	9	26	INV		3.5	3.5	3.2	3/09/2007							
6628-23065	662823065				WW	Qpah	14	4/09/2007	14	4/09/2007	14	4/09/2007	134369	8	26	INV		3.5	3.5	3.2	4/09/2007							
6628-23066	662823066				WW	Qpah	13.5	3/09/2007	13.5	3/09/2007	13.5	3/09/2007	134367	9	26	INV		3.5	3.5	3.3	3/09/2007							
6628-23067	662823067				WW	Qpah	13.5	5/09/2007	13.5	5/09/2007	13.5	5/09/2007	134373	9	26	INV												
6628-23068	662823068				WW	Qpah	13.5	6/09/2007	13.5	6/09/2007	13.5	6/09/2007	134376																
6628-23069	662823069				WW	Qpah	13.5	6/09/2007	13.5	6/09/2007	13.5	6/09/2007	134375	9	26	INV		3.5	3.5	3.3	6/09/2007							
6628-23070	662823070				WW	Qpah	13.5	5/09/2007	13.5	5/09/2007	13.5	5/09/2007	134374	9	26	INV		3.5	3.5	3.4	5/09/2007							
6628-23092	662823092				WW	Qpah	25	10/08/2007	25	10/08/2007	15	10/08/2007	126560	12	84			7	7	3	10/08/2007	1530	2760	18/08/2007			1.25	10/08/2007
6628-23122	662823122	GMW 2			WW	Qpah	4	5/01/2007	4	5/01/2007	4	5/01/2007	125697	2	50	MON		2.6	2.6	3.2	5/01/2007							
6628-23123	662823123	GMW 1			WW	Qpah	4	5/01/2007	4	5/01/2007	4	5/01/2007	125696	2.5	50	MON		3.2	3.2	2	5/01/2007							
6628-23128	662823128	GMW 3			WW	Qpah	4	5/01/2007	4	5/01/2007	4	5/01/2007	125698	2.5	50	MON												
6628-23253	662823253				WW	Qpah	15	4/10/2007	15	4/10/2007	14	4/10/2007	135887	13.5	100			9	9	3	4/10/2007	1468	2650	4/10/2007			1.5	4/10/2007
6628-23258	662823258	DOMESTIC			WW	Qpah	10.5	11/09/2007	10.5	11/09/2007	10	11/09/2007	135024	9	100			4	4	6	11/09/2007	2036	3660	11/09/2007			1	11/09/2007
6628-23474	662823474				WW	Qpah			8	20/02/1997	8	20/02/1997	40189									1895	3410	24/02/1997				
6628-23544	662823544				WW	Qpah	4.5	2/07/2007	4.5	2/07/2007	4.5	2/07/2007	133273																
6628-23548	662823548				WW	Qpah	4.5	31/07/2007	4.5	31/07/2007	4.5	31/07/2007	133274	1.5	50	INV		3	3	0.5	31/07/2007							
6628-23671	662823671				WW	Qpah	12	23/08/2007	12	23/08/2007	12	23/08/2007	127268	12	100			6.6	6.6	3.4	23/08/2007	1867	3360	23/08/2007			1	23/08/2007
6628-23751	662823751				WW	Qpah	20	1/09/2008	20	1/09/2008	20	1/09/2008	140206	16	100			7	7	5.5	1/09/2008	1826	3290	1/09/2008			1	29/08/2008
6628-23771	662823771				WW	Qpah	7	3/07/2007	7	3/07/2007	6	3/07/2007	130226	5	100			3.3	3.3	3.2	3/07/2007	1378	2490	4/07/2007			1	3/07/2007
6628-24910	662824910	KOOYONGA GC 10			WW	Tomw(T1)	220	22/11/2008	220	22/11/2008	220	22/11/2008	134289	194	177	IRR	OPR	12	12	-6.3	22/11/2008	738	1338	24/04/2020			2.27	20/11/2008
6628-24947	662824947				WW	Qpah	20	2/01/2009	20	2/01/2009	20	2/01/2009	153392	14	100			7	7	3.6	2/01/2009	1850	3330	2/01/2009			0.33	2/01/2009
6628-24957	662824957	TRWQ2 MWO1			WW	Qpah(Q2)	32	4/04/2007	32	4/04/2007	32	4/04/2007	128052			OBS		4.03	4.03	2.47	4/04/2007							
6628-24958	662824958	BWQ2 MW02			WW	Qpah(Q2)	32	23/04/2007	32	23/04/2007	32	23/04/2007	128054	19	100	OBS		3.51	3.51	2.79	23/04/2007							
6628-24959	662824959	BWQ2 MW03			WW	Qpah(Q2)	29.5	23/04/2007	29.5	23/04/2007	29.5	23/04/2007	128053	25.2	100	OBS		3.43	3.43	2.77	23/04/2007							
6628-25047	662825047	SB/MW10			WW	Qpah	4.5	29/10/2008	4.5	29/10/2008	4.5	29/10/2008	146185	1.5	50	INV		2.1	2.1	1.4	29/10/2008							
6628-25048	662825048	SB/MW6			WW	Qpah	4.5	24/10/2008	4.5	24/10/2008	4.5	24/10/2008	146186	1.5	50	INV		2.3	2.3	1.3	24/10/2008							
6628-25049	662825049	SB/MW7			WW	Qpah	4.5	27/10/2008	4.5	27/10/2008	4.5	27/10/2008	146187	1.5	50	INV		2.5	2.5	1.1	27/10/2008							
6628-25050	662825050	SB/MW8			WW	Qpah	4.5	27/10/2008	4.5	27/10/2008	4.5	27/10/2008	146188	1.5	50	INV		2.4	2.4	1.1	27/10/2008							
6628-25051	662825051	SB/MW9			WW	Qpah	4.5	28/10/2008	4.5	28/10/2008	4.5	28/10/2008	146189	1.5	50	INV		2.2	2.2	1.2	28/10/2008							
6628-25052	662825052	SB/MW5			WW	Qpah	4.5	6/05/2008	4.5	6/05/2008	4.5	6/05/2008	147368	1.5	50	INV		2.3	2.3	1.4	6/05/2008							
6628-25053	662825053	SB/MW4			WW	Qpah	4.5	5/05/2008	4.5	5/05/2008	4.5	5/05/2008	147367	1.5	50	INV		2.4	2.4	1.3	5/05/2008							
6628-25054	662825054	SB/MW3			WW	Qpah	4.5	6/05/2008	4.5	6/05/2008	4.5	6/05/2008	147366	1.5	50	INV		2.4	2.4	1.3	6/05/2008							
6628-25055	662825055	SB/MW2			WW	Qpah	4.5	6/05/2008	4.5	6/05/2008	4.5	6/05/2008	147365	1.5	50	INV												
6628-25056	662825056	SB/MW 1			WW	Qpah	4.5	6/05/2008	4.5	6/05/2008	4.5	6/05/2008	147364	1.5	50	INV		2.4	2.4	1.1	6/05/2008							
6628-25065	662825065	MW 15			WW	Qpah	20	21/02/2010	20	21/02/2010	20	21/02/2010	185957	18.5	50	INV		15.5	15.5	-4.1	21/02/2010							
6628-25082	662825082	SB/MW 25			WW	Qpah	5	19/08/2009	5	19/08/2009	5	19/08/2009	163393	1.5	50	INV		2.4	2.4	2.5	19/08/2009							
6628-25083	662825083	SB/MW 26			WW	Qpah	5	19/08/2009	5	19/08/2009	5	19/08/2009	163394	1.5	50	INV		4.8	4.8	0.1	19/08/2009							
6628-25084	662825084	SB/MW 27			WW	Qpah	5.5	20/08/2009	5.5	20/08/2009	5.5	20/08/2009	163395	1.5	50	INV												
6628-25085	662825085	SB/MW 28			WW	Qpah	5	19/08/2009	5	19/08/2009	5	19/08/2009	163396	1.5	50	INV		2.4	2.4	2.7	19/08/2009							
6628-25086	662825086	SB/MW 29			WW	Qpah	5	19/08/2009	5	19/08/2009	5	19/08/2009	163397	1.5	50	INV		2.4	2.4	2.6	19/08/2009							
6628-25087	662825087	SB/MW 31			WW	Qpah	4.5	18/08/2009	4.5	18/08/2009	4.5	18/08/2009	163401	1.5	50	INV		2.5	2.5	2.5	18/08/2009							
6628-25112	662825112	SB/MW32			WW	Qpah	4.5	19/08/2009	4.5	19/08/2009	4.5	19/08/2009	163402	1.5	50	INV		2.9	2.9	2.2	19/08/2009							
6628-25204	662825204				WW	Qpah	15	12/05/2009	15	12/05/2009	15	12/05/2009	161329	9	100		OPR	6.5	6.5	1.8	12/05/2009	1901	3420	12/05/2009			3	12/05/2009
6628-25408	662825408	GW 24			WW	Qpah	8	5/10/2010	8	5/10/2010	8	5/10/2010	195902	5	50	INV		5.35	5.35	5.95	5/10/2010							
6628-25436	662825436				WW	Qpah	20	14/05/2010	20	14/05/2010	20	14/05/2010	189038	20	50	INV												
6628-25500	662825500	SB/MW 1			WW	Qpah	4.5	19/10/2009	4.5	19/10/2009	4.5	19/10/2009	181776	1.5	50			2.1	2.1	1.3	19/10/2009							
6628-25501	662825501	SB/MW 14			WW	Qpah	4.5	20/10/2009	4.5	20/10/2009	4.5	20/10/2009	181779	1.5	50			1.8	1.8	2	20/10/2009							
6628-25502	662825502	SB/MW 13			WW	Qpah	4.5	20/10/2009	4.5	20/10/2009	4.5	20/10/2009	181778	1.5	50			2	2	1.7	20/10/2009							
6628-25503	662825503	SB/MW 12			WW	Qpah	4.5	20/10/2009	4.5	20/10/2009	4.5	20/10/2009	181777	1.5	50													
6628-25566	662825566	GW 101			WW	Qpah	18		18		0	14/05/2010	189039				BKF											
6628-25694	662825694				WW	Qpah	8	4/01/2011	8	4/01/2011	8	4/01/2011	197679	3.5	50	MON		3.5	3.5	4.5	4/01/2011							
6628-25695	662825695				WW	Qpah	6	5/01/2011	6	5/01/2011	6	5/01/2011	197680	6	50	MON		3.5	3.5	4.5	5/01/2011							
6628-25720	662825720				WW	Qpah	6.5	5/01/2011	6.5	5/01/2011	6.5	5/01/2011	197681	3.5	50			3.5	3.5	4.5	5/01/2011							
6628-25801	662825801	MW 1			WW	Qpah	6	7/04/2011	6	7/04/2011	6	7/04/2011	200749	6	50	INV		5.3	5.3	4.5	7/04/2011							
6628-25802	662825802	MW 2			WW	Qpah	6.5	7/04/2011	6.5	7/04/2011	6.5	7/04/2011	200750	6	50	INV		5.6	5.6	4.4	7/04/2011							
6628-25803	662825803	MW 3			WW	Qpah	6.5	7/04/2011	6.5	7/04/2011	6.5	7/04/2011	200751	6.5	50	INV		5.1	5.1	4.8	7/04/2011							
6628-25804	662825804	MW 4			WW	Qpah	6.5	6/05/2011	6.5	6/05/2011	6.5	6/05/2011	200752	6.5	50			5.5	5.5	4.5	6/05/2011							
6628-25890	662825890	GW 27			WW	Qpah	8	25/02/2011	8	25/02/2011	8	25/02/2011	199288	5	50	INV												
6628-25892	662825892	GW 26			WW	Qpah	8.5	25/02/2011	8.5	25/02/2011	8.5	25/02/2011	199287	4.5	50	INV												
6628-26164	662826164	GW 1			WW	Qpah	10	2/11/2011	10	2/11/2011	10	2/11/2011	207754	10	52	INV		6.4	6.4	2.4	2/11/2011	2482	4450	2/11/2011				
6628-26165	662826165	GW 2			WW	Qpah	10	2/11/2011	10	2/11/2011	10	2/11/2011	207769	8	52			6	6	3.3	2/11/2011	1872	3370	2/11/2011				
6628-26166	662826166	GW 3			WW	Qpah	8	6/11/2011	8	6/11/2011	8	6/11/2011	208161	8	52	INV		5.8	5.8	3.9	6/11/2011	1614	2910	16/11/2011				
6628-26295	662826295	GW 1			WW	Qpah	4.5	26/03/2012	4.5	26/03/2012	4	26/03/2012	209894	1	52	INV		1.8	1.8	1.9	26/03/2012	2550	4570	26/03/2012				
6628-26297	662826297	GW 2			WW	Qpah	4	26/03/2012	4	26/03/2012	4	26/03/2012	209995	1	52	INV		1.8	1.8	1.8	26/03/2012							

Unit_No	Unit_Number	dh_name	network	Obs_No	drillhole_class	Aquifer	Orig_drilled_depth	Orig_drilled_date	max_drill_depth	max_drill_date	late_open_depth	late_open_date	late_permit_no	cased_to	case_min_diam	purpose	latest_status	dtw	swl	rswl	water_level_date	TDS	EC	salinity_date	pH	pH_date	yield	yield_date
6628-26298	662826298	GW 3			WW	Qpah	4	26/03/2012	4	26/03/2012	4	26/03/2012	209996	1	52	INV		1.8	1.8	2	26/03/2012	6889	12000	26/03/2012				
6628-26299	662826299	GW 4			WW	Qpah	4	27/03/2012	4	27/03/2012	4	27/03/2012	209997	1	52	INV		1.8	1.8	1.9	27/03/2012	5092	8970	27/03/2012				
6628-26408	662826408				WW	Qpah			10		10																	
6628-26409	662826409				WW	Qpah			7.38		7.38																	
6628-26410	662826410				WW	Qpah			7.27		7.27																	
6628-26588	662826588	GW 5R			WW	Qpah	6	20/07/2012	6	20/07/2012	6	20/07/2012	211987	1.5	52	INV		2.2	2.2	2.2	20/07/2012	5605	9840	20/07/2012				
6628-26920	662826920	US GW 1			WW	Qpah	5.5	29/05/2013	5.5	29/05/2013	5.5	29/05/2013	219319	2.5	52	INV		2.5	2.5	3.2	29/05/2013	1923	3460	29/05/2013				
6628-26992	662826992	GW 1			WW	Qpah	4.3	20/09/2012	4.3	20/09/2012	3	20/09/2012	216636	0.5	52	INV		1.2	1.2	2.7	20/09/2012	1272	2300	21/09/2012				
6628-26993	662826993	GW 3			WW	Qpah	3	20/09/2012	3	20/09/2012	3	20/09/2012	216638	0.3	51			1	1	2.7	20/09/2012	4659	8230	21/09/2012				
6628-26994	662826994	GW 2			WW	Qpah	3	20/09/2012	3	20/09/2012	2.7	20/09/2012	216637	0.3	51			0.8	0.8	2.7	20/09/2012	6734	11730	21/09/2012				
6628-27084	662827084	LT 1			WW	Qpah	5	21/11/2013	5	21/11/2013	5	21/11/2013	219322	2	52	INV		2.5	2.5	2.4	21/11/2013	1782	3210	21/11/2013				
6628-27085	662827085	9R IUHI			WW	Qpah	4.5	15/10/2013	4.5	15/10/2013	4.4	15/10/2013	223355	1.4	52	INV		1.6	1.6	2.4	15/10/2013	3776	6710	15/10/2013				
6628-27086	662827086	12R IUHI			WW	Qpah	4.5	15/10/2013	4.5	15/10/2013	4.4	15/10/2013	223354	4.4	52	INV		1.7	1.7	2.4	15/10/2013	3678	6540	15/10/2013				
6628-27088	662827088	ASEZ MW2			WW	Qpah	4.5	25/07/2013	4.5	25/07/2013	4.5	25/07/2013	219321	3.5	52	INV		1.2	1.2	2.5	25/07/2013	4922	8680	25/07/2013				
6628-27111	662827111	GW 41			WW	Qpah	13.2	21/05/2013	13.2	21/05/2013	13.2	21/05/2013	221392	7.2	50	INV		7.5	7.5	0.5	21/05/2013							
6628-27112	662827112	GW 40			WW	Qpah	12.5	21/05/2013	12.5	21/05/2013	12.5	21/05/2013	221391	8	50	INV		8.3	8.3	1.4	21/05/2013							
6628-27113	662827113	GW 42			WW	Qpah	10.5	22/05/2013	10.5	22/05/2013	10.5	22/05/2013	221393	7	50	INV		7.5	7.5	2.9	22/05/2013							
6628-27247	662827247	GW 101			WW	Qpah	9	12/02/2014	9	12/02/2014	9	12/02/2014	229793	4.5	50	INV		5.5	5.5	6	12/02/2014							
6628-27248	662827248	GW 102			WW	Qpah	9	12/02/2014	9	12/02/2014	9	12/02/2014	229792	4.5	50	INV		5.7	5.7	5.7	12/02/2014							
6628-27249	662827249	MW 103			WW	Qpah	9	13/02/2014	9	13/02/2014	9	13/02/2014	229797	4.5	50			5.8	5.8	4.4	13/02/2014							
6628-27250	662827250	GW 104			WW	Qpah	9	17/02/2014	9	17/02/2014	9	17/02/2014	229794	4.5	50			5.9	5.9	4.4	17/02/2014							
6628-27251	662827251	GW 105			WW	Qpah	9	17/02/2014	9	17/02/2014	9	17/02/2014	229795	4.5	50	INV		5	5	4.4	17/02/2014							
6628-27252	662827252	GW 106			WW	Qpah	9	17/02/2014	9	17/02/2014	9	17/02/2014	229798	4.5	50	INV		5.6	5.6	4.4	17/02/2014							
6628-27451	662827451	GW 5			WW	Qpah			6		0	20/07/2012	212470				BKF	2	2	2.3	20/07/2012							
6628-27452	662827452	LBW 1			WW	Qpah	5.5	11/09/2014	5.5	11/09/2014	5.5	11/09/2014	233287	1.6	52	INV		1.6	1.6	2.7	11/09/2014							
6628-27460	662827460	GW			WW	Qpah			4.5	16/10/2013	4.5	16/10/2013	226031	3	52	INV		2	2	1.4	16/10/2013							
6628-27495	662827495	MW 19			WW	Qpah	8	29/08/2014	8	29/08/2014	8	29/08/2014	236381	4	50	INV		3.9	3.9	5	29/08/2014							
6628-27496	662827496	MW 18			WW	Qpah			8	29/08/2014	8	29/08/2014	236382	4	50	INV		3.9	3.9	4.8	29/08/2014							
6628-27497	662827497	MW 17			WW	Qpah			8	29/08/2014	8	29/08/2014	236383	4	50	INV		3.91	3.91	4.99	29/08/2014							
6628-27621	662827621	MW 20			WW	Qpah	8	29/08/2014	8	29/08/2014	8	29/08/2014	236384	4	50	INV		4.03	4.03	5.57	29/08/2014							
6628-27498	662827498	MW 21			WW	Qpah			8	29/08/2014	8	29/08/2014	236385	4	50	INV		8	8	2	29/08/2014						4.07	29/08/2014
6628-27499	662827499	MW 22			WW	Qpah			8	29/08/2014	8	29/08/2014	236386	4	50	INV		3.99	3.99	5.91	29/08/2014							
6628-27650	662827650	GMW 17			WW	Qpah	4.5	2/03/2015	4.5	2/03/2015	4.5	2/03/2015	235388	1.5	52	INV												
6628-27651	662827651	GW 2R			WW	Qpah	4.3	2/03/2015	4.3	2/03/2015	4.3	2/03/2015	235389	4.3	52	INV		1.88	1.88	1.82	2/03/2015							
6628-27792	662827792	UNDERDALE HIGH			WW	Tomw(T1)	151	7/05/2015	151	7/05/2015	151	7/05/2015	239991	136	200	IRR	OPR	9.74	9.74	1.06	29/08/2017	730	1323	12/08/2018	7.67	29/08/2017	10	19/04/2015
6628-27964	662827964				WW	Tomw(T1)	137	16/06/2009	137	16/06/2009	137	16/06/2009	156215	120	177		OPR	10.67	10.67	-2.67	19/06/2019	3730	6629	7/07/2022	7.5	7/07/2022		
6628-28011	662828011				WW	Qpah	9	29/09/2015	9	29/09/2015	9	29/09/2015	252680	6	50	INV												
6628-28012	662828012				WW	Qpah	8	29/09/2015	8	29/09/2015	8	29/09/2015	252681	5	50	INV												
6628-28013	662828013				WW	Qpah	8	29/09/2015	8	29/09/2015	8	29/09/2015	252682	5	50	INV												
6628-28014	662828014				WW	Qpah	8	29/09/2015	8	29/09/2015	8	29/09/2015	252683	5	50	INV												
6628-28015	662828015				WW	Qpah	8	29/09/2015	8	29/09/2015	8	29/09/2015	252684	5	50	INV												
6628-28016	662828016				WW	Qpah	8	29/09/2015	8	29/09/2015	8	29/09/2015	252685	8	150	INV												
6628-28017	662828017				WW	Qpah	8	29/09/2015	8	29/09/2015	8	29/09/2015	252686	5	50	INV		6	6	3.1	29/09/2015							
6628-28113	662828113				WW	Qpah	9	29/08/2014	9	29/08/2014	9	29/08/2014	236430	5	50	INV		4.9	4.9	3.6	29/08/2014							
6628-28114	662828114				WW	Qpah	9	1/09/2014	9	1/09/2014	9	1/09/2014	236427	4.5	50	INV		5	5	5.4	1/09/2014							
6628-28115	662828115				WW	Qpah	9	29/08/2014	9	29/08/2014	9	29/08/2014	236426	4.5	50	INV		4.9	4.9	4.6	29/08/2014							
6628-28139	662828139	GW 4			WW	Qpah	4.5	2/03/2016	4.5	2/03/2016	4.5	2/03/2016	256862	1.5	50	INV		2.2	2.2	2.5	2/03/2016							
6628-28140	662828140	GW 3			WW	Qpah	4.5	2/03/2016	4.5	2/03/2016	4.5	2/03/2016	256863	1.5	50	INV		1.8	1.8	2.9	2/03/2016							
6628-28141	662828141	GW 2			WW	Qpah	4	2/03/2016	4	2/03/2016	4	2/03/2016	256861	1	50	INV		2.2	2.2	2.5	2/03/2016							
6628-28142	662828142	GW 1			WW	Qpah			4.5	2/03/2016	4.5	2/03/2016	256860	1.5	50	INV		1.7	1.7	3.1	2/03/2016							
6628-28206	662828206	GW 126			WW	Qpah	9	19/01/2015	9	19/01/2015	9	19/01/2015	236448	4.5	50			5.3	5.3	5.4	19/01/2015							
6628-28207	662828207	GW 122			WW	Qpah	9	15/01/2015	9	15/01/2015	9	15/01/2015	236420	9	50	INV		5.5	5.5	5.7	15/01/2015							
6628-28208	662828208	GW 123			WW	Qpah	9	15/01/2015	9	15/01/2015	9	15/01/2015	236419	4.5	50	INV		5.5	5.5	5.6	15/01/2015							
6628-28209	662828209	GW 124			WW	Qpah	9	16/01/2015	9	16/01/2015	9	16/01/2015	236421	4.5	50			5.3	5.3	5.9	16/01/2015							
6628-28210	662828210	MW 125			WW	Qpah	9	19/01/2015	9	19/01/2015	9	19/01/2015	236418	4.5	50	INV		5.8	5.8	5.3	19/01/2015							
6628-28211	662828211	MW 127			WW	Qpah	9	20/01/2015	9	20/01/2015	9	20/01/2015	236446	4.5	50	INV		5.5	5.5	5	20/01/2015							
6628-28212	662828212	MW 128			WW	Qpah	9	20/01/2015	9	20/01/2015	9	20/01/2015	242269	4.5	50	INV												
6628-28213	662828213	GMW 129			WW	Qpah	9	21/01/2015	9	21/01/2015	9	21/01/2015	242268	9	50	INV		5.2	5.2	4.8	21/01/2015							
6628-28214	662828214	MW 130			WW	Qpah	9	21/01/2015	9	21/01/2015	9	21/01/2015	242266	4.5	50	INV		4.8	4.8	4.6	21/01/2015							
6628-28215	662828215	GMW 131			WW	Qpah	9	22/01/2015	9	22/01/2015	9	22/01/2015	242267	4.5	50	INV		4.4	4.4	4.3	22/01/2015							
6628-28429	662828429	MW 4			WW	Qpah				3/03/2016	0	3/03/2016	254964				BKF	8.5	8.5	3.8	3/03/2016							
6628-28623	662828623				WW		24	23/11/2016	24	23/11/2016	0	23/11/2016	278185			INV	BKF											
6628-28624	662828624				WW		24.5	22/11/2016	24.5	22/11/2016	0	22/11/2016	278184			INV	BKF	1	1	3.4	22/11/2016							
6628-28626	662828626				WW		25	21/11/2016	25	21/11/2016	0	21/11/2016	278183			INV	BKF	1	1	3.4	21/11/2016							
6628-28960	662828960	MW 1			WW	Qpah	5	23/06/2017	5	23/06/2017	5	23/06/2017	284339	2.8	46	INV		2.2	2.2	2.1	23/06/2017							
6628-28961	662828961	MW 2			WW	Qpah	5.4	23/06/2017	5.4	23/06/2017	0	23/03/2018	303202			INV	BKF	2.6	2.6	2.1	23/06/2017							
6628-28962	662828962	MW 3			WW	Qpah	5.2	23/06/2017	5.2	23/06/2017	5.2	23/06/2017	284341	2.8	46	INV		2.2	2.2	1.5	23/06/2017							
6628-28969	662828969	MW (GW03) 1			WW	Qpah	8	5/07/2016	8	5/07/2016	0	11/12/2017	296127			INV	BKF											
6628-28970	662828970	MW 2			WW	Qpah	8	5/07/2017	8	5/07/2017	8	5/07/2017	285281	5	46	INV												
6628-28971	662828971	MW 3			WW	Qpah	8	10/07/2017	8	10/07/2017	8	10/07/2017	285282	5	46	INV												
6628-29779	662829779				WW	Qpah	6	1/11/2018	6	1/11/2018	6	1/11/2018	336248			ENV												
6628-29780	662829780				WW	Qpah	5	2/11/2018	5	2/11/2018	5	2/11/2018	336251			ENV												
6628-29781	662829781				WW	Qpah	7.5	1/11/2018	7.5	1/11/2018	7.5	1/11/2018	336249			ENV												
6628-30069	662830069				WW	Qpah	4	15/03/2019	4	15/03/2019	4	15/03/2019	339469	3	25			1.5	1.5	2.5	15/03/2019	1586	2860	15/03/2019			0.6	15/03/2019
6628-30281	662830281				WW	Qpah	4.5	7/05/2019	4.5	7/05/2019	4.5	7/05/2019	342284				DRY				7/05/2019							
6628-30284	662830284				WW	Qpah	4.5	3/07/2019	4.5	3/07/2019	4.5	3/07/2019	342285																
6628-30413	662830413				WW		7	5/07/2017	7	5/07/2017	7	5/07/2017	285270	2.5	50	MON					5/07/2017							
6628-30414	662830414				WW		7.5	5/07/2017	7.5	5/07/2017	7.5	5/07/2017	285269	2.5	50	MON					5/07/2017							
6628-30415	662830415				WW		8.5	6/07/2017	8.5	6/07/2017	8.5	6/07/2017	285272	2.5	50	MON					6/07/2017							
6628-30416	662830416				WW		9	6/07/2017	9	6/07/2017	9	6/07/2017	285271	2.5	50	MON					6/07/2017							
6628-30417	662830417				WW		9	7/07/2017	9	7/07/2017	9	7/07/2017	285273	2.5	50	MON					7/07/2017							
6628-30418	662830418				WW		7.5	7/07/2017	7.5	7/07/2017	7.5	7/07/2017	285274	2	50	MON					7/07/2017							
6628-30830	662830830				WW		8	29/07/2020	8	29/07/2020	8	29/07/2020	364641			INV	DRY				29/07/2020							
6628-30831	662830831				WW		8	29/07/2020	8	29/07/2020	8	29/07/2020	364642			INV	DRY				29/07/2020							
6628-31593	662831593				WW		4.5	10/11/2021	4.5	10/11/2021	4.5	10/11/2021	404515	1.5	50	ENV												
6628-31594	662831594				WW		6	10/11/2021	6	10/11/2021	6	10/11/2021	404516	3	50	ENV												
6628-31661	662831661				WW		6	25/01/2022	6	25/01/2022	6	25/01/2022	411292			MON		4	4	3.2	25/01/2022							
6628-31790	662831790				WW		7.5	5/05/2022	7.5	5/05/2022	7.5	5/05/2022	415719			INV												
6628-31791	662831791				WW		7.5	5/05/2022	7.5	5/05/2022	7.5	5/05/2022	415720			INV												
6628-31792	662831792				WW		7.5	4/05/2022	7.5	4/05/2022	7.5	4/05/2022	415722			INV												
6628-31794	662831794				WW		7.5	2/05/2022	7.5	2/05/2022	7.5	2/05/2022	415727			INV												
6628-31796	662831796				WW		7.5	3/05/2022	7.5	3/05/2022	7.5	3/05/2022	415728			INV												
6628-31797	662831797				WW		6	4/05/2022	6	4/05/2022	6	4/05/2022	415730			INV												
6628-31798	662831798				WW		7.5	4/05/2022	7.5	4/05/2022	7.5	4/05/2022	415732			INV												
6628-31799	662831799				WW		8	5/05/2022	8	5/05/2022	8	5/05/2022	415734			INV												
6628-31800	662831800				WW		8	2/05/2022	8	2/05/2022	8	2/05/2022	415735			INV												
6628-31801	662831801				WW		8	4/05/2022	8	4/05/2022	8	4/05/2022	415737			INV												
6628-31831	662831831				WW		7.5	23/05/2022	7.5	23/05/2022	7.5	23/05/2022	415721			INV												
6628-31832	662831832				WW		7.5	23/05/2022	7.5	23/05/2022	7.5	23/05/2022	415736			INV												
6628-31833	662831833				WW		7.5	23/05/2022	7.5	23/05/2022	7.5	23/05/2022	415733			INV												
6628-31906	662831906				WW		5	27/06/2022	5	27/06/2022	5	27/06/2022	417158			INV												
6628-31907	662831907				WW		5.5	27/06/2022	5.5	27/06/2022	5.5	27/06/2022	417159			INV												
6628-31918	662831918				WW		3.7	7/07/2022	3.7	7/07/2022	3.7	7/07/2022	417160			INV												
6628-31919	662831919				WW		3.7	7/07/2022	3.7	7/07/2022	3.7	7/07/2022	417162			INV												
6628-31920	662831920				WW		3.7	7/07/2022	3.7	7/07/2022	3.7	7/07/2022	417161			INV												
6628-32252	662832252				WW		40	23/01/2023	40	23/01/2023	0	23/01/2023	436791			INV	BKF											
6628-32305	662832305				WW		5	1/12/2022	5	1/12/2022	5	1/12/2022	432793	1	50	ENV												
6628-32306	662832306				WW		4.3	1/12/2022	4.3	1/12/2022	4.3	1/12/2022	432794	1.3	50	ENV												

Unit_No	Unit_Number	dh_name	network	Obs_No	drillhole_class	Aquifer	Orig_drilled_depth	Orig_drilled_date	max_drill_depth	max_drill_date	late_open_depth	late_open_date	late_permit_no	cased_to	case_min_diam	purpose	latest_status	dtw	swl	rswl	water_level_date	TDS	EC	salinity_date	pH	pH_date	yield	yield_date
6628-32543	662832543				WW				12	15/02/2023	11	15/02/2023	414557					5.5	5.5	1.3	15/02/2023	3292	5870	10/03/2023			2	15/02/2023
6628-32544	662832544				WW		19	2/03/2023	19	2/03/2023	18	2/03/2023	415191					5.5	5.5	2.5	2/03/2023	2921	5220	10/03/2023			2	2/03/2023
6628-32552	662832552	GW3306			WW	Qpah(Q1)	10	21/06/2022	10	21/06/2022	10	21/06/2022	416363	10		INV		6.56	6.56	5.3	6/11/2023	1069	1934	25/05/2023	6.81	25/05/2023		
6628-32557	662832557	GW3308			WW	Qpah(Q1)	8	11/07/2022	8	11/07/2022	8	11/07/2022	416364	8		INV		4.13	4.13	5.16	3/11/2023	634	1151	24/05/2023	6.55	24/05/2023		
6628-32561	662832561	GW3309			WW	Qpah(Q1)	7.5	29/06/2022	7.5	29/06/2022	7.5	29/06/2022	416368	7.5		INV		4.23	4.23	5.81	2/11/2023	2489	4463	24/05/2023	6.48	24/05/2023		
6628-32562	662832562	GW3303			WW	Qpah(Q1)	11.7	29/06/2022	11.7	29/06/2022	11.7	29/06/2022	416365	11.7		INV		8.52	8.52	5.13	9/11/2023	809	1467	25/05/2023	6.82	25/05/2023		
6628-32684	662832684				WW		4	9/10/2023	4	9/10/2023	4	9/10/2023	448827			ENV	DRY				9/10/2023							
6628-32700	662832700				WW		6	26/10/2023	6	26/10/2023	6	26/10/2023	447124	1.5	50	ENV												
6628-32725	662832725				WW		5	29/10/2023	5	29/10/2023	5	29/10/2023	447428	2	50	ENV												
6628-32726	662832726				WW		5.5	26/10/2023	5.5	26/10/2023	5.5	26/10/2023	447429	2.5	50	ENV												
6628-33081	662833081				WW					8/01/2024	0	8/01/2024	455847				BKF											
6628-33082	662833082				WW					8/01/2024	0	8/01/2024	455845				BKF											
6628-33083	662833083				WW					8/01/2024	0	8/01/2024	455846				BKF											
6628-33084	662833084				WW					8/01/2024	0	8/01/2024	455843				BKF											
6628-33085	662833085				WW					8/01/2024	0	8/01/2024	455844				BKF											
6628-33104	662833104				WW		6.5	18/06/2024	6.5	18/06/2024	6.5	18/06/2024	502309	3.5	50	INV		4.5	4.5		18/06/2024							
6628-33105	662833105				WW		6.5	18/06/2024	6.5	18/06/2024	6.5	18/06/2024	502310	3.5	50	INV		4.5	4.5		18/06/2024							
6628-33106	662833106				WW		6.5	18/06/2024	6.5	18/06/2024	6.5	18/06/2024	502311	3.5	50	INV		4.5	4.5		18/06/2024							
6628-33107	662833107				WW		6.5	18/06/2024	6.5	18/06/2024	6.5	18/06/2024	502312	2	50	INV		4.5	4.5		18/06/2024							
6628-33111	662833111	GW01			WW		6	15/04/2024	6	15/04/2024	6	15/04/2024		3	124													
6628-33112	662833112	GW02			WW		6	15/04/2024	6	15/04/2024	6	15/04/2024						3.5	3.5		15/04/2024							
6628-33114	662833114	GW04			WW		6	15/04/2024	6	15/04/2024	6	15/04/2024						3.4	3.4		15/04/2024							
6628-33225	662833225	GW01			WW		4	19/08/2024	4	19/08/2024	4	19/08/2024	503089	1	50	MON		2.5	2.5		19/08/2024							
6628-33226	662833226	GW02			WW		4	19/08/2024	4	19/08/2024	4	19/08/2024	503091	1	50	MON		2.5	2.5		19/08/2024							
6628-33227	662833227	GW03			WW		4	20/08/2024	4	20/08/2024	4	20/08/2024	503090	1	50	MON		2.5	2.5		20/08/2024							

APPENDIX D JUNE 2022 QUESTIONNAIRE

MFS Station – AFFF Historical Use Questionnaire

Please distribute the following questionnaire to nominated MFS personnel who have worked at MFS sites when active use of AFFF *(aqueous film-forming foam, firefighting foam)* occurred before it was phased out in 2016. When applicable, please annotate key site features on the site plans attached at the end of this questionnaire.

MFS Station: Brooklyn Park Station SAMFS Fire Station

Name: GEOFF SLATER, GRANT NOBLE, ANDY ALLEN, MARK CUNNINGH

Position when working at the site: A SHIFT CREW.

Phone number: 82043845 **Email:** SAMFS: BROOKLYN PARK A SHIFT.

Date of response: 21/6/22

Item	Question	Response
1	*When did you start working at this station?*	20+ (GRANT NOBLE)
2	*How long have you worked at this station?*	↓
3	*Can you describe where stormwater from the site is usually discharged to (e.g. stormwater pit, nearby creek / pond, street gutter)?*	→ STREET
4	*Can you describe any changes in how stormwater has been managed at the site over time?*	COURTYARD GUTTERING OVERFLOW REDIRECTED.
5	*Is stormwater harvested within the site?*	NO
5.1	*If yes, please describe where and how stormwater is harvested.*	—
5.2	*For what purposes is stormwater harvested?*	—
6	*Are there groundwater wells / bores at the site?*	—
6.1	*If yes, for what purpose is groundwater used at the site?*	—

Item	Question	Response
6.2	*Where are the groundwater well / bores located on site? Please mark the location on the attached site plan.*	—
7	*Date when AFFF was first used on site?*	
8	*Can you provide the product names of any AFFF used on the site? (e.g. Ansulite, 3M Light Water)*	
9	*Was AFFF used in regular training exercises?* *If so:*	FLUSHING AFTER JOBS
9.1	*How often was the training?* *(e.g. weekly, monthly, quarterly)*	—
9.2	*Can you describe the location of the training areas and annotate them on the site plan?*	GRAVEL AREA.
9.3	*Can provide an estimate of how much AFFF was used in each training?*	
9.4	*Was the training ground sealed / open?*	
9.5	*Was AFFF dispersed aerially?* *If so, please indicate the maximum extent on the site plan?*	
9.6	*When was the date of the last training event that included the use of AFFF?*	
10	*Please describe how the waste water was managed following training events?* *Specifically, was there a recycling system, storage pond, storage tanks or drains?* *Please annotate waste water discharge point / pathways on the site plan.*	
11	*Did any waste water flow into drains that directed the waste water off-site?* *Please annotate the waste water discharge points / pathways on the site plan.*	
12	*Were there any changes how the waste water was managed over time?* *If so, please describe the changes.*	NO
13	*Is there any inventory of AFFF use for the site?*	No

Item	Question	Response
14	*Can you estimate the total volume of AFFF used on site before it was phased out in 2016?*	NO
15	*Where was AFFF stored on site?* *Please annotate the storage location on the site plan.*	ON APPLIANCE
15.1	*What type and size of storage containers were used to store AFFF on site?*	—
15.2	*What is the number of storage containers or the total volume of AFFF that was typically stored on site at any given time prior to 2016?*	—
16	*Please describe where and how AFFF was transferred from storage containers to the fire trucks / fire-fighting appliances.* *What equipment was used to transfer the AFFF?*	N/A
17	*How were spent drums of AFFF disposed of?*	—
18	*Were there any wash down areas for fire trucks, equipment or AFFF containers?* *If so:*	GRAVEL AREA
18.1	*How was the waste water from such areas managed? (e.g. recycling, treatment, storage pond or discharge to drains)*	FREE DRAINED.
18.2	*Were there any changes how the waste water was managed over?* *If so, please describe the changes.*	NO
19	*Please describe / annotate the specific location(s) of any other chemical storage facilities (including fuel and oil) and describe the type and typical use of those chemicals.*	SEE STN "MSDS"
20	*Is there an incident log / register for the site?*	NO

Item	Question	Response
21	*Are you aware of any AFFF (or other chemical) releases that may have occurred outside of typical application scenarios? If so:*	NO
21.1	*When did such release(s) happen?*	—
21.2	*What substance(s) was/were released?*	—
21.3	*Where did such release(s) happen?* *Please annotate the release point(s) on the site plan.*	—
21.4	*Where was the released AFFF or chemical discharged to?* *Please annotate the discharge point(s) on the site plan.*	—
22	*Are there areas of the site where training activities and / or AFFF release(s) have historically occurred that are now unused or have been built on?*	—
23	*Have there been any significant bulk earthworks on the Station site that resulted in soil being relocated from one area to another?*	NO
24	*Please describe any changes to the Station that you are aware of with respect to the storage and use of AFFF.*	—

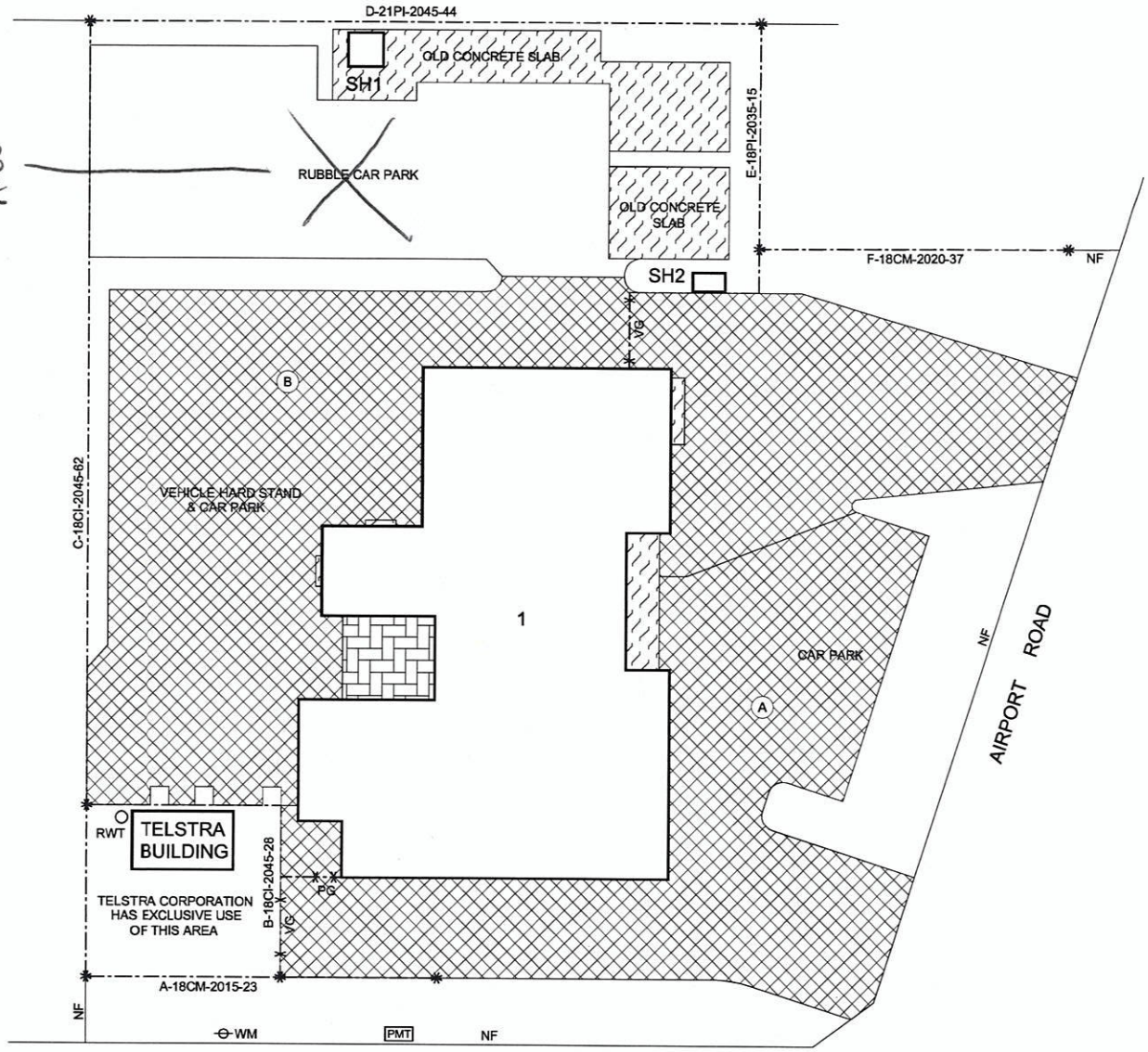
Any other comments or notes.

Scale Bar Units in Metres (1:300) 10 20 30 40 50 60 70 80

Plot at a scale of 1=0.3

All dimensions to be verified on site

NORTH



BUILDINGS

1 FIRE & AMBULANCE STATION

SH1 COLORBOND EQUIPMENT STORE SHED
SH2 COLORBOND DRY CLEANING STORE

PAVING DETAILS: Location, Type, Fail year, Area (sq ms)			
A bit-veh 2017 581		B bit veh 2020 985	
FENCES	*code-height-type-fail date-length (ms)*		
CI corrugated iron		PW post and wire	
CM chain mesh		WM weld mesh	
GT galtube		NF not fenced	
PG pedestrian gate		VG vehicle gate	
WM *Water Meter*		*Fence junction*	
GM *Gas Meter*		PMT *Pad mtd trans*	

BROOKLYN PARK SAMFS FIRE STATION 33 AIRPORT ROAD BROOKLYN PARK 5032

Government of South Australia
Department for Transport, Energy and Infrastructure

Asset no.	*09159*	Client.	*SAMFS*
DTEI Office.	*ADELAIDE*	Sheet.	*1 of 1*
Created by.	*Survcad*		*R.L.Chapman May 2010*
Modified by.	*Survcad*		*R.L.Chapman Jun 2010*
Audited by.	-	-	-
Title details.	*refer layer " site-allotment "*		
Site area.	*0.3693 ha*	Accuracy.	*Site Survey*

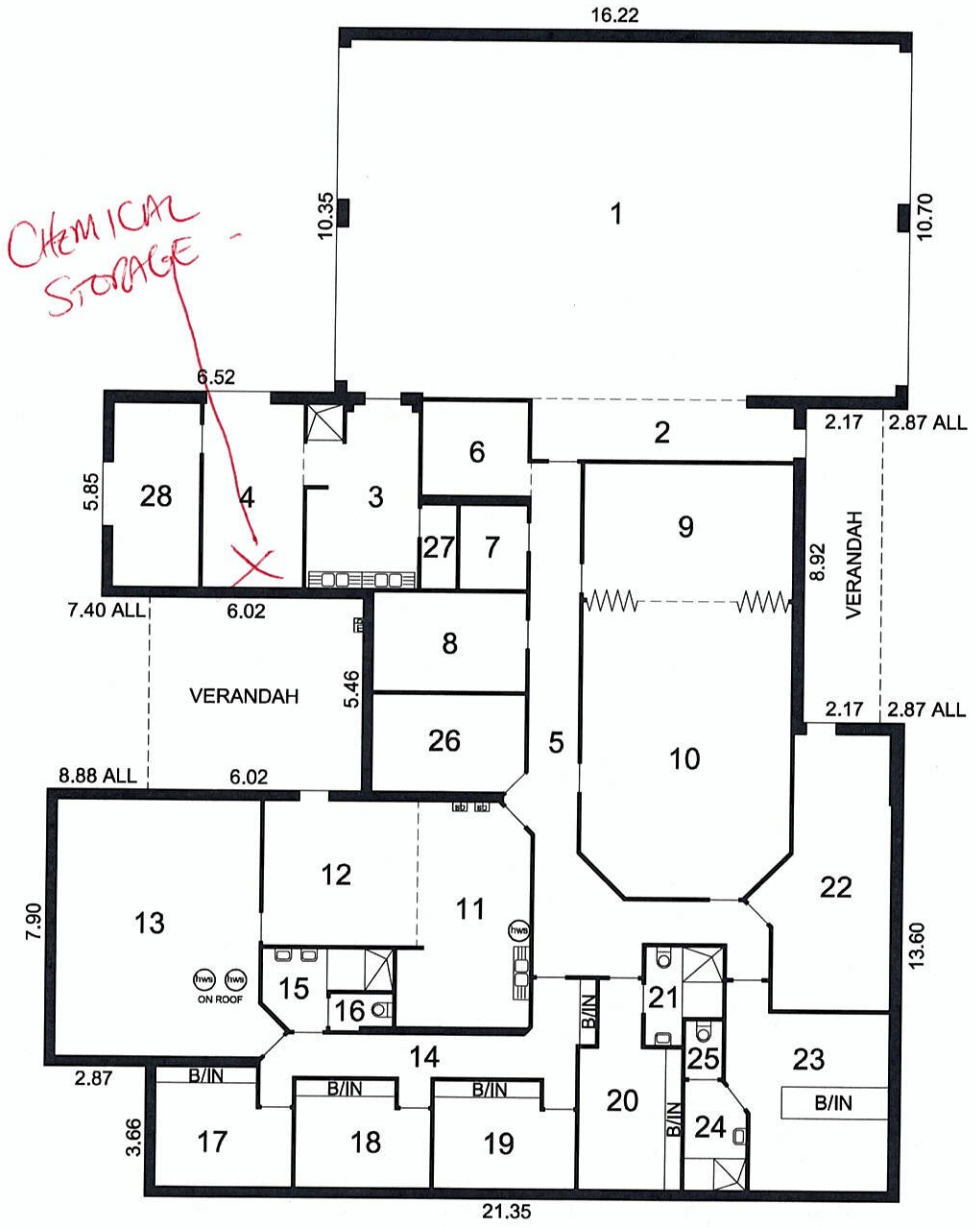
Strategic Asset Management Information System Plan

SAMIS 09159

1 10 20 30

Scale Bar Units in Metres (A4 1:200) Plot at a scale of 1=0.2 All dimensions to be verified on site

NORTH



ROOMS 22 - 28 ARE OCCUPIED BY
THE S.A. AMBULANCE SERVICE

Asset Name	**BROOKLYN PARK SAMFS FIRE STATION**				
Building Use	**FIRE & AMBULANCE STATION**				
Created by.	*Survcad*	Drawn	*R.L.Chapman*	Date	*May 2010*
Modified by.	*Survcad*	Drawn	*R.L.Chapman*	Date	*May 2010*
Bldg area m²	*629*	Ver area m²	*52*	Plan ref.	-

Government of South Australia
Department for Transport, Energy and Infrastructure

Strategic Asset Management Information System Plan

SAMIS 09159-01-1

APPENDIX E SOIL BOREHOLE LOGS

Echo Risk Consulting

Environmental Log - Soil

Client: Ventia			Date: 19 August 2024
Project Ref: EC0205			Logged by: AD
Location: 34 Airport Road, Brooklyn Park			Bore ID: SB1
Drill Model: EziProbe			Diameter: ~50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (eg fill, stains, odours)	PID (ppm)	Sample Details
	Red brown, fine to medium grained sand with occasional fine to medium grained gravel.	M	FILL		SB1-1 (0.0-0.1m)
0.25					
	Pale brown to cream crushed rock / gravelly sand. Fine to coarse grained.		Quarry rubble		SB1-2 (0.2-0.35m)
0.6					
	SILTY CLAY (CH). Dark brown, medium to high plasticity silty clay.		NATURAL		SB1-3 (0.6-0.7m)
1.0	Colour grading to brown mottled grey brown.				SB1-4 (0.9-1.0m)
1.2		D			
	GRAVELLY CLAY (CH). Grey brown mottled orange brown, medium to high plasticity gravelly clay. Fine to medium grained gravels and some sand.				
2.0					SB1-5 (1.9-2.0m)
	CLAY (CH). Red brown, medium to high plasticity clay. Occasional sandier lenses.	M			
					SB1-6 (2.6-2.7m)
3.0					
3.3					
3.5	GRAVELLY CLAY (CH). Red brown to brown, fine to medium grained gravel and sand inclusions.	W			SB1-7 (3.4-3.5m)
	Borehole SB1 discontinued at 3.5m				
4.0					
5.0					

Echo Risk Consulting

Environmental Log - Soil

Client: Ventia			Date: 19 August 2024
Project Ref: EC0205			Logged by: AD
Location: 34 Airport Road, Brooklyn Park			Bore ID: SB2
Drill Model: EziProbe			Diameter: ~50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (eg fill, stains, odours)	PID (ppm)	Sample Details
	Grey brown gravelly sand / crushed rock. Fine to coarse grained.	M	FILL		SB2-1 (0.0-0.1m) QC1/QC2
	Colour grading to orange brown with depth.				SB2-2 (0.3-0.4m)
0.55					
	SILTY CLAY (CH). Dark brown, medium to high plasticity silty clay.	D	NATURAL		SB2-3 (0.55-0.65m)
	Colour becoming light grey and orange brown mottled with depth.				
1.0					SB2-4 (0.9-1.0m)
1.2					
	GRAVELLY CLAY (CH). Grey brown mottled orange brown, medium to high plasticity gravelly clay.				
1.5	Fine to medium grained gravels and some sand.				
	SILTY CLAY (CH). Brown to grey brown, medium to high plasticity silty clay. Some sand.				
2.0					SB2-5 (1.9-2.0m)
2.7					
	SANDY CLAY (CH). Red brown to brown, medium to high plasticity sandy clay. Fine to medium				SB2-6 (2.7-2.8m)
3.0	grained sand. Some thin gravel bands.	W			
3.5					SB2-7 (3.4-3.5m)
	Borehole SB2 discontinued at 3.5m				
4.0					
5.0					

Echo Risk Consulting

Environmental Log - Soil

Client: Ventia	Date: 19 August 2024
Project Ref: EC0205	Logged by: AD
Location: 34 Airport Road, Brooklyn Park	Bore ID: SB3
Drill Model: EziProbe	Diameter: ~50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (eg fill, stains, odours)	PID (ppm)	Sample Details
	Grass cover.	M	FILL		SB3-1 (0.0-0.1m)
0.3	Brown to red brown sand. Fine to medium grained.				
0.4	Grey to cream crushed rock / gravelly sand.				SB3-2 (0.3-0.4m)
	SILTY CLAY (CH). Dark brown, medium to high plasticity silty clay.	D	NATURAL		SB3-3 (0.4-0.5m)
	Colour grading to pale grey mottled orange brown.				
1.0					SB3-4 (0.9-1.0m)
1.1	GRAVELLY CLAY (CH). Grey brown mottled orange brown, medium to high plasticity gravelly clay. Fine to medium grained gravels and some sand.				
1.5	SILTY CLAY (CH). Brown, medium to high plasticity silty clay. Some sand. Occasional fine to coarse grained rounded gravels.				
2.0					SB3-5 (1.9-2.0m)
	Colour grading to red brown with depth.	M			
2.8					SB3-6 (2.7-2.8m)
3.0	CLAYEY SAND (SW). Fine to medium grained, clayey sand. Medium to high plasticity fines with some gravel bands from around 3.2m.	W			
3.5					SB3-7 (3.4-3.5m)
	Borehole SB3 discontinued at 3.5m				
4.0					
5.0					

Echo Risk Consulting

Environmental Log - Soil

Client: Ventia	Date: 19 August 2024
Project Ref: EC0205	Logged by: AD
Location: 34 Airport Road, Brooklyn Park	Bore ID: SB4
Drill Model: EziProbe	Diameter: ~50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (eg fill, stains, odours)	PID (ppm)	Sample Details
	Grey to pale brown crushed rock / gravelly sand. Fine to coarse grained.	M	FILL		SB4-1 (0.0-0.1m)
0.25					
	SILTY CLAY (CH). Dark brown, medium to high plasticity silty clay.	D	NATURAL		SB4-2 (0.25-0.35m)
					SB4-3 (0.5-0.6m)
	Colour grading to pale grey.				
1.0					SB4-4 (0.9-1.0m)
	GRAVELLY CLAY (CH). Grey brown and orange brown mottled, medium to high plasticity gravelly clay. Fine to medium grained gravels and some sand.				
1.7					
	SILTY CLAY (CH). Dark brown to red brown, medium to high plasticity silty clay.	M			
2.0					SB4-5 (1.9-2.0m)
	Some gravel bands with depths.	W			
2.7					
	SANDY CLAY (CH). Red brown to brown, medium to high plasticity sandy clay. Fine to medium grained sand. Some thin gravel bands.				SB4-6 (2.8-2.9m)
3.0					
3.5					SB4-7 (3.4-3.5m)
	Borehole SB4 discontinued at 3.5m				
4.0					
5.0					

Echo Risk Consulting

Environmental Log - Soil

Client: Ventia	Date: 19 August 2024
Project Ref: EC0205	Logged by: AD
Location: 34 Airport Road, Brooklyn Park	Bore ID: SB5
Drill Model: EziProbe	Diameter: ~50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (eg fill, stains, odours)	PID (ppm)	Sample Details
	Grey brown clayey sand with fine to coarse grained gravel (up to 30mm). Some cream crushed rock.	M	FILL		SB5-1 (0.0-0.1m)
0.25	Thin layer of ash/cinders at base of layer.				
	SILTY CLAY (CH). Dark grey to brown, medium to high plasticity silty clay.		NATURAL		SB5-2 (0.25-0.35m)
					SB5-3 (0.5-0.6m)
0.7		D			
	GRAVELLY CLAY (CH). Grey and brown mottled, medium to high plasticity gravelly clay.				
1.0	Fine to medium grained gravels and some sand.				SB5-4 (0.9-1.0m)
	Colour grading to orange brown and grey brown mottled with depth.				
1.6					
	SILTY CLAY (CH). Brown to dark brown, medium to high plasticity silty clay.	M			
2.0					SB5-5 (1.9-2.0m(
2.5					
	CLAYEY SAND (SW). Brown, fine to medium grained, clayey sand. Medium to high plasticity fines with some gravel bands .	W			SB5-6 (2.7-2.8m)
3.0					
	SILTY CLAY (CH). Brown to dark brown, medium to high plasticity silty clay. Occasional sand.				
3.5					SB5-7 (3.4-3.5m)
	Borehole SB5 discontinued at 3.5m				
4.0					
5.0					

Echo Risk Consulting

Environmental Log - Soil

Client: Ventia	Date: 19 August 2024
Project Ref: EC0205	Logged by: AD
Location: 34 Airport Road, Brooklyn Park	Bore ID: SB6
Drill Model: EziProbe	Diameter: ~50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (eg fill, stains, odours)	PID (ppm)	Sample Details
0.15	Grey brown, fine to coarse grained gravelly sand. Some fines.	M	FILL		SB6-1 (0.0-0.1m) QC3/QC4
0.45	Orange brown to brown gravelly clay.				SB6-2 (0.15-0.25m)
0.55	Orange brown crushed rock / gravelly sand. Fine to coarse grained.				SB6-3 (0.45-0.55m)
1.0	SILTY CLAY (CH). Dark grey, medium to high plasticity silty clay.	D	NATURAL		SB6-4 (0.6-0.7m)
1.8	GRAVELLY CLAY (CH). Red brown and grey brown mottled, medium to high plasticity gravelly clay Some larger calcareous gravels around 1.5m.				SB6-5 (1.0-1.1m)
2.4	SILTY CLAY (CH). Orange brown and grey brown mottled, medium to high plasticity silty clay. Colour grading to red brown with depth.	M			SB6-6 (1.9-2.0m)
2.9	GRAVELLY SANDY CLAY (CH). Red brown, medium to high plasticity. Some larger gravel bands.	W			SB6-7 (2.4-2.5m)
3.5	SILTY CLAY (CH). Red brown, medium to high plasticity silty clay. Some sand and occasional gravel.				SB6-8 (3.4-3.5m)
4.0	Borehole SB6 discontinued at 3.5m				
5.0					

Echo Risk Consulting

Environmental Log - Soil

Client: Ventia	Date: 19 August 2024
Project Ref: EC0205	Logged by: AD
Location: 34 Airport Road, Brooklyn Park	Bore ID: SB7
Drill Model: EziProbe	Diameter: ~50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (eg fill, stains, odours)	PID (ppm)	Sample Details
0.1	Brown to grey brown silty clay with gravels.	M	FILL		SB7-1 (0.0-0.1m)
0.2	Cream crushed rock / gravelly sand.				SB7-2 (0.1-0.2m)
0.6	Mottled brown, dark brown, orange brown and cream sandy clay with some gravel.	D			SB7-3 (0.3-0.4m)
1.3	SILTY CLAY (CH). Dark brown, medium to high plasticity silty clay.		NATURAL		SB7-4 (0.6-0.7m)
2.0	GRAVELLY CLAY (CH).Pale brown and orange brown mottled, medium to high plasticity gravelly clay.	M			SB7-5 (1.3-1.4m)
3.0	SILTY CLAY (CH). Red brown mottled grey, medium to high plasticity silty clay.				SB7-6 (1.9-2.0m)
3.5	SANDY CLAY (CH). Red brown, medium to high plasticity sandy clay. Fine to coarse grained sand.	W			SB7-7 (2.7-2.8m)
4.0	Borehole SB7 discontinued at 3.5m				SB7-8 (3.4-3.5m)
5.0					

Echo Risk Consulting

Environmental Log - Soil

Client: Ventia	Date: 19 August 2024
Project Ref: EC0205	Logged by: AD
Location: 34 Airport Road, Brooklyn Park	Bore ID: SB8
Drill Model: EziProbe	Diameter: ~50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (eg fill, stains, odours)	PID (ppm)	Sample Details
	Dark brown topsoil with crushed rock / gravelly sand.	M	FILL		SB8-1 (0.0-0.1m)
0.4	Orange brown and grey mottled sandy clay with fine to medium grained gravel.				SB8-2 (0.3-0.4m)
	SILTY CLAY (CH). Dark brown to grey brown, medium to high plasticity silty clay.	D	NATURAL		SB8-3 (0.4-0.5m)
0.9					
1.0	GRAVELLY CLAY (CH).Brown to orange brown, medium to high plasticity gravelly clay. Gravels to 30mm.				SB8-4 (0.9-1.0m)
2.0					SB8-5 (1.9-2.0m)
	SILTY CLAY (CH). Brown, medium to high plasticity silty clay.	M			
2.6					
	CLAYEY SAND (SW). Red brown, fine to medium grained sand with medium to high plasticity fines.	W			SB8-6 (2.6-2.7m)
3.0					
	SILTY CLAY (CH). Red brown to brown, medium to high plasticity silty clay.	M			
3.5					SB8-7 (3.4-3.5m)
	Borehole SB8 discontinued at 3.5m				
4.0					
5.0					

APPENDIX F NATA LABORATORY CERTIFICATES – SOIL

Echo Risk Consulting
84 North Terrace
Kent Town
SA 5067

NATA Accredited
Accreditation Number 1261
Site Number 1254

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: **Andrew Durand**

Report **1130191-S**
Project name 34 Airport Road Brooklyn Park
Received Date Aug 19, 2024

Client Sample ID			**SB1-2**	**SB1-3**	**SB2-1**	**SB2-2**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M24-Au0051457**	**M24-Au0051458**	**M24-Au0051459**	**M24-Au0051460**
Date Sampled			**Aug 19, 2024**	**Aug 19, 2024**	**Aug 19, 2024**	**Aug 19, 2024**
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	10	16	8.1	5.1
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	6.0	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 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	< 5	< 5
13C4-PFBA (surr.)	1	%	95	32	88	76
13C5-PFPeA (surr.)	1	%	100	26	93	67
13C5-PFHxA (surr.)	1	%	157	118	141	103
13C4-PFHpA (surr.)	1	%	95	119	89	68
13C8-PFOA (surr.)	1	%	102	100	97	70
13C5-PFNA (surr.)	1	%	107	13	93	73
13C6-PFDA (surr.)	1	%	96	11	87	80
13C2-PFUnDA (surr.)	1	%	104	10	94	68
13C2-PFDoDA (surr.)	1	%	99	113	84	63
13C2-PFTeDA (surr.)	1	%	98	150	87	46
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 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	< 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	%	100	59	82	64

Client Sample ID			SB1-2	SB1-3	SB2-1	SB2-2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051457	M24-Au0051458	M24-Au0051459	M24-Au0051460
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D3-N-MeFOSA (surr.)	1	%	94	57	77	52
D5-N-EtFOSA (surr.)	1	%	99	65	78	56
D7-N-MeFOSE (surr.)	1	%	103	69	81	62
D9-N-EtFOSE (surr.)	1	%	95	98	72	54
D5-N-EtFOSAA (surr.)	1	%	140	14	114	104
D3-N-MeFOSAA (surr.)	1	%	145	17	120	106
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 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	[N09]< 5	22	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	11	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]160	170	[N09]12	[N09]38
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	96	24	93	75
18O2-PFHxS (surr.)	1	%	89	119	89	65
13C8-PFOS (surr.)	1	%	89	124	89	61
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	< 5	< 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	%	93	26	103	85
13C2-6:2 FTSA (surr.)	1	%	96	16	90	67
13C2-8:2 FTSA (surr.)	1	%	145	15	133	107
13C2-10:2 FTSA (surr.)	1	%	144	16	113	97
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	160	192	12	38
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	160	176	12	38
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	160	198	12	38
Sum of WA DWER PFAS (n=10)*	10	ug/kg	160	198	12	38
Sum of PFASs (n=30)*	50	ug/kg	160	209	< 50	< 50

Client Sample ID			SB2-3	SB3-1	SB3-3	SB4-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051461	M24-Au0051462	M24-Au0051463	M24-Au0051464
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	16	11	20	9.1

Client Sample ID			SB2-3	SB3-1	SB3-3	SB4-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051461	M24-Au0051462	M24-Au0051463	M24-Au0051464
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
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	29	< 5	13	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 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	< 5	< 5
13C4-PFBA (surr.)	1	%	80	80	75	83
13C5-PFPeA (surr.)	1	%	84	85	86	91
13C5-PFHxA (surr.)	1	%	130	127	121	132
13C4-PFHpA (surr.)	1	%	77	75	77	81
13C8-PFOA (surr.)	1	%	79	80	79	88
13C5-PFNA (surr.)	1	%	84	84	77	90
13C6-PFDA (surr.)	1	%	80	76	68	79
13C2-PFUnDA (surr.)	1	%	85	83	73	87
13C2-PFDoDA (surr.)	1	%	73	73	65	79
13C2-PFTeDA (surr.)	1	%	71	63	59	68
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 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	< 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	%	80	71	68	81
D3-N-MeFOSA (surr.)	1	%	71	67	59	72
D5-N-EtFOSA (surr.)	1	%	77	70	63	82
D7-N-MeFOSE (surr.)	1	%	79	77	67	85
D9-N-EtFOSE (surr.)	1	%	68	67	59	75
D5-N-EtFOSAA (surr.)	1	%	105	121	98	129
D3-N-MeFOSAA (surr.)	1	%	96	120	98	125
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 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	[N09]120	[N09]5.8	[N09]36	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	5.9	< 5	7.4	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]< 5	[N09]74	[N09]12	[N09]21
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			SB2-3	SB3-1	SB3-3	SB4-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051461	M24-Au0051462	M24-Au0051463	M24-Au0051464
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
13C3-PFBS (surr.)	1	%	84	95	84	90
18O2-PFHxS (surr.)	1	%	80	79	73	79
13C8-PFOS (surr.)	1	%	73	72	70	76
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	< 5	< 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	%	87	84	86	83
13C2-6:2 FTSA (surr.)	1	%	86	81	81	83
13C2-8:2 FTSA (surr.)	1	%	116	110	114	126
13C2-10:2 FTSA (surr.)	1	%	110	111	100	129
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	120	79.8	48	21
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	29	74	25	21
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	149	79.8	61	21
Sum of WA DWER PFAS (n=10)*	10	ug/kg	149	79.8	61	21
Sum of PFASs (n=30)*	50	ug/kg	154.9	79.8	68.4	< 50

Client Sample ID			SB4-2	SB5-1	SB5-2	SB6-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051465	M24-Au0051466	M24-Au0051467	M24-Au0051468
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	25	7.0	16	11
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	6.8	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	8.5	< 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
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	%	47	66	89	116
13C5-PFPeA (surr.)	1	%	42	63	105	118
13C5-PFHxA (surr.)	1	%	57	96	142	120
13C4-PFHpA (surr.)	1	%	34	54	87	113
13C8-PFOA (surr.)	1	%	30	55	94	122
13C5-PFNA (surr.)	1	%	31	57	101	115

Client Sample ID			SB4-2	SB5-1	SB5-2	SB6-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051465	M24-Au0051466	M24-Au0051467	M24-Au0051468
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C6-PFDA (surr.)	1	%	29	55	89	105
13C2-PFUnDA (surr.)	1	%	25	51	100	114
13C2-PFDoDA (surr.)	1	%	21	47	97	129
13C2-PFTeDA (surr.)	1	%	19	38	106	120
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 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	< 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	%	25	53	90	106
D3-N-MeFOSA (surr.)	1	%	19	43	85	135
D5-N-EtFOSA (surr.)	1	%	20	45	96	136
D7-N-MeFOSE (surr.)	1	%	21	47	93	134
D9-N-EtFOSE (surr.)	1	%	19	40	80	118
D5-N-EtFOSAA (surr.)	1	%	41	73	128	105
D3-N-MeFOSAA (surr.)	1	%	41	78	134	120
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 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	64	< 5	[N09]< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	93	[N09]33	[N09]18	[N09]110
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	35	64	96	107
18O2-PFHxS (surr.)	1	%	142	55	96	116
13C8-PFOS (surr.)	1	%	146	50	90	93
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	< 5	< 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	%	43	65	92	113
13C2-6:2 FTSA (surr.)	1	%	33	55	101	110
13C2-8:2 FTSA (surr.)	1	%	45	84	144	139
13C2-10:2 FTSA (surr.)	1	%	34	75	139	145

Client Sample ID			SB4-2	SB5-1	SB5-2	SB6-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051465	M24-Au0051466	M24-Au0051467	M24-Au0051468
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	157	33	18	110
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	101.5	33	18	110
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	165.5	33	18	110
Sum of WA DWER PFAS (n=10)*	10	ug/kg	172.3	33	18	110
Sum of PFASs (n=30)*	50	ug/kg	172.3	< 50	< 50	110

Client Sample ID			SB6-3	SB6-4	SB7-1	SB7-3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051469	M24-Au0051470	M24-Au0051471	M24-Au0051472
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	5.1	16	13	15
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
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	%	118	117	116	100
13C5-PFPeA (surr.)	1	%	122	118	117	110
13C5-PFHxA (surr.)	1	%	118	121	118	97
13C4-PFHpA (surr.)	1	%	117	119	116	93
13C8-PFOA (surr.)	1	%	123	124	126	130
13C5-PFNA (surr.)	1	%	120	113	115	70
13C6-PFDA (surr.)	1	%	94	95	81	90
13C2-PFUnDA (surr.)	1	%	114	110	97	109
13C2-PFDoDA (surr.)	1	%	130	131	125	122
13C2-PFTeDA (surr.)	1	%	136	122	128	97
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 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	< 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

Client Sample ID			SB6-3	SB6-4	SB7-1	SB7-3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051469	M24-Au0051470	M24-Au0051471	M24-Au0051472
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	112	99	97	125
D3-N-MeFOSA (surr.)	1	%	139	140	130	105
D5-N-EtFOSA (surr.)	1	%	139	140	133	113
D7-N-MeFOSE (surr.)	1	%	127	134	131	78
D9-N-EtFOSE (surr.)	1	%	128	120	123	80
D5-N-EtFOSAA (surr.)	1	%	125	131	129	139
D3-N-MeFOSAA (surr.)	1	%	127	131	132	156
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 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	< 5	[N09]5.5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]5.7	< 5	[N09]5.7	[N09]34
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	110	108	115	101
18O2-PFHxS (surr.)	1	%	110	112	109	92
13C8-PFOS (surr.)	1	%	84	85	63	100
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	< 5	< 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	%	90	107	103	92
13C2-6:2 FTSA (surr.)	1	%	104	108	95	116
13C2-8:2 FTSA (surr.)	1	%	138	142	135	119
13C2-10:2 FTSA (surr.)	1	%	132	138	129	171
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	5.7	< 5	5.7	39.5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	5.7	< 5	5.7	34
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	5.7	< 5	5.7	39.5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	39.5
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			SB7-4	SB8-2	SB8-3	GW1-2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051473	M24-Au0051474	M24-Au0051475	M24-Au0051476
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	13	13	15	6.3
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	5.3	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	[N09]12	< 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
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	%	99	88	78	83
13C5-PFPeA (surr.)	1	%	104	91	96	97
13C5-PFHxA (surr.)	1	%	91	81	156	128
13C4-PFHpA (surr.)	1	%	88	80	106	82
13C8-PFOA (surr.)	1	%	110	103	100	89
13C5-PFNA (surr.)	1	%	92	68	106	92
13C6-PFDA (surr.)	1	%	89	70	95	84
13C2-PFUnDA (surr.)	1	%	104	85	100	85
13C2-PFDoDA (surr.)	1	%	117	92	91	83
13C2-PFTeDA (surr.)	1	%	92	73	92	84
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 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	< 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	%	109	92	95	82
D3-N-MeFOSA (surr.)	1	%	88	76	92	77
D5-N-EtFOSA (surr.)	1	%	100	86	98	82
D7-N-MeFOSE (surr.)	1	%	70	60	101	83
D9-N-EtFOSE (surr.)	1	%	69	55	92	74
D5-N-EtFOSAA (surr.)	1	%	111	101	123	117
D3-N-MeFOSAA (surr.)	1	%	139	118	118	118
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	[N09]20	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]310	[N09]13	[N09]13	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			SB7-4	SB8-2	SB8-3	GW1-2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0051473	M24-Au0051474	M24-Au0051475	M24-Au0051476
Date Sampled			Aug 19, 2024	Aug 19, 2024	Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	[N09]65	[N09]17	[N09]19
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	97	82	101	86
18O2-PFHxS (surr.)	1	%	58	91	98	79
13C8-PFOS (surr.)	1	%	99	80	102	82
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	< 5	< 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	%	77	80	147	86
13C2-6:2 FTSA (surr.)	1	%	88	92	128	96
13C2-8:2 FTSA (surr.)	1	%	123	95	134	121
13C2-10:2 FTSA (surr.)	1	%	160	135	142	116
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	310	78	30	19
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	12	65	17	19
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	322	78	30	19
Sum of WA DWER PFAS (n=10)*	10	ug/kg	327.3	78	30	19
Sum of PFASs (n=30)*	50	ug/kg	347.3	78	< 50	< 50

Client Sample ID			QC1
Sample Matrix			Soil
Eurofins Sample No.			M24-Au0051477
Date Sampled			Aug 19, 2024
Test/Reference	LOR	Unit	
Sample Properties			
% Moisture	1	%	8.7
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	%	71
13C5-PFPeA (surr.)	1	%	75
13C5-PFHxA (surr.)	1	%	113
13C4-PFHpA (surr.)	1	%	67

Client Sample ID			QC1
Sample Matrix			Soil
Eurofins Sample No.			M24-Au0051477
Date Sampled			Aug 19, 2024
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs)			
13C8-PFOA (surr.)	1	%	68
13C5-PFNA (surr.)	1	%	70
13C6-PFDA (surr.)	1	%	63
13C2-PFUnDA (surr.)	1	%	67
13C2-PFDoDA (surr.)	1	%	61
13C2-PFTeDA (surr.)	1	%	57
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	%	60
D3-N-MeFOSA (surr.)	1	%	56
D5-N-EtFOSA (surr.)	1	%	59
D7-N-MeFOSE (surr.)	1	%	58
D9-N-EtFOSE (surr.)	1	%	52
D5-N-EtFOSAA (surr.)	1	%	84
D3-N-MeFOSAA (surr.)	1	%	91
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	[N09]9.0
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5
13C3-PFBS (surr.)	1	%	73
18O2-PFHxS (surr.)	1	%	64
13C8-PFOS (surr.)	1	%	66
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	%	68
13C2-6:2 FTSA (surr.)	1	%	70
13C2-8:2 FTSA (surr.)	1	%	103
13C2-10:2 FTSA (surr.)	1	%	84

Client Sample ID			QC1
Sample Matrix			**Soil**
Eurofins Sample No.			**M24-Au0051477**
Date Sampled			**Aug 19, 2024**
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	5	ug/kg	9
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	9
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	9
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50

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	Melbourne	Aug 20, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Aug 21, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Aug 21, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Aug 21, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Aug 21, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Aug 20, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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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 & 2780	Site# 25079

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Echo Risk Consulting
Address: 84 North Terrace
Kent Town
SA 5067

Project Name: 34 Airport Road Brooklyn Park

Order No.: EC0205
Report #: 1130191
Phone: 0414 496 402
Fax:

Received: Aug 19, 2024 3:21 PM
Due: Aug 26, 2024
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	SB1-2	Aug 19, 2024		Soil	M24-Au0051457		X	X
2	SB1-3	Aug 19, 2024		Soil	M24-Au0051458		X	X
3	SB2-1	Aug 19, 2024		Soil	M24-Au0051459		X	X
4	SB2-2	Aug 19, 2024		Soil	M24-Au0051460		X	X
5	SB2-3	Aug 19, 2024		Soil	M24-Au0051461		X	X
6	SB3-1	Aug 19, 2024		Soil	M24-Au0051462		X	X
7	SB3-3	Aug 19, 2024		Soil	M24-Au0051463		X	X
8	SB4-1	Aug 19, 2024		Soil	M24-Au0051464		X	X
9	SB4-2	Aug 19, 2024		Soil	M24-Au0051465		X	X
10	SB5-1	Aug 19, 2024		Soil	M24-Au0051466		X	X
11	SB5-2	Aug 19, 2024		Soil	M24-Au0051467		X	X
12	SB6-1	Aug 19, 2024		Soil	M24-Au0051468		X	X
13	SB6-3	Aug 19, 2024		Soil	M24-Au0051469		X	X
14	SB6-4	Aug 19, 2024		Soil	M24-Au0051470		X	X
15	SB7-1	Aug 19, 2024		Soil	M24-Au0051471		X	X

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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 & 2780	Site# 25079

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Address: 84 North Terrace
Kent Town
SA 5067

Project Name: 34 Airport Road Brooklyn Park

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Phone: 0414 496 402
Fax:

Received: Aug 19, 2024 3:21 PM
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Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
16	SB7-3	Aug 19, 2024		Soil	M24-Au0051472		X	X
17	SB7-4	Aug 19, 2024		Soil	M24-Au0051473		X	X
18	SB8-2	Aug 19, 2024		Soil	M24-Au0051474		X	X
19	SB8-3	Aug 19, 2024		Soil	M24-Au0051475		X	X
20	GW1-2	Aug 19, 2024		Soil	M24-Au0051476		X	X
21	QC1	Aug 19, 2024		Soil	M24-Au0051477		X	X
22	TB1	Aug 19, 2024		Water	M24-Au0051478			X
23	RB1	Aug 19, 2024		Water	M24-Au0051479			X
24	SB1-1	Aug 19, 2024		Soil	M24-Au0051480	X		
25	SB1-4	Aug 19, 2024		Soil	M24-Au0051481	X		
26	SB1-5	Aug 19, 2024		Soil	M24-Au0051482	X		
27	SB1-6	Aug 19, 2024		Soil	M24-Au0051483	X		
28	SB1-7	Aug 19, 2024		Soil	M24-Au0051484	X		
29	SB2-4	Aug 19, 2024		Soil	M24-Au0051485	X		
30	SB2-5	Aug 19, 2024		Soil	M24-Au0051486	X		
31	SB2-6	Aug 19, 2024		Soil	M24-Au0051487	X		
32	SB2-7	Aug 19, 2024		Soil	M24-Au0051488	X		

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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 & 2780	Site# 25079

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Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
33	SB3-2	Aug 19, 2024		Soil	M24-Au0051489	X		
34	SB3-4	Aug 19, 2024		Soil	M24-Au0051490	X		
35	SB3-5	Aug 19, 2024		Soil	M24-Au0051491	X		
36	SB3-6	Aug 19, 2024		Soil	M24-Au0051492	X		
37	SB3-7	Aug 19, 2024		Soil	M24-Au0051493	X		
38	SB4-3	Aug 19, 2024		Soil	M24-Au0051494	X		
39	SB4-4	Aug 19, 2024		Soil	M24-Au0051495	X		
40	SB4-5	Aug 19, 2024		Soil	M24-Au0051496	X		
41	SB4-6	Aug 19, 2024		Soil	M24-Au0051497	X		
42	SB4-7	Aug 19, 2024		Soil	M24-Au0051498	X		
43	SB5-3	Aug 19, 2024		Soil	M24-Au0051499	X		
44	SB5-4	Aug 19, 2024		Soil	M24-Au0051500	X		
45	SB5-5	Aug 19, 2024		Soil	M24-Au0051501	X		
46	SB5-6	Aug 19, 2024		Soil	M24-Au0051502	X		
47	SB5-7	Aug 19, 2024		Soil	M24-Au0051503	X		
48	SB6-2	Aug 19, 2024		Soil	M24-Au0051504	X		
49	SB6-5	Aug 19, 2024		Soil	M24-Au0051505	X		

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Echo Risk Consulting
Address: 84 North Terrace
Kent Town
SA 5067

Project Name: 34 Airport Road Brooklyn Park

Order No.: EC0205
Report #: 1130191
Phone: 0414 496 402
Fax:

Received: Aug 19, 2024 3:21 PM
Due: Aug 26, 2024
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
50	SB6-6	Aug 19, 2024		Soil	M24-Au0051506	X		
51	SB6-7	Aug 19, 2024		Soil	M24-Au0051507	X		
52	SB6-8	Aug 19, 2024		Soil	M24-Au0051508	X		
53	SB7-2	Aug 19, 2024		Soil	M24-Au0051509	X		
54	SB7-5	Aug 19, 2024		Soil	M24-Au0051510	X		
55	SB7-6	Aug 19, 2024		Soil	M24-Au0051511	X		
56	SB7-7	Aug 19, 2024		Soil	M24-Au0051512	X		
57	SB7-8	Aug 19, 2024		Soil	M24-Au0051513	X		
58	SB8-1	Aug 19, 2024		Soil	M24-Au0051514	X		
59	SB8-4	Aug 19, 2024		Soil	M24-Au0051515	X		
60	SB8-5	Aug 19, 2024		Soil	M24-Au0051516	X		
61	SB8-6	Aug 19, 2024		Soil	M24-Au0051517	X		
62	SB8-7	Aug 19, 2024		Soil	M24-Au0051518	X		
63	GW1-1	Aug 19, 2024		Soil	M24-Au0051519	X		
64	GW1-3	Aug 19, 2024		Soil	M24-Au0051520	X		
65	GW1-4	Aug 19, 2024		Soil	M24-Au0051521	X		
66	GW1-5	Aug 19, 2024		Soil	M24-Au0051522	X		

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Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
67	GW1-6	Aug 19, 2024		Soil	M24-Au0051523	X		
68	QC3	Aug 19, 2024		Soil	M24-Au0051524	X		
69	RB2	Aug 19, 2024		Water	M24-Au0051525	X		
70	GW3-1	Aug 19, 2024		Soil	M24-Au0058337	X		
71	GW3-2	Aug 19, 2024		Soil	M24-Au0058338	X		
72	GW3-3	Aug 19, 2024		Soil	M24-Au0058339	X		
73	GW3-4	Aug 19, 2024		Soil	M24-Au0058340	X		
74	GW3-5	Aug 19, 2024		Soil	M24-Au0058341	X		
75	GW3-6	Aug 19, 2024		Soil	M24-Au0058342	X		
Test Counts						52	21	23

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. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
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 where annotated.
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 sampling date; 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 seven 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 (CU)	

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 6.0
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 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, 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							
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	
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	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluoroheptanesulfonic acid (PFHpS)	%	83			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	98			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	95			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	105			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	94			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	98			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	99			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	97			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	96			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	%	102			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	107			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	99			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	94			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	98			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	92			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	105			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	96			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	89			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	102			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	96			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	137			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	103			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	81			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	104			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	106			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	87			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	103			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Au0051462	CP	%	85			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0051462	CP	%	70			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0051462	CP	%	94			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0051462	CP	%	83			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0051462	CP	%	98			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0051462	CP	%	93			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0051462	CP	%	96			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0051462	CP	%	110			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0051462	CP	%	100			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0051462	CP	%	126			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0051462	CP	%	90			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Au0051462	CP	%	91			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0051462	CP	%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0051462	CP	%	94			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0051462	CP	%	94			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0051462	CP	%	86			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0051462	CP	%	90			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0051462	CP	%	92			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Au0051462	CP	%	74			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0051462	CP	%	85			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0051462	CP	%	69			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0051462	CP	%	73			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0051462	CP	%	75			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0051462	CP	%	82			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0051462	CP	%	83			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0051462	CP	%	96			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-Au0051462	CP	%	89			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0051462	CP	%	86			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0051462	CP	%	80			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0051462	CP	%	91			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0051461	CP	ug/kg	29	26	10	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0051461	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0051461	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0051461	CP	ug/kg	120	140	10	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0051461	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)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0051461	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0051461	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M24-Au0051475	CP	%	15	16	5.0	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
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:

Catherine Wilson	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS
Joseph Edouard	Senior Analyst-PFAS
Mary Makarios	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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Echo Risk Consulting
84 North Terrace
Kent Town
SA 5067

NATA Accredited
Accreditation Number 1261
Site Number 1254

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: **Andrew Durand**

Report **1130191-W**
Project name 34 Airport Road Brooklyn Park
Received Date Aug 19, 2024

Client Sample ID			**TB1**	**RB1**
Sample Matrix			**Water**	**Water**
Eurofins Sample No.			**M24-Au0051478**	**M24-Au0051479**
Date Sampled			**Aug 19, 2024**	**Aug 19, 2024**
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	117	109
13C5-PFPeA (surr.)	1	%	130	123
13C5-PFHxA (surr.)	1	%	115	108
13C4-PFHpA (surr.)	1	%	109	106
13C8-PFOA (surr.)	1	%	106	107
13C5-PFNA (surr.)	1	%	100	104
13C6-PFDA (surr.)	1	%	84	86
13C2-PFUnDA (surr.)	1	%	63	73
13C2-PFDoDA (surr.)	1	%	74	90
13C2-PFTeDA (surr.)	1	%	44	52
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	95	82
D3-N-MeFOSA (surr.)	1	%	22	70
D5-N-EtFOSA (surr.)	1	%	129	64

Client Sample ID			TB1	RB1
Sample Matrix			Water	Water
Eurofins Sample No.			M24-Au0051478	M24-Au0051479
Date Sampled			Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonamido substances				
D7-N-MeFOSE (surr.)	1	%	107	78
D9-N-EtFOSE (surr.)	1	%	106	73
D5-N-EtFOSAA (surr.)	1	%	65	69
D3-N-MeFOSAA (surr.)	1	%	79	84
Perfluoroalkyl sulfonic acids (PFSAs)				
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	111	107
18O2-PFHxS (surr.)	1	%	99	97
13C8-PFOS (surr.)	1	%	83	93
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	109	95
13C2-6:2 FTSA (surr.)	1	%	59	60
13C2-8:2 FTSA (surr.)	1	%	69	65
13C2-10:2 FTSA (surr.)	1	%	58	59
PFASs Summations				
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1	< 0.1

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
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Aug 20, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Aug 20, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Aug 20, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Aug 20, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Aug 20, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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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 & 2780	Site# 25079

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Echo Risk Consulting
Address: 84 North Terrace
Kent Town
SA 5067

Project Name: 34 Airport Road Brooklyn Park

Order No.: EC0205
Report #: 1130191
Phone: 0414 496 402
Fax:

Received: Aug 19, 2024 3:21 PM
Due: Aug 26, 2024
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	SB1-2	Aug 19, 2024		Soil	M24-Au0051457		X	X
2	SB1-3	Aug 19, 2024		Soil	M24-Au0051458		X	X
3	SB2-1	Aug 19, 2024		Soil	M24-Au0051459		X	X
4	SB2-2	Aug 19, 2024		Soil	M24-Au0051460		X	X
5	SB2-3	Aug 19, 2024		Soil	M24-Au0051461		X	X
6	SB3-1	Aug 19, 2024		Soil	M24-Au0051462		X	X
7	SB3-3	Aug 19, 2024		Soil	M24-Au0051463		X	X
8	SB4-1	Aug 19, 2024		Soil	M24-Au0051464		X	X
9	SB4-2	Aug 19, 2024		Soil	M24-Au0051465		X	X
10	SB5-1	Aug 19, 2024		Soil	M24-Au0051466		X	X
11	SB5-2	Aug 19, 2024		Soil	M24-Au0051467		X	X
12	SB6-1	Aug 19, 2024		Soil	M24-Au0051468		X	X
13	SB6-3	Aug 19, 2024		Soil	M24-Au0051469		X	X
14	SB6-4	Aug 19, 2024		Soil	M24-Au0051470		X	X
15	SB7-1	Aug 19, 2024		Soil	M24-Au0051471		X	X

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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 & 2780	Site# 25079

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Echo Risk Consulting
Address: 84 North Terrace
Kent Town
SA 5067

Project Name: 34 Airport Road Brooklyn Park

Order No.: EC0205
Report #: 1130191
Phone: 0414 496 402
Fax:

Received: Aug 19, 2024 3:21 PM
Due: Aug 26, 2024
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
16	SB7-3	Aug 19, 2024		Soil	M24-Au0051472		X	X
17	SB7-4	Aug 19, 2024		Soil	M24-Au0051473		X	X
18	SB8-2	Aug 19, 2024		Soil	M24-Au0051474		X	X
19	SB8-3	Aug 19, 2024		Soil	M24-Au0051475		X	X
20	GW1-2	Aug 19, 2024		Soil	M24-Au0051476		X	X
21	QC1	Aug 19, 2024		Soil	M24-Au0051477		X	X
22	TB1	Aug 19, 2024		Water	M24-Au0051478			X
23	RB1	Aug 19, 2024		Water	M24-Au0051479			X
24	SB1-1	Aug 19, 2024		Soil	M24-Au0051480	X		
25	SB1-4	Aug 19, 2024		Soil	M24-Au0051481	X		
26	SB1-5	Aug 19, 2024		Soil	M24-Au0051482	X		
27	SB1-6	Aug 19, 2024		Soil	M24-Au0051483	X		
28	SB1-7	Aug 19, 2024		Soil	M24-Au0051484	X		
29	SB2-4	Aug 19, 2024		Soil	M24-Au0051485	X		
30	SB2-5	Aug 19, 2024		Soil	M24-Au0051486	X		
31	SB2-6	Aug 19, 2024		Soil	M24-Au0051487	X		
32	SB2-7	Aug 19, 2024		Soil	M24-Au0051488	X		

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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Company Name: Echo Risk Consulting
Address: 84 North Terrace
Kent Town
SA 5067

Project Name: 34 Airport Road Brooklyn Park

Order No.: EC0205
Report #: 1130191
Phone: 0414 496 402
Fax:

Received: Aug 19, 2024 3:21 PM
Due: Aug 26, 2024
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
33	SB3-2	Aug 19, 2024		Soil	M24-Au0051489	X		
34	SB3-4	Aug 19, 2024		Soil	M24-Au0051490	X		
35	SB3-5	Aug 19, 2024		Soil	M24-Au0051491	X		
36	SB3-6	Aug 19, 2024		Soil	M24-Au0051492	X		
37	SB3-7	Aug 19, 2024		Soil	M24-Au0051493	X		
38	SB4-3	Aug 19, 2024		Soil	M24-Au0051494	X		
39	SB4-4	Aug 19, 2024		Soil	M24-Au0051495	X		
40	SB4-5	Aug 19, 2024		Soil	M24-Au0051496	X		
41	SB4-6	Aug 19, 2024		Soil	M24-Au0051497	X		
42	SB4-7	Aug 19, 2024		Soil	M24-Au0051498	X		
43	SB5-3	Aug 19, 2024		Soil	M24-Au0051499	X		
44	SB5-4	Aug 19, 2024		Soil	M24-Au0051500	X		
45	SB5-5	Aug 19, 2024		Soil	M24-Au0051501	X		
46	SB5-6	Aug 19, 2024		Soil	M24-Au0051502	X		
47	SB5-7	Aug 19, 2024		Soil	M24-Au0051503	X		
48	SB6-2	Aug 19, 2024		Soil	M24-Au0051504	X		
49	SB6-5	Aug 19, 2024		Soil	M24-Au0051505	X		

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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 & 2780	Site# 25079

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Project Name: 34 Airport Road Brooklyn Park

Order No.: EC0205
Report #: 1130191
Phone: 0414 496 402
Fax:

Received: Aug 19, 2024 3:21 PM
Due: Aug 26, 2024
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
50	SB6-6	Aug 19, 2024		Soil	M24-Au0051506	X		
51	SB6-7	Aug 19, 2024		Soil	M24-Au0051507	X		
52	SB6-8	Aug 19, 2024		Soil	M24-Au0051508	X		
53	SB7-2	Aug 19, 2024		Soil	M24-Au0051509	X		
54	SB7-5	Aug 19, 2024		Soil	M24-Au0051510	X		
55	SB7-6	Aug 19, 2024		Soil	M24-Au0051511	X		
56	SB7-7	Aug 19, 2024		Soil	M24-Au0051512	X		
57	SB7-8	Aug 19, 2024		Soil	M24-Au0051513	X		
58	SB8-1	Aug 19, 2024		Soil	M24-Au0051514	X		
59	SB8-4	Aug 19, 2024		Soil	M24-Au0051515	X		
60	SB8-5	Aug 19, 2024		Soil	M24-Au0051516	X		
61	SB8-6	Aug 19, 2024		Soil	M24-Au0051517	X		
62	SB8-7	Aug 19, 2024		Soil	M24-Au0051518	X		
63	GW1-1	Aug 19, 2024		Soil	M24-Au0051519	X		
64	GW1-3	Aug 19, 2024		Soil	M24-Au0051520	X		
65	GW1-4	Aug 19, 2024		Soil	M24-Au0051521	X		
66	GW1-5	Aug 19, 2024		Soil	M24-Au0051522	X		

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Phone: 0414 496 402
Fax:

Received: Aug 19, 2024 3:21 PM
Due: Aug 26, 2024
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
67	GW1-6	Aug 19, 2024		Soil	M24-Au0051523	X		
68	QC3	Aug 19, 2024		Soil	M24-Au0051524	X		
69	RB2	Aug 19, 2024		Water	M24-Au0051525	X		
70	GW3-1	Aug 19, 2024		Soil	M24-Au0058337	X		
71	GW3-2	Aug 19, 2024		Soil	M24-Au0058338	X		
72	GW3-3	Aug 19, 2024		Soil	M24-Au0058339	X		
73	GW3-4	Aug 19, 2024		Soil	M24-Au0058340	X		
74	GW3-5	Aug 19, 2024		Soil	M24-Au0058341	X		
75	GW3-6	Aug 19, 2024		Soil	M24-Au0058342	X		
Test Counts						52	21	23

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. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
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 where annotated.
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 sampling date; 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 seven 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 (CU)	

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 6.0
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 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, 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							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	78			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	78			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	91			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	92			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	75			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	76			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	75			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	83			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	81			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	54			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	78			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	79			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	83			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	76			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	76			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	80			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	82			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	74			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	81			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	68			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	82			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	85			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	76			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	79			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	74			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	54			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	76			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	79			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	79			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	78			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Au0049024	NCP	%	101			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0049024	NCP	%	104			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0049024	NCP	%	122			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0049024	NCP	%	122			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0049024	NCP	%	103			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0049024	NCP	%	105			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0049024	NCP	%	104			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0049024	NCP	%	108			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0049024	NCP	%	109			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0049024	NCP	%	60			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0049024	NCP	%	107			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Au0049024	NCP	%	107			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0049024	NCP	%	107			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0049024	NCP	%	109			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0049024	NCP	%	100			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0049024	NCP	%	107			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0049024	NCP	%	103			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0049024	NCP	%	100			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Au0049024	NCP	%	108			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0049024	NCP	%	93			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0049024	NCP	%	115			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0049024	NCP	%	115			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0049024	NCP	%	101			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0049024	NCP	%	110			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0049024	NCP	%	100			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0049024	NCP	%	68			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-Au0049024	NCP	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0049024	NCP	%	104			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0049024	NCP	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0049024	NCP	%	115			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Au0052194	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0052194	NCP	ug/L	0.34	0.38	12	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0052194	NCP	ug/L	0.01	0.01	9.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0052194	NCP	ug/L	0.02	0.02	1.0	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Au0052194	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0052194	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0052194	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0052194	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0052194	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0052194	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0052194	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Au0052194	NCP	ug/L	0.10	0.10	6.0	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0052194	NCP	ug/L	< 0.1	< 0.1	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0052194	NCP	ug/L	0.05	0.05	1.0	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0052194	NCP	ug/L	0.06	0.05	3.0	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0052194	NCP	ug/L	0.01	0.01	2.0	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0052194	NCP	ug/L	0.20	0.22	10	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<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)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0052194	NCP	ug/L	0.08	0.09	3.0	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0052194	NCP	ug/L	0.01	0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0052194	NCP	ug/L	< 0.01	< 0.01	<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
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:

Catherine Wilson	Analytical Services Manager
Joseph Edouard	Senior Analyst-PFAS



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.

Echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	19/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers										Required Analyses								
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	60ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	100ml Plastic (PFAS)	60ml Ferrous Iron (HCL)	R21 NEPM Soil Classification Screen	R7 - SA EPA Waste Classification Screen	B9 (TRH, BTEXN, PAH, OCP, metals)	B7 (TRH, BTEXN, PAH, metals)	B6 (TRH/BTEXN/metals)	PFAS	M8 (metals)	BTEXN	OCP
SB1-1	0.0 - 0.1	19-Aug-24	S		X																
SB1-2	0.25 - 0.35	19-Aug-24	S		X													X			
SB1-3	0.6 - 0.7	19-Aug-24	S		X													X			
SB1-4	0.9 - 1.0	19-Aug-24	S		X																
SB1-5	1.9 - 2.0	19-Aug-24	S		X																
SB1-6	2.6 - 2.7	19-Aug-24	S		X																
SB1-7	3.4 - 3.5	19-Aug-24	S		X																
SB2-1	0.0 - 0.1	19-Aug-24	S		X													X			
SB2-2	0.3 - 0.4	19-Aug-24	S		X													X			
SB2-3	0.55 - 0.65	19-Aug-24	S		X													X			
SB2-4	0.9 - 1.0	19-Aug-24	S		X																
SB2-5	1.9 - 2.0	19-Aug-24	S		X																
SB2-6	2.7 - 2.8	19-Aug-24	S		X																
SB2-7	3.4 - 3.5	19-Aug-24	S		X																
SB3-1	0.0 - 0.1	19-Aug-24	S		X													X			
SB3-2	0.3 - 0.4	19-Aug-24	S		X																
SB3-3	0.4 - 0.5	19-Aug-24	S		X													X			
SB3-4	0.9 - 1.0	19-Aug-24	S		X																
SB3-5	1.9 - 2.0	19-Aug-24	S		X																
SB3-6	2.7 - 2.8	19-Aug-24	S		X																
SB3-7	3.4 - 3.5	19-Aug-24	S		X																
SB4-1	0.0 - 0.1	19-Aug-24	S		X													X			
SB4-2	0.25 - 0.35	19-Aug-24	S		X													X			
SB4-3	0.5 - 0.6	19-Aug-24	S		X																
SB4-4	0.9 - 1.0	19-Aug-24	S		X																
SB4-5	1.9 - 2.0	19-Aug-24	S		X																
SB4-6	2.8 - 2.9	19-Aug-24	S		X																
SB4-7	3.4 - 3.5	19-Aug-24	S		X																
SB5-1	0.0 - 0.1	19-Aug-24	S		X													X			
SB5-2	0.25 - 0.35	19-Aug-24	S		X													X			
SB5-3	0.5 - 0.6	19-Aug-24	S		X																
SB5-4	0.9 - 1.0	19-Aug-24	S		X																
SB5-5	1.9 - 2.0	19-Aug-24	S		X																
SB5-6	2.7 - 2.8	19-Aug-24	S		X																
SB5-7	3.4 - 3.5	19-Aug-24	S		X																

#1130191

20/8/24

Echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	19/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers									Required Analyses								
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	60ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	100ml Plastic (PFAS)	60ml Ferrous Iron (HCL)	R21 NEPM Soil Classification Screen	R7 - SA EPA Waste Classification Screen	B9 (TRH, BTEXN, PAH, OCP, metals)	B7 (TRH, BTEXN, PAH, metals)	B6 (TRH/BTEXN/metals)	PFAS	M8 (metals)	BTEXN	OCP
SB6-1	0.0 - 0.1	19-Aug-24	S		X													X			
SB6-2	0.15 - 0.25	19-Aug-24	S		X																
SB6-3	0.45 - 0.55	19-Aug-24	S		X													X			
SB6-4	0.6 - 0.7	19-Aug-24	S		X													X			
SB6-5	1.0 - 1.1	19-Aug-24	S		X																
SB6-6	1.9 - 2.0	19-Aug-24	S		X																
SB6-7	2.4 - 2.5	19-Aug-24	S		X																
SB6-8	3.4 - 3.5	19-Aug-24	S		X																
SB7-1	0.0 - 0.1	19-Aug-24	S		X													X			
SB7-2	0.1 - 0.2	19-Aug-24	S		X																
SB7-3	0.3 - 0.4	19-Aug-24	S		X													X			
SB7-4	0.6 - 0.7	19-Aug-24	S		X													X			
SB7-5	1.3 - 1.4	19-Aug-24	S		X																
SB7-6	1.9 - 2.0	19-Aug-24	S		X																
SB7-7	2.7 - 2.8	19-Aug-24	S		X																
SB7-8	3.4 - 3.5	19-Aug-24	S		X																
SB8-1	0.0 - 0.1	19-Aug-24	S		X																
SB8-2	0.3 - 0.4	19-Aug-24	S		X													X			
SB8-3	0.4 - 0.5	19-Aug-24	S		X													X			
SB8-4	0.9 - 1.0	19-Aug-24	S		X																
SB8-5	1.9 - 2.0	19-Aug-24	S		X																
SB8-6	2.6 - 2.7	19-Aug-24	S		X																
SB8-7	3.4 - 3.5	19-Aug-24	S		X																
GW1-1	0.05 - 0.15	19-Aug-24	S		X																
GW1-2	0.2 - 0.3	19-Aug-24	S		X													X			
GW1-3	0.5 - 0.6	19-Aug-24	S		X																
GW1-4	0.9 - 1.0	19-Aug-24	S		X																
GW1-5	1.9 - 2.0	19-Aug-24	S		X																
GW1-6	2.9 - 3.0	19-Aug-24	S		X																

Echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	19/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers										Required Analyses									
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	60ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	100ml Plastic (PFAS)	60ml Ferrous Iron (HCL)	R21 NEPM Soil Classification Screen	R7 - SA EPA Waste Classification Screen	B9 (TRH, BTEXN, PAH, OCP, metals)	B7 (TRH, BTEXN, PAH, metals)	B6 (TRH/BTEXN/metals)	PFAS	M8 (metals)	BTEXN	OCP
QC1		19-Aug-24	S		X													X			
QC3		19-Aug-24	S		X																
QC2		19-Aug-24	S		X								Please forward to ALS with attached COC								
QC4		19-Aug-24	S		X																
TB1		19-Aug-24	W								X							X			
RB1		19-Aug-24	W								X							X			
RB2		19-Aug-24	W								X										

Relinquished by: AD	Date/Time: 19/8/24 -pm
Received by:	Date/Time:
Relinquished by:	Date/Time:
Received by:	Date/Time:
Relinquished by:	Date/Time:
Received by:	Date/Time:

Notes to Lab:

Echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	19/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers										Required Analyses								
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	60ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	250ml Plastic (PFAS)	60ml Ferrous Iron (HCL)		8-5 (TRH, BTEXN,)Metals)	OCP	PFAS	VHC	Asbestos (in building material)	8-2 (metals)	TRH (C6-C9) / BTEXN		
QC2		19/08/24	S		X											X						
QC4		19/08/24	S		X																	

Relinquished by: AD	Date/Time: 19/8/24 -pm	
Received by:	Date/Time:	
Relinquished by:	Date/Time:	
Received by:	Date/Time:	
Relinquished by:	Date/Time:	
Received by:	Date/Time:	

Notes to Lab:

Jessica Sheppard

From: Andrew Durand <Andrew.Durand@echorisk.com.au>
Sent: Monday, 19 August 2024 3:21 PM
To: Parimal Acharya; Karl Bulow
Cc: #AU_CAU001_EnviroSampleVic
Subject: Testing advice - EC0205
Attachments: EC0205 - COC 19 Aug 24 (Eurofins).pdf; EC0205 - COC 19 Aug 24 (ALS).pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Unverified Sender: The sender of this email has not been verified. Review the content of the message carefully and verify the identity of the sender before acting on this email: replying, opening attachments or clicking links.

Hi Parimal/Karl,

Please find attached testing advice for samples dropped off earlier this afternoon. I've also attached a COC for samples to be forwarded to ALS.

Standard TAT is fine.

If you have any queries, please contact me.

Thanks and regards,

Andrew Durand
Principal Environmental Engineer
m 0402 762 065

echo Risk Consulting ■ PO Box 261 Daw Park, 5041 South Australia ■ echorisk.com.au abn 38 668 496 295

Echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	19/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers										Required Analyses								
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	60ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	100ml Plastic (PFAS)	60ml Ferrous Iron (HCL)	R21 NEPM Soil Classification Screen	R7 - SA EPA Waste Classification Screen	B9 (TRH, BTEXN, PAH, OCP, metals)	B7 (TRH, BTEXN, PAH, metals)	B6 (TRH/BTEXN/metals)	PFAS	M8 (metals)	BTEXN	OCP
SB1-1	0.0 - 0.1	19-Aug-24	S		X																
SB1-2	0.25 - 0.35	19-Aug-24	S		X													X			
SB1-3	0.6 - 0.7	19-Aug-24	S		X													X			
SB1-4	0.9 - 1.0	19-Aug-24	S		X																
SB1-5	1.9 - 2.0	19-Aug-24	S		X																
SB1-6	2.6 - 2.7	19-Aug-24	S		X																
SB1-7	3.4 - 3.5	19-Aug-24	S		X																
SB2-1	0.0 - 0.1	19-Aug-24	S		X													X			
SB2-2	0.3 - 0.4	19-Aug-24	S		X													X			
SB2-3	0.55 - 0.65	19-Aug-24	S		X													X			
SB2-4	0.9 - 1.0	19-Aug-24	S		X																
SB2-5	1.9 - 2.0	19-Aug-24	S		X																
SB2-6	2.7 - 2.8	19-Aug-24	S		X																
SB2-7	3.4 - 3.5	19-Aug-24	S		X																
SB3-1	0.0 - 0.1	19-Aug-24	S		X													X			
SB3-2	0.3 - 0.4	19-Aug-24	S		X																
SB3-3	0.4 - 0.5	19-Aug-24	S		X													X			
SB3-4	0.9 - 1.0	19-Aug-24	S		X																
SB3-5	1.9 - 2.0	19-Aug-24	S		X																
SB3-6	2.7 - 2.8	19-Aug-24	S		X																
SB3-7	3.4 - 3.5	19-Aug-24	S		X																
SB4-1	0.0 - 0.1	19-Aug-24	S		X													X			
SB4-2	0.25 - 0.35	19-Aug-24	S		X													X			
SB4-3	0.5 - 0.6	19-Aug-24	S		X																
SB4-4	0.9 - 1.0	19-Aug-24	S		X																
SB4-5	1.9 - 2.0	19-Aug-24	S		X																
SB4-6	2.8 - 2.9	19-Aug-24	S		X																
SB4-7	3.4 - 3.5	19-Aug-24	S		X																
SB5-1	0.0 - 0.1	19-Aug-24	S		X													X			
SB5-2	0.25 - 0.35	19-Aug-24	S		X													X			
SB5-3	0.5 - 0.6	19-Aug-24	S		X																
SB5-4	0.9 - 1.0	19-Aug-24	S		X																
SB5-5	1.9 - 2.0	19-Aug-24	S		X																
SB5-6	2.7 - 2.8	19-Aug-24	S		X																
SB5-7	3.4 - 3.5	19-Aug-24	S		X																

Michael Young Ventia 19/8/24 3PM

On Ice

1.6
+ 0.1
1.7

Echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	19/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers										Required Analyses									
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	50ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	50ml Plastic Nturients (H2SO4)	50ml Plastic - Cyanide/Cr VI (NaOH)	100ml Plastic (PFAS)	50ml Ferrous Iron (HCL)	R21 NEPM Soil Classification Screen	R7 - SA EPA Waste Classification Screen	B9 (TRH, BTEXN, PAH, OCP, metals)	B7 (TRH, BTEXN, PAH, metals)	B6 (TRH/BTEXN/metals)	PFAS	M8 (metals)	BTEXN	OCP
QC1		19-Aug-24	S		X													X			
QC3		19-Aug-24	S		X																
QC2		19-Aug-24	S		X								Please forward to ALS with attached COC								
QC4		19-Aug-24	S		X																
TB1		19-Aug-24	W								X							X			
RB1		19-Aug-24	W								X							X			
RB2		19-Aug-24	W								X										

Relinquished by: AD	Date/Time: 19/8/24 -pm
Received by: Nidhan Yadav	Date/Time: 19/8/24 3pm
Relinquished by:	Date/Time:
Received by:	Date/Time:
Relinquished by:	Date/Time:
Received by:	Date/Time:

Notes to Lab:

Echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	19/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers										Required Analyses								
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	60ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	250ml Plastic (PFAS)	60ml Ferrous Iron (HCL)		S-5 (TRH, BTEXN,)Metals)	OCP	PFAS	VHC	Asbestos (in building material)	S-2 (metals)	TRH (C6-C9) / BTEXN		
QC2		19/08/24	S		X											X						
QC4		19/08/24	S		X																	

Relinquished by: AD	Date/Time: 19/8/24 -pm	
Received by: Michael Young	Date/Time: 19/8/24 3pm	
Relinquished by:	Date/Time:	
Received by:	Date/Time:	
Relinquished by:	Date/Time:	
Received by:	Date/Time:	

Notes to Lab:

Echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	19/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers										Required Analyses								
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	60ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	250ml Plastic (PFAS)	60ml Ferrous Iron (HCL)		5-5 (TRH, BTEXN,)Metals)	OCP	PFAS	VHC	Asbestos (in building material)	S-2 (metals)	TRH (C6-C9) / BTEXN		
QC2		19/08/24	S		X											X						
QC4		19/08/24	S		X																	

Relinquished by: AD	Date/Time: 19/8/24 -pm	
Received by: michaela young	Date/Time: 19/8/24 3pm	Notes to Lab:
Relinquished by:	Date/Time:	
Received by:	Date/Time:	
Relinquished by:	Date/Time:	
Received by:	Date/Time:	

eurofins | Environment Testing

PROJECT INFORMATION

Date Received: 19/8/24

Company: Echo

Contact person: Andrew

Contact Number: 0402 762 065

Contact E-mail: andrew.durand@echorisk.com.au

Project Name/site:

Project Number: EC0205

COC: Attached ☐
E-mailed ☑
Not received ☐

On Ice

1.6
+0.1
1.7

Last modified on: 16 October 2019	Approved on: 16 October 2019	Version: QS1039_R2
Last modified by: H. Le	Approver: M. Makarios	Page 1 of 1
Editorial Committee: T. Lakeland, F. Sanjaya, H. Le, M. Makarios		Next required review date: 16 October 2022

Jessica Sheppard

From: Andrew Durand <Andrew.Durand@echorisk.com.au>
Sent: Tuesday, 20 August 2024 2:45 PM
To: #AU_CAU001_EnviroSampleVic; Parimal Acharya; Karl Bulow
Subject: RE: Eurofins Sample Receipt Advice - Report 1130191 : Site 34 Airport Road Brooklyn Park
Attachments: EC0205 - COC 19 Aug 24 (Eurofins) - UPDATED.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Unverified Sender: The sender of this email has not been verified. Review the content of the message carefully and verify the identity of the sender before acting on this email: replying, opening attachments or clicking links.

Hi Leyla,

Please find attached an updated COC for this batch of samples.

There are no additional analyses, but there are six additional samples, dropped off to Parimal earlier today. I'd like these included in the same batch in case additional testing is required in the future.

Thanks and regards,

Andrew Durand
Principal Environmental Engineer
m 0402 762 065

echo Risk Consulting ■ PO Box 261 Daw Park, 5041 South Australia ■ echorisk.com.au abn 38 668 496 295

From: EnviroSampleVic@eurofins.com <EnviroSampleVic@eurofins.com>
Sent: Tuesday, August 20, 2024 2:04 PM
To: Andrew Durand <Andrew.Durand@echorisk.com.au>
Cc: Nick Waniarcha <Nick.Waniarcha@echorisk.com.au>
Subject: Eurofins Sample Receipt Advice - Report 1130191 : Site 34 Airport Road Brooklyn Park

Dear Valued Client,

Please find attached a Sample Receipt Advice (SRA), a Summary Sheet and a scanned copy of your Chain-of-Custody (COC). It is important that you check this documentation to ensure that the details are correct such as the Client Job Number, Turn Around Time, any comments in the Notes section and sample numbers as well as the requested analysis. If there are any irregularities then please contact your Eurofins Analytical Services Manager as soon as possible to make certain that they get changed.

eurofins | Environment Testing

PROJECT INFORMATION

Date Received: 20/8/24

Company: ECHO

Contact person: ANDREW

Contact Number: 0402 762 065

Contact E-mail: andrew.durand@echorisk.com.a

Project Name/site:

Project Number: EC0205-

15.2°C
+0.1°C
15.3°C
on IB.

COC: Attached ☐
E-mailed ☑
Not received ☐

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

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
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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 & 2780	Site# 25079

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Site# 2554

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NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
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: Echo Risk Consulting
Contact name: - ALL INVOICES
Project name: 34 Airport Road Brooklyn Park
Project ID: Not provided
Turnaround time: 5 Day
Date/Time received Aug 19, 2024 3:21 PM
Eurofins reference 1130191

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

Contact

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

Karl Bulow on phone : or by email: KarlBulow@eurofins.com

Results will be delivered electronically via email to - ALL INVOICES - nick.waniarcha@echorisk.com.au.

Note: A copy of these results will also be delivered to the general Echo Risk Consulting email address.

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Echo Risk Consulting
84 North Terrace
Kent Town
SA 5067

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
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Attention: **Andrew Durand**

Report **1133208-L**
Project name 34 Airport Road Brooklyn Park
Received Date Aug 27, 2024

Client Sample ID			**SB1-3**	**SB2-3**	**SB4-2**	**SB7-4**
Sample Matrix			**AUS Leachate - Reagent Water**	**AUS Leachate - Reagent Water**	**AUS Leachate - Reagent Water**	**AUS Leachate - Reagent Water**
Eurofins Sample No.			**M24-Au0074821**	**M24-Au0074822**	**M24-Au0074823**	**M24-Au0074824**
Date Sampled			**Aug 19, 2024**	**Aug 19, 2024**	**Aug 19, 2024**	**Aug 19, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	4.0	4.0	4.0	4.0
pH (initial)	0.1	pH Units	N/A	N/A	N/A	N/A
pH (Leachate fluid)	0.1	pH Units	6.3	6.3	6.3	6.3
pH (off)	0.1	pH Units	9.2	9.3	8.6	9.0
Per- and Polyfluoroalkyl Substances (PFASs) - Short						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C2-6:2 FTSA (surr.)	1	%	82	106	104	142
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]0.93	[N09]3.4	[N09]2.4	9.1
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]39	[N09]1.8	[N09]4.2	[N09]0.18
18O2-PFHxS (surr.)	1	%	94	94	108	107
13C8-PFOS (surr.)	1	%	90	105	106	107
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.30	[N09]0.73	[N09]0.23	[N09]0.68
13C8-PFOA (surr.)	1	%	109	91	103	77
Sum (PFHxS + PFOS)*	0.01	ug/L	39.93	5.2	6.6	9.28
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	39.3	2.53	4.43	0.86
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	40.23	5.93	6.83	9.96

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			
pH (initial)	Melbourne	Aug 28, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
pH (Leachate fluid)	Melbourne	Aug 28, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
pH (off)	Melbourne	Aug 28, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Melbourne	Sep 02, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Echo Risk Consulting
Address: 84 North Terrace
Kent Town
SA 5067

Project Name: 34 Airport Road Brooklyn Park

Order No.: EC0205
Report #: 1133208
Phone: 0414 496 402
Fax:

Received: Aug 27, 2024 10:22 PM
Due: Sep 4, 2024
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	SB1-3	Aug 19, 2024		AUS Leachate - Reagent Water	M24-Au0074821	X	X
2	SB2-3	Aug 19, 2024		AUS Leachate - Reagent Water	M24-Au0074822	X	X
3	SB4-2	Aug 19, 2024		AUS Leachate - Reagent Water	M24-Au0074823	X	X
4	SB7-4	Aug 19, 2024		AUS Leachate - Reagent Water	M24-Au0074824	X	X
Test Counts						4	4

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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. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
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 where annotated.
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 sampling date; 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 seven 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 (CU)	

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 6.0
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 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, 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							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
Sum (PFHxS + PFOS)*	ug/L	-			0.01	N/A	
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	ug/L	-			0.01	N/A	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	79			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	74			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	92			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	68			50-150	Pass	

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)	M24-Au0071317	NCP	ug/L	< 0.05	0.05	7.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0071317	NCP	ug/L	0.66	0.68	2.0	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
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:

Harry Bacalis	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS



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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Jessica Sheppard

From: Andrew Durand <Andrew.Durand@echorisk.com.au>
Sent: Tuesday, 27 August 2024 10:22 PM
To: Karl Bulow
Cc: #AU_CAU001_EnviroSampleVic
Subject: Additional testing - batch ref: 1130191

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: ADDITIONALS

Unverified Sender: The sender of this email has not been verified. Review the content of the message carefully and verify the identity of the sender before acting on this email: replying, opening attachments or clicking links.

Hi Karl,

Can we please order the following additional testing for samples from this batch:

ASLP Leachability (pH: 7) – PFAS short suite:

- SB1-3 (M24-Au0051458)
- SB2-3 (M24-Au0051461)
- SB4-2 (M24-Au0051465)
- SB7-4 (M24-Au0051473)

Standard TAT please. Any queries, let me know.

Thanks,

#1133208
28/8/24

Andrew Durand
Principal Environmental Engineer
m 0402 762 065

echo Risk Consulting ■ PO Box 261 Daw Park, 5041 South Australia ■ echorisk.com.au abn 38 668 496 295

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name: Echo Risk Consulting
Contact name: Andrew Durand
Project name: 34 Airport Road Brooklyn Park
Project ID: Not provided
Turnaround time: 5 Day
Date/Time received Aug 27, 2024 10:22 PM
Eurofins reference 1133208

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.
X	Split sample sent to requested external lab.
X	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:

Karl Bulow on phone : or by email: KarlBulow@eurofins.com

Results will be delivered electronically via email to Andrew Durand - andrew.durand@echorisk.com.au.

Note: A copy of these results will also be delivered to the general Echo Risk Consulting email address.

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Kent Town
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Accreditation Number 1261
Site Number 1254

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Attention: **Andrew Durand**

Report **1139607-S**
Project name 34 Airport Road Brooklyn Park
Received Date Sep 16, 2024

Client Sample ID			**SB1-4**	**SB1-5**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**M24-Se0039424**	**M24-Se0039425**
Date Sampled			**Aug 19, 2024**	**Aug 19, 2024**
Test/Reference	LOR	Unit		
Sample Properties				
% Moisture	1	%	21	19
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	8.3	5.6
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	5.4	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	7.5	< 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	%	121	53
13C5-PFPeA (surr.)	1	%	131	51
13C5-PFHxA (surr.)	1	%	135	50
13C4-PFHpA (surr.)	1	%	124	42
13C8-PFOA (surr.)	1	%	81	24
13C5-PFNA (surr.)	1	%	86	25
13C6-PFDA (surr.)	1	%	57	25
13C2-PFUnDA (surr.)	1	%	84	24
13C2-PFDoDA (surr.)	1	%	93	18
13C2-PFTeDA (surr.)	1	%	99	20
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	%	86	24

Client Sample ID			SB1-4	SB1-5
Sample Matrix			Soil	Soil
Eurofins Sample No.			M24-Se0039424	M24-Se0039425
Date Sampled			Aug 19, 2024	Aug 19, 2024
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonamido substances				
D3-N-MeFOSA (surr.)	1	%	159	32
D5-N-EtFOSA (surr.)	1	%	156	30
D7-N-MeFOSE (surr.)	1	%	88	20
D9-N-EtFOSE (surr.)	1	%	102	23
D5-N-EtFOSAA (surr.)	1	%	200	40
D3-N-MeFOSAA (surr.)	1	%	183	44
Perfluoroalkyl sulfonic acids (PFSAs)				
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	5.3
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	5.2
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]81	[N09]13
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]< 5	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5
13C3-PFBS (surr.)	1	%	70	99
18O2-PFHxS (surr.)	1	%	94	105
13C8-PFOS (surr.)	1	%	69	115
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	%	86	35
13C2-6:2 FTSA (surr.)	1	%	77	26
13C2-8:2 FTSA (surr.)	1	%	88	45
13C2-10:2 FTSA (surr.)	1	%	168	34
PFASs Summations				
Sum (PFHxS + PFOS)*	5	ug/kg	81	13
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	7.5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	88.5	13
Sum of WA DWER PFAS (n=10)*	10	ug/kg	102.2	23.9
Sum of PFASs (n=30)*	50	ug/kg	102.2	< 50

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	Melbourne	Sep 16, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Sep 16, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Sep 16, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Sep 16, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Sep 16, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Sep 16, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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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
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VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
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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 & 2780	Site# 25079

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Echo Risk Consulting
Address: 84 North Terrace
Kent Town
SA 5067

Project Name: 34 Airport Road Brooklyn Park

Order No.: EC0205
Report #: 1139607
Phone: 0414 496 402
Fax:

Received: Sep 16, 2024 8:58 AM
Due: Sep 23, 2024
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	SB1-4	Aug 19, 2024		Soil	M24-Se0039424	X	X
2	SB1-5	Aug 19, 2024		Soil	M24-Se0039425	X	X
Test Counts						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. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
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 where annotated.
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 sampling date; 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 seven 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 (CU)	

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 6.0
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 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, 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							
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	
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							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	99			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	100			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	99			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	103			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	104			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	102			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	93			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	%	105			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	94			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	97			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	101			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	93			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	98			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	93			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	97			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	89			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	101			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	96			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	102			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	116			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	100			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	89			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	88			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	86			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	120			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	103			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)	%	99			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	100			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	96			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Se0030922	NCP	%	98			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Se0030922	NCP	%	100			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Se0030922	NCP	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Se0030922	NCP	%	98			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Se0030922	NCP	%	96			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Se0030922	NCP	%	101			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Se0030922	NCP	%	96			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Se0030922	NCP	%	93			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Se0030922	NCP	%	96			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Se0030922	NCP	%	88			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Se0030922	NCP	%	104			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Se0030922	NCP	%	103			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Se0030922	NCP	%	103			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Se0030922	NCP	%	94			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Se0030922	NCP	%	91			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Se0030922	NCP	%	90			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Se0030922	NCP	%	80			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Se0030922	NCP	%	88			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Se0030922	NCP	%	89			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Se0030922	NCP	%	103			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Se0030922	NCP	%	107			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Se0030922	NCP	%	91			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Se0030922	NCP	%	90			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Se0030922	NCP	%	89			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Se0030922	NCP	%	95			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Se0030922	NCP	%	131			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-Se0030922	NCP	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Se0030922	NCP	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Se0030922	NCP	%	96			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Se0030922	NCP	%	100			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	M24-Se0039213	NCP	%	6.3	6.8	8.0	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Se0039424	CP	ug/kg	8.3	10.0	18	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Se0039424	CP	ug/kg	5.4	6.0	9.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Se0039424	CP	ug/kg	7.5	7.8	3.0	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorotridecanoic acid (PFTrDA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Se0039424	CP	ug/kg	< 10	< 10	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Se0039424	CP	ug/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	M24-Se0039424	CP	ug/kg	< 5	5.3	13	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	M24-Se0039424	CP	ug/kg	81	80	2.0	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	M24-Se0039424	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)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Se0039424	CP	ug/kg	< 10	< 10	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Se0039424	CP	ug/kg	< 5	< 5	<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
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:

Catherine Wilson	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS



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.

Jessica Sheppard

From: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Sent: Monday, 16 September 2024 10:22 AM
To: Andrew Durand
Cc: #AU_CAU001_EnviroSampleVic
Subject: Re: Additional testing - batch ref. 1130191

Verified Sender: This email is from an internal and/or verified domain which passed security verifications. Remember to still be cautious with personal data and follow company policies.

Hi Andrew,

We will get that organised for you.

Jess - See additional analysis request below - standard tat.

Kind Regards,

Karl Bulow
Analytical Services Manager SA

Eurofins | Environment Testing
6 Monterey Rd
Dandenong South, VIC, 3175

Mobile : 0477 574 867
Email : karl.bulow@eurofinsanz.com

16/9/24
#1139607

My office hours are 9am to 5:00pm (Monday to Friday)
If you require sample receipt outside these hours please email envirosamplevic@eurofins.com

This e-mail including its attachments may contain confidential and proprietary information. Any unauthorized disclosure or use of this e-mail including its attachments is prohibited and may be prosecuted. If you are not the intended recipient, please inform the sender by an e-mail reply and delete the message. Transmission by e-mail is not secure and can result in errors or omissions in the content of the message. Despite state-of-the-art precautions we cannot guarantee that e-mails and attachments are free from viruses. We accept no liability for viruses or any transmission-related errors and omissions. You need to always virus-check any e-mails and attachments.
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From: Andrew Durand <Andrew.Durand@echorisk.com.au>
Sent: Monday, September 16, 2024 8:58 AM
To: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Cc: EnviroSampleVic <EnviroSampleVic@eurofins.com>
Subject: Additional testing - batch ref. 1130191

Unverified Sender: The sender of this email has not been verified. Review the content of the message carefully and verify the identity of the sender before acting on this email: replying, opening attachments or clicking links.

Hi Karl,

Can we please order the following additional tested from this batch:

- SB1-4 (M24-Au0051481) – PFAS.
- SB1-5 (M24-Au0051482) – PFAS.

Standard TAT please. Any queries let me know.

Thanks,

Andrew Durand
Principal Environmental Engineer
m 0402 762 065

echo Risk Consulting ■ PO Box 261 Daw Park, 5041 South Australia ■ echorisk.com.au abn 38 668 496 295

eurofins | Environment Testing

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

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
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 & 2780	Site# 25079

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

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Site# 2370

Eurofins ProMicro Pty Ltd

ABN: 47 009 120 549

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NATA# 2561
Site# 2554

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
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: Echo Risk Consulting
Contact name: Andrew Durand
Project name: 34 Airport Road Brooklyn Park
Project ID: Not provided
Turnaround time: 5 Day
Date/Time received Sep 16, 2024 8:58 AM
Eurofins reference 1139607

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.
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:

Karl Bulow on phone : or by email: KarlBulow@eurofins.com

Results will be delivered electronically via email to Andrew Durand - andrew.durand@echorisk.com.au.

Note: A copy of these results will also be delivered to the general Echo Risk Consulting email address.

Global Leader - Results you can trust

CERTIFICATE OF ANALYSIS

Work Order	: **EM2414164**	Page	: 1 of 6
Client	: **ECHO RISK CONSULTING**	Laboratory	: Environmental Division Melbourne
Contact	: Andrew Durand	Contact	: Customer Services EM
Address	: 84 North Terrace Kent Town 5067	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: DSI	Date Samples Received	: 21-Aug-2024 09:50
Order number	: EC0205	Date Analysis Commenced	: 21-Aug-2024
C-O-C number	: ----	Issue Date	: 26-Aug-2024 09:51
Sampler	: AD		
Site	: 34 Airport Road, Brooklyn Park		
Quote number	: EN/222		
No. of samples received	: 2		
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*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

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

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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 or as per USEPA 1633 limits where LISTED. 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 and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC2	----	----	----	----
			Sampling date / time	19-Aug-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2414164-001	---------	---------	---------	---------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**11.2**	----	----	----	----
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	**0.0006**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0094**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	**0.0026**	----	----	----	----
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	----	----	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	**0.0006**	----	----	----	----
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	**0.0003**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	**0.0004**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	**0.0003**	----	----	----	----
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	**0.0003**	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	**0.0009**	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	**0.0002**	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC2	----	----	----	----
				Sampling date / time	19-Aug-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2414164-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
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		**0.0152**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0100**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0112**	----	----	----	----
EP231S: PFAS Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC2	----	----	----	----
				Sampling date / time	19-Aug-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2414164-001	---------	---------	---------	---------
					Result	----	----	----	----
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.0002	%		**111**	----	----	----	----
13C8-PFOA	----	0.0002	%		**99.8**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

QUALITY CONTROL REPORT

Work Order	: **EM2414164**	Page	: 1 of 7
Client	: **ECHO RISK CONSULTING**	Laboratory	: Environmental Division Melbourne
Contact	: Andrew Durand	Contact	: Customer Services EM
Address	: 84 North Terrace Kent Town 5067	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: DSI	Date Samples Received	: 21-Aug-2024
Order number	: EC0205	Date Analysis Commenced	: 21-Aug-2024
C-O-C number	: ----	Issue Date	: 26-Aug-2024
Sampler	: AD		
Site	: 34 Airport Road, Brooklyn Park		
Quote number	: EN/222		
No. of samples received	: 2		
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 Quality Control Report contains the following information:

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

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

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

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6004477)									
EM2414164-001	QC2	EA055: Moisture Content	----	0.1	%	11.2	11.7	4.5	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6007029)									
EM2413904-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0153	0.0143	7.1	0% - 20%
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2413935-010	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6007029)									
EM2413904-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6007029) - continued									
EM2413904-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0009	0.0009	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2413935-010	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6007029)									
EM2413904-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2413935-010	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	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 (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6007029) - continued									
EM2413935-010	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6007029)									
EM2413904-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2413935-010	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6007029)									
EM2413904-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0167	0.0155	7.5	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0153	0.0143	6.8	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0165	0.0155	6.2	0% - 20%
EM2413935-010	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6007029)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00125 mg/kg	74.7	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	81.8	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	90.0	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	106	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	91.0	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	86.1	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	74.6	69.0	125
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00121 mg/kg	80.3	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6007029)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	77.4	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.0	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.0	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.9	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.7	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.4	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.7	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.7	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	104	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6007029)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.5	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	83.4	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	74.8	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	95.2	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	90.8	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.3	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	80.8	61.0	139

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6007029)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	85.5	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	86.0	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	93.5	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	91.8	70.0	130
EP231P: PFAS Sums (QCLot: 6007029)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6007029)							
EM2413904-002	Anonymous	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00125 mg/kg	80.7	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	87.4	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00118 mg/kg	95.9	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	106	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	96.4	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	90.0	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.00125 mg/kg	76.4	69.0	125
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00121 mg/kg	88.6	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6007029)							
EM2413904-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	77.9	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	85.6	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	82.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	104	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	87.0	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	89.7	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	83.0	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	97.2	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	89.5	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	111	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	108	69.0	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6007029)							
EM2413904-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	83.3	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	92.3	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	83.3	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	97.9	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	90.4	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	94.2	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	88.8	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6007029)							
EM2413904-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	94.5	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	88.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	91.8	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	84.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2414164**	Page	: 1 of 4
Client	: **ECHO RISK CONSULTING**	Laboratory	: Environmental Division Melbourne
Contact	: Andrew Durand	Telephone	: +61-3-8549 9600
Project	: DSI	Date Samples Received	: 21-Aug-2024
Site	: 34 Airport Road, Brooklyn Park	Issue Date	: 26-Aug-2024
Sampler	: AD	No. of samples received	: 2
Order number	: EC0205	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055)							
QC2	**19-Aug-2024**	**----**	----	----	**21-Aug-2024**	02-Sep-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
QC2	**19-Aug-2024**	**22-Aug-2024**	15-Feb-2025	✓	**23-Aug-2024**	01-Oct-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
QC2	**19-Aug-2024**	**22-Aug-2024**	15-Feb-2025	✓	**23-Aug-2024**	01-Oct-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
QC2	**19-Aug-2024**	**22-Aug-2024**	15-Feb-2025	✓	**23-Aug-2024**	01-Oct-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
QC2	**19-Aug-2024**	**22-Aug-2024**	15-Feb-2025	✓	**23-Aug-2024**	01-Oct-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
QC2	**19-Aug-2024**	**22-Aug-2024**	15-Feb-2025	✓	**23-Aug-2024**	01-Oct-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	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
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).
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 5.4, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
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.

1

ALS

Echo Risk Consulting

echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	19/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers										Required Analyses								
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	60ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	250ml Plastic (PFAS)	60ml Ferrous Iron (HCL)		S-5 (TRH, BTEXN,)Metals)	OCP	PFAS	VHC	Asbestos (in building material)	S-2 (metals)	TRH (C6-C9) / BTEXN		
1 QC2		19/08/24	S		X											X						
2 QC4		19/08/24	S		X																	

Environmental Division
Melbourne
Work Order Reference
EM2414164

Telephone : + 61-3-8549 9600

Relinquished by: AD	Date/Time: 19/8/24 -pm	
Received by: michael young	Date/Time: 19/8/24 3pm	Notes to Lab:
Relinquished by:	Date/Time:	
Received by:	Date/Time:	
Relinquished by:	Date/Time:	
Received: norm	Date/Time:	

Received: 21/8 9:50 Carrier:
C/note:
Temp: 8.0°C Seal: Y N
Ice / Icebricks Y NA

ALS

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2414164**

Client	: **ECHO RISK CONSULTING**	Laboratory	: Environmental Division Melbourne
Contact	: Andrew Durand	Contact	: Customer Services EM
Address	: 84 North Terrace Kent Town 5067	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: andrew.durand@echorisk.com.au	E-mail	: ALSEnviro.Melbourne@alsglobal.com
Telephone	: ----	Telephone	: +61-3-8549 9600
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: DSI	Page	: 1 of 2
Order number	: EC0205	Quote number	: EM2023ECHRIS0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: 34 Airport Road, Brooklyn Park		
Sampler	: AD		

Dates

Date Samples Received	: 21-Aug-2024 09:50	Issue Date	: 21-Aug-2024
Client Requested Due Date	: 28-Aug-2024	Scheduled Reporting Date	: **28-Aug-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 8.0°C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 2 / 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 direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Melbourne, NATA accreditation no. 825, site no. 13778.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)
EM2414164-001	19-Aug-2024 00:00	QC2		✓	✓
EM2414164-002	19-Aug-2024 00:00	QC4	✓		

Proactive Holding Time Report

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

Requested Deliverables

Andrew Durand

- *AU Certificate of Analysis - NATA (COA)	Email	andrew.durand@echorisk.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	andrew.durand@echorisk.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	andrew.durand@echorisk.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	andrew.durand@echorisk.com.au
- Chain of Custody (CoC) (COC)	Email	andrew.durand@echorisk.com.au
- EDI Format - XTab (XTAB)	Email	andrew.durand@echorisk.com.au

Nick Waniarcha

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

APPENDIX G MONITORING WELL LOGS & PERMITS

Echo Risk Consulting

Environmental Log - Well Installation

Client: Ventia	Date: 19 August 2024
Project Ref: EC0205	Logged by: AD
Location: 34 Airport Road, Brooklyn Park	Well ID: **GW1**
Drill Company & Model: WB - Eziprobe	

GPS: E275431.696 / N6131952.511	Relative Level: 6.993m AHD	Hole Diameter: 125mm
Drill Method: Ezi-probe / solid auger	Casing Type: PVC	Casing Diameter: 50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (fill, stains, odours)	PID (ppm)	Sample Details	Well Construction Details
0	Gravel cover. Dark brown to red brown silty sand. Fine to coarse.	M	FILL		GW1-1 (0.05-0.15)	Standpipe & Concrete
	Grey crushed rock / gravelly sand. Fine to coarse grained.				GW1-1 (0.2-0.3m)	
1	Becoming orange brown to cream.					Bentonite (0.1-0.7m)
	SILTY CLAY (CH). Dark brown, medium to high plasticity silty clay.	D	NATURAL		GW1-3 (0.5-0.6m)	
1.0	Colour becoming orange brown mottled grey brown with depth.				GW1-4 (0.9-1.0m)	
1						
2	GRAVELLY CLAY (CH). Grey brown mottled orange brown. Medium to high plasticity.					
	SILTY CLAY (CH). Brown to red brown, medium to high plasticity silty clay.					
2.0					GW1-5 (1.9-2.0m)	Sand pack (0.7-4.0m)
		M				
3.0					GW1-6 (2.9-3.0m)	PVC screen
	CLAYEY SAND (SW). Fine to medium grained. Medium to high plasticity fines. Some gravelly inclusions.	W				
4.0						
	Monitoring well GW1 discontinued at 4.0m					

Echo Risk Consulting

Environmental Log - Well Installation

Client: Ventia	Date: 19 August 2024
Project Ref: EC0205	Logged by: AD
Location: 34 Airport Road, Brooklyn Park	Well ID: **GW2**
Drill Company & Model: WB - Eziprobe	

GPS: E275473.599 / N6131950.686	Relative Level: 7.096m AHD	Hole Diameter: 125mm
Drill Method: Ezi-probe / solid auger	Casing Type: PVC	Casing Diameter: 50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (fill, stains, odours)	PID (ppm)	Sample Details	Well Construction Details
0	Brown to dark brown topsoil with fine to coarse gravels. Some orange sand with depth.	M	FILL			Standpipe & Concrete
1	SILTY CLAY (CH). Dark brown, medium to high plasticity silty clay.	D	NATURAL			Bentonite (0.1-0.7m)
1.0	GRAVELLY CLAY (CH). Brown and orange brown mottled, medium to high plasticity gravelly clay.					
2	SILTY CLAY (CH). Brown and grey brown mottled, medium to high plasticity silty clay.	M				
2.0	Colour grading to red brown with depth.					Sand pack (0.7-4.0m)
3	CLAYEY SAND (SW). Red brown, fine to medium grained clayey sand with medium to high plasticity fines.	W				
3.0						PVC screen
4	SILTY CLAY (CH). Red brown, medium to high plasticity silty clay. Some sand.					
4.0	Monitoring well GW2 discontinued at 4.0m					

Echo Risk Consulting

Environmental Log - Well Installation

Client: Ventia	Date: 20 August 2024
Project Ref: EC0205	Logged by: AD
Location: 34 Airport Road, Brooklyn Park	Well ID: **GW3**
Drill Company & Model: WB - Eziprobe	

GPS: E275435.106 / N6131920.867	Relative Level: 6.134m AHD	Hole Diameter: 125mm
Drill Method: Ezi-probe / solid auger	Casing Type: PVC	Casing Diameter: 50mm

Depth (m)	Material Description	Moisture (D/M/W)	Observations (fill, stains, odours)	PID (ppm)	Sample Details	Well Construction Details
	Bitumen cover (0.08m)		FILL			Gatic & Concrete
	Yellow to off white crushed rock / gravelly sand.	M			GW3-1 (0.1-0.2m)	
0.4						
	Brown to orange brown sandy clay with some gravels.				GW3-2 (0.4-0.5m)	Bentonite (0.1-0.7m)
0.55	SILTY CLAY (CH). Dark brown, medium to high plasticity silty clay.		NATURAL		GW3-3 (0.55-0.65)	
		D				
1.0	Some sand inclusions with depth.				GW3-4 (0.9-1.0m)	
1.4						
	GRAVELLY CLAY (CH). Brown and grey brown mottled, medium to high plasticity gravelly clay.					
2.0					GW3-5 (1.9-2.0m)	Sand pack (0.7-4.0m)
	SILTY CLAY (CH). Brown to red brown, medium to high plasticity silty clay.	M				
3.0					GW3-6 (2.9-3.0m)	PVC screen
3.3						
	SANDY CLAY (CH). Brown, medium to high plasticity sandy clay. Some sandier lenses and occasional gravels.	W				
4.0						
	Monitoring well GW3 discontinued at 4.0m					

Well Permit

Permit to undertake a Water Affecting Activity

Pursuant to section 112 of the Landscape South Australia Act 2019

Subject to full compliance with all the procedures, specifications and limitations contained or referred to in the conditions set out below.

Permission is hereby granted to

Echo Risk Consulting Pty Ltd

Permit Number:	**P-503089**
Permit Term:	**1 year(s)**
Expiry Date:	**31 July 2025**

To undertake the following water affecting activity

Activity	**Construct a new well**
Well Use	**Monitoring or Investigation**
At location	**138.54138048100003,-34.93009879099998** **CT5202/341, D40074A34**

Conditions

262523	WAA-100 - The activity authorised by this permit must only be undertaken on the land identified as follows: CT5202/341 D40074 A34
262524	WAA-102 - The equipment, materials and methods used in drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, shall not adversely affect the quality of an underground water resource.
262525	WAA-103 - Aquifers shall be protected during drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, to prevent adverse impacts upon the integrity of the aquifer.
262530	WAA-110 - The authorised activity must be undertaken by a licensed driller.
262537	WAA-318 - The well driller must submit a Well Completion Report to the Department within 30 days of completion of each activity authorised by this well construction permit.
262531	WAA-111 - If the well is considered unsatisfactory, it may be abandoned and a replacement well may then be constructed provided that the abandoned well is backfilled prior to the drill rig leaving the site.
262526	WAA-105 - Water samples are required from all wells drilled in respect of this permit.
262527	WAA-106 - Strata samples are not required.
262528	WAA-107 -The licensed well driller must forward with the report a plan obtained from the permit holder, who must mark thereon the location of all wells drilled in respect of this permit.
262529	WAA-108 - All wells must be drilled vertical unless written permission is obtained from the Minister.
262532	WAA-133 - All groundwater extracted during sampling and/or purging must be contained and disposed of in an appropriate manner to minimise risk to health and the environment.
262533	WAA-134 - This permit does not authorise the taking of water from the well for any purpose other than testing.
262534	WAA-136 - Wells are to be backfilled when no longer required for ongoing monitoring or investigation purposes.
262535	WAA-150 - Due to known nearby soil/groundwater contamination in the sediments and aquifers above, cautions should be taken in the drilling and cementing of this well.
262536	WAA-153 - The well is not to penetrate beyond a maximum depth of 15 metres unless approved by the Regional Hydrogeologist.

AUTHORISATION: MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

Date: 31 July 2024

GPO Box 1047, Adelaide SA 5001 MyWatermail@sa.gov.au mywater.sa.gov.au 08 8463 6876

GPO Box 1047, Adelaide SA 5001 MyWatermail@sa.gov.au mywater.sa.gov.au 08 8463 6876

Additional information about the site use approval

Under section 216(1)(b)(ii) of the Act, you have a right of appeal to the Environment, Resources and Development Court against the imposition of any condition on this permit. The appeal must be instituted within six weeks of the date of permit issue. The appeal must also be served upon this department within that time.

The authority to undertake the water affecting activity, defined in the permit, is limited to the holder of the permit and cannot be assigned to another person. If the property upon which the permit work is to be undertaken is sold prior to the commencement of any work, the new landowner must make an application for a new permit.

The well construction permit is not an authorisation for a person to enter private property and prior authority must be obtained from the land owner in all circumstances.

The issue of this permit does not negate the requirement to comply with the provisions of other Acts that may impact on the activity undertaken pursuant of this permit.

This permit is not an approval to clear native vegetation. In South Australia, native vegetation is protected by the *Native Vegetation Act 1991*. Clearance includes the draining or flooding of land, including actions that result in the substantial damage to native vegetation, this might include activities that lower the water tables and, as a result, impact on water dependent wetland communities. In most cases the clearance of native vegetation requires the consent of the Native Vegetation Council. Further information regarding native vegetation clearance approvals, is available from: http://www.environment.sa.gov.au/managing-natural-resources/native-vegetation.

It is recommended that all drilling equipment be decontaminated prior to construction of a new well or rehabilitation of an existing well to prevent the introduction or transfer of iron bacteria. Similar precautions should also be taken with pump installation equipment.

The equipment, materials and methods used in drilling, plugging, backfilling or sealing of a well or the replacement or alteration of the casing, lining or screen of a well shall not adversely affect the quality of an underground water resource.

Aquifers shall be protected during drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, to prevent adverse impacts upon the integrity of the aquifer.

The activity must not adversely affect water-dependent ecosystems nearby.

Activities shall not have an unacceptable detrimental impact on cultural, heritage or social values.

This work may be subject to inspection by the Department's Drilling Inspectors.

If the name or contact details of the holder or their company changes, then the holder must notify this department within 21 days of the change occurring. Names and contact details can be updated online through the mywater customer portal (mywater.sa.gov.au).

Take note that the permit holder, or a person acting on behalf of the permit holder, who contravenes or fails to comply with a condition of the permit is guilty of an offence, and such acts or omissions may result in the variation, suspension or revocation of the permit.

GPO Box 1047, Adelaide SA 5001 MyWatermail@sa.gov.au mywater.sa.gov.au 08 8463 6876

Well Permit

Permit to undertake a Water Affecting Activity

Pursuant to section 112 of the Landscape South Australia Act 2019

Subject to full compliance with all the procedures, specifications and limitations contained or referred to in the conditions set out below.

Permission is hereby granted to

Echo Risk Consulting Pty Ltd

Permit Number:	**P-503090**
Permit Term:	**1 year(s)**
Expiry Date:	**31 July 2025**

To undertake the following water affecting activity

Activity	**Construct a new well**
Well Use	**Monitoring or Investigation**
At location	**138.54180488300005,-34.930115795999995** **CT5202/341, D40074A34**

Conditions

262543	WAA-100 - The activity authorised by this permit must only be undertaken on the land identified as follows: CT5202/341 D40074 A34
262544	WAA-102 - The equipment, materials and methods used in drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, shall not adversely affect the quality of an underground water resource.
262545	WAA-103 - Aquifers shall be protected during drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, to prevent adverse impacts upon the integrity of the aquifer.
262550	WAA-110 - The authorised activity must be undertaken by a licensed driller.
262557	WAA-318 - The well driller must submit a Well Completion Report to the Department within 30 days of completion of each activity authorised by this well construction permit.
262551	WAA-111 - If the well is considered unsatisfactory, it may be abandoned and a replacement well may then be constructed provided that the abandoned well is backfilled prior to the drill rig leaving the site.
262546	WAA-105 - Water samples are required from all wells drilled in respect of this permit.
262547	WAA-106 - Strata samples are not required.
262548	WAA-107 -The licensed well driller must forward with the report a plan obtained from the permit holder, who must mark thereon the location of all wells drilled in respect of this permit.
262549	WAA-110 - The authorised activity must be undertaken by a licensed driller.
262552	WAA-133 - All groundwater extracted during sampling and/or purging must be contained and disposed of in an appropriate manner to minimise risk to health and the environment.
262553	WAA-134 - This permit does not authorise the taking of water from the well for any purpose other than testing.
262554	WAA-136 - Wells are to be backfilled when no longer required for ongoing monitoring or investigation purposes.
262555	WAA-150 - Due to known nearby soil/groundwater contamination in the sediments and aquifers above, cautions should be taken in the drilling and cementing of this well.
262556	WAA-153 - The well is not to penetrate beyond a maximum depth of 15 metres unless approved by the Regional Hydrogeologist.

AUTHORISATION: MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

Date: 31 July 2024

GPO Box 1047, Adelaide SA 5001 MyWatermail@sa.gov.au mywater.sa.gov.au 08 8463 6876

GPO Box 1047, Adelaide SA 5001 MyWatermail@sa.gov.au mywater.sa.gov.au 08 8463 6876

Additional information about the site use approval

Under section 216(1)(b)(ii) of the Act, you have a right of appeal to the Environment, Resources and Development Court against the imposition of any condition on this permit. The appeal must be instituted within six weeks of the date of permit issue. The appeal must also be served upon this department within that time.

The authority to undertake the water affecting activity, defined in the permit, is limited to the holder of the permit and cannot be assigned to another person. If the property upon which the permit work is to be undertaken is sold prior to the commencement of any work, the new landowner must make an application for a new permit.

The well construction permit is not an authorisation for a person to enter private property and prior authority must be obtained from the land owner in all circumstances.

The issue of this permit does not negate the requirement to comply with the provisions of other Acts that may impact on the activity undertaken pursuant of this permit.

This permit is not an approval to clear native vegetation. In South Australia, native vegetation is protected by the *Native Vegetation Act 1991*. Clearance includes the draining or flooding of land, including actions that result in the substantial damage to native vegetation, this might include activities that lower the water tables and, as a result, impact on water dependent wetland communities. In most cases the clearance of native vegetation requires the consent of the Native Vegetation Council. Further information regarding native vegetation clearance approvals, is available from: http://www.environment.sa.gov.au/managing-natural-resources/native-vegetation.

It is recommended that all drilling equipment be decontaminated prior to construction of a new well or rehabilitation of an existing well to prevent the introduction or transfer of iron bacteria. Similar precautions should also be taken with pump installation equipment.

The equipment, materials and methods used in drilling, plugging, backfilling or sealing of a well or the replacement or alteration of the casing, lining or screen of a well shall not adversely affect the quality of an underground water resource.

Aquifers shall be protected during drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, to prevent adverse impacts upon the integrity of the aquifer.

The activity must not adversely affect water-dependent ecosystems nearby.

Activities shall not have an unacceptable detrimental impact on cultural, heritage or social values.

This work may be subject to inspection by the Department's Drilling Inspectors.

If the name or contact details of the holder or their company changes, then the holder must notify this department within 21 days of the change occurring. Names and contact details can be updated online through the mywater customer portal (mywater.sa.gov.au).

Take note that the permit holder, or a person acting on behalf of the permit holder, who contravenes or fails to comply with a condition of the permit is guilty of an offence, and such acts or omissions may result in the variation, suspension or revocation of the permit.

GPO Box 1047, Adelaide SA 5001 MyWatermail@sa.gov.au mywater.sa.gov.au 08 8463 6876

Well Permit

Permit to undertake a Water Affecting Activity

Pursuant to section 112 of the Landscape South Australia Act 2019

Subject to full compliance with all the procedures, specifications and limitations contained or referred to in the conditions set out below.

Permission is hereby granted to

Echo Risk Consulting Pty Ltd

Permit Number:	**P-503091**
Permit Term:	**1 year(s)**
Expiry Date:	**31 July 2025**

To undertake the following water affecting activity

Activity	**Construct a new well**
Well Use	**Monitoring or Investigation**
At location	**138.541391341,-34.930363602** **CT5202/341, D40074A34**

Conditions

262563	WAA-100 - The activity authorised by this permit must only be undertaken on the land identified as follows: CT5202/341 D40074 A34
262564	WAA-102 - The equipment, materials and methods used in drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, shall not adversely affect the quality of an underground water resource.
262565	WAA-103 - Aquifers shall be protected during drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, to prevent adverse impacts upon the integrity of the aquifer.
262570	WAA-110 - The authorised activity must be undertaken by a licensed driller.
262577	WAA-318 - The well driller must submit a Well Completion Report to the Department within 30 days of completion of each activity authorised by this well construction permit.
262571	WAA-111 - If the well is considered unsatisfactory, it may be abandoned and a replacement well may then be constructed provided that the abandoned well is backfilled prior to the drill rig leaving the site.
262566	WAA-105 - Water samples are required from all wells drilled in respect of this permit.
262567	WAA-106 - Strata samples are not required.
262568	WAA-107 -The licensed well driller must forward with the report a plan obtained from the permit holder, who must mark thereon the location of all wells drilled in respect of this permit.
262569	WAA-108 - All wells must be drilled vertical unless written permission is obtained from the Minister.
262572	WAA-133 - All groundwater extracted during sampling and/or purging must be contained and disposed of in an appropriate manner to minimise risk to health and the environment.
262573	WAA-134 - This permit does not authorise the taking of water from the well for any purpose other than testing.
262574	WAA-136 - Wells are to be backfilled when no longer required for ongoing monitoring or investigation purposes.
262575	WAA-150 - Due to known nearby soil/groundwater contamination in the sediments and aquifers above, cautions should be taken in the drilling and cementing of this well.
262576	WAA-153 - The well is not to penetrate beyond a maximum depth of 15 metres unless approved by the Regional Hydrogeologist.

AUTHORISATION: MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

Date: 31 July 2024

GPO Box 1047, Adelaide SA 5001 MyWatermail@sa.gov.au mywater.sa.gov.au 08 8463 6876

GPO Box 1047, Adelaide SA 5001 MyWatermail@sa.gov.au mywater.sa.gov.au 08 8463 6876

Additional information about the site use approval

Under section 216(1)(b)(ii) of the Act, you have a right of appeal to the Environment, Resources and Development Court against the imposition of any condition on this permit. The appeal must be instituted within six weeks of the date of permit issue. The appeal must also be served upon this department within that time.

The authority to undertake the water affecting activity, defined in the permit, is limited to the holder of the permit and cannot be assigned to another person. If the property upon which the permit work is to be undertaken is sold prior to the commencement of any work, the new landowner must make an application for a new permit.

The well construction permit is not an authorisation for a person to enter private property and prior authority must be obtained from the land owner in all circumstances.

The issue of this permit does not negate the requirement to comply with the provisions of other Acts that may impact on the activity undertaken pursuant of this permit.

This permit is not an approval to clear native vegetation. In South Australia, native vegetation is protected by the *Native Vegetation Act 1991*. Clearance includes the draining or flooding of land, including actions that result in the substantial damage to native vegetation, this might include activities that lower the water tables and, as a result, impact on water dependent wetland communities. In most cases the clearance of native vegetation requires the consent of the Native Vegetation Council. Further information regarding native vegetation clearance approvals, is available from: http://www.environment.sa.gov.au/managing-natural-resources/native-vegetation.

It is recommended that all drilling equipment be decontaminated prior to construction of a new well or rehabilitation of an existing well to prevent the introduction or transfer of iron bacteria. Similar precautions should also be taken with pump installation equipment.

The equipment, materials and methods used in drilling, plugging, backfilling or sealing of a well or the replacement or alteration of the casing, lining or screen of a well shall not adversely affect the quality of an underground water resource.

Aquifers shall be protected during drilling, plugging, backfilling or sealing of a well, or the replacement or alteration of the casing, lining or screen of a well, to prevent adverse impacts upon the integrity of the aquifer.

The activity must not adversely affect water-dependent ecosystems nearby.

Activities shall not have an unacceptable detrimental impact on cultural, heritage or social values.

This work may be subject to inspection by the Department's Drilling Inspectors.

If the name or contact details of the holder or their company changes, then the holder must notify this department within 21 days of the change occurring. Names and contact details can be updated online through the mywater customer portal (mywater.sa.gov.au).

Take note that the permit holder, or a person acting on behalf of the permit holder, who contravenes or fails to comply with a condition of the permit is guilty of an offence, and such acts or omissions may result in the variation, suspension or revocation of the permit.

GPO Box 1047, Adelaide SA 5001 MyWatermail@sa.gov.au mywater.sa.gov.au 08 8463 6876

APPENDIX H MONITORING WELL SURVEY

LINKUP CONSTRUCTION SURVEYS PTY LTD

To: Andrew Durand
Company: Echo Risk consulting
Phone: 0402 762 065

From: Lincoln Jeffery
Phone: 0414 840 569
Email: lincoln@linkupconstructionsurveys.com.au

Date: 11/09/2024

Monitoring well coordinates,
MFS Brooklyn Park

Well or Bore No.	Easting GDA2020	Northing GDA2020	R.L. Top of Casing A.H.D.	Natural Surface A.H.D.
GW1	275431.696	6131952.511	6.993	6.186
GW2	275473.599	6131950.686	7.096	6.349
GW3	275435.106	6131920.867	6.134	6.270

All Survey information was based from the GDA20 grid system and Australian Height Datum(AHD), derived from Permanent Survey Marks in the vicinity of the pro

APPENDIX I GROUNDWATER SAMPLING RECORDS & CALIBRATION CERTIFICATES

ECHO RISK CONSULTING

Groundwater Gauging

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI

Date:	29/8
Gauged by:	A.D

Gauging Equipment/Method:

Time	Well ID	Location / Co-ordinates	Well depth (m)	Depth to Product (m)	Depth to Water (m)	Product Thickness (mm)
Am	GW1		4.87		3.372	
Am	GW2		4.84	—	3.438	—
Am	GW3		3.97		2.536	

Observations / Comments:

Echo Risk Consulting

Groundwater Sampling Record

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI

WELL ID: GW1

Date: 29/08/2024

Sampled by: AD

Well Details	**Sampling Equipment & Methodology (circle applicable)**
Total Depth: 4.87	Method: *low-flow 4-well volume purged dry other*
Screened interval: 1.87 - 4.87	Pump type: *micropurge peristaltic footvalve bailer*
Case diameter: 50mm	Intake depth: ~4.1m
Casing type: PVC	**Observations:** *(damage/water ingress potential/ vegetation etc)* Good condition
Depth to Product (mbTOC) —	
Depth to Water (mbTOC) 3.372	

Maximum pre-sampling variation[1] (3 consecutive)		<0.1m	±0.1	±0.2°C	±5%	±10mV	±10%	[1] per 3 mins for low flow. per 0.5 well volume for well volume method.
Time	Litres purged (cumulative)	Water Level (m bTOC)	pH	Temp °C	EC (µS/cm)	ORP (mV)	DO (mg/L)	Notes: *(odour, sheen, colour)*
11:00	1L	3.38	7.00	18.6	4132	136.9	0.86	—
11:04	2L	3.38	7.00	18.7	4127	116.2	0.56	—
11:07	3L	3.38	7.00	18.7	4126	112.6	0.68	—
11:09	4L	3.38	7.00	18.7	4125	114.1	1.75*	?
11:12	5L	3.38	7.00	18.8	4119	112.6	0.82	
11:14	6L	3.38	7.00	18.8	4121	113.7	0.58	
11:17	7L	3.38	7.00	18.9	4127	112.8	0.39	
11:20	8L	3.38	7.00	18.8	4132	112.7	0.39	
11:23	9L	3.38	7.00	18.9	4130	112.9	0.37	
				SAMPLED				

General Observations/comments: - *odours, sheens, colour, etc*

med - low turbidity
- no odour/sheen

Samples Collected:

Container	**Preservative (analyte)**	**No.**	**Duplicate & Blank IDs**
Plastic 60mL	HNO_3 (metals)**		
Plastic 500mL	Nil (inorganics)		
Glass amber 100-500mL	Nil (SVOC - eg TRH/OCP/PAH)		
Glass vial 40mL	HCl (VOC - eg <C10 TRH, BTEX)		
Plastic 60mL	H_2SO_4 (nutrients)		
Plastic 60mL	NaOH (Cn, CrVI**)		
250mL PFAS		x2	QC1/QC2 (x1 each)

** *Samples to be analysed for dissolved metals must be filtered (45micron) prior to filling container*

PAGE 1 of 1

Echo Risk Consulting

Groundwater Sampling Record

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI

WELL ID: GW2

Date: 29/08/2024

Sampled by: AD

Well Details	**Sampling Equipment & Methodology (circle applicable)**
Total Depth: 4.84	Method: *low-flow 4-well volume purged dry other*
Screened interval: 1.84-3.84	Pump type: *micropurge peristaltic footvalve bailer*
Case diameter: 50mm	Intake depth: 4.1m
Casing type: PVC	**Observations:** *(damage/water ingress potential/ vegetation etc)* Good condition
Depth to Product (mbTOC)	
Depth to Water (mbTOC) 3.438	

Maximum pre-sampling variation[1] (3 consecutive)		<0.1m	±0.1	±0.2°C	±5%	±10mV	±10%	[1] per 3 mins for low flow. per 0.5 well volume for well volume method.
Time	Litres purged (cumulative)	Water Level (m bTOC)	pH	Temp °C	EC (µS/cm)	ORP (mV)	DO (mg/L)	Notes: *(odour, sheen, colour)*
10:27	1L	3.46	7.69	18.1	1597	92.1	1.72	~~low turb. dty~~ —
10:25	2L	3.46	7.67	18.2	1597	96.8	1.59	
10:29	3L	3.46	7.67	18.2	1596	99.9	1.59.	
10:32	4L	3.46	7.66	18.2	1605	101.6	1.54	
10:34	5L	3.46	7.66	18.2	1605	102.4	1.54	
10:36	6L	3.46	7.66	18.2	1607	103.5	1.49	
10:39	7L	3.46	7.65	18.3	1611	105.6	1.47	
10:41	8L	3.46	7.65	18.3	1613	105.9	1.43	
10:43	9L	3.46	7.65	18.3	1612	106.1	1.43	
			SAMPLED					

General Observations/comments: - *odours, sheens, colour, etc*

- low turb. dty
- flows well

Samples Collected:

Container	Preservative (analyte)	No.	Duplicate & Blank IDs
Plastic 60mL	HNO_3 (metals)**		
Plastic 500mL	Nil (inorganics)		
Glass amber 100-500mL	Nil (SVOC - eg TRH/OCP/PAH)		
Glass vial 40mL	HCl (VOC - eg <C10 TRH, BTEX)		
Plastic 60mL	H_2SO_4 (nutrients)		
Plastic 60mL	NaOH (Cn, CrVI**)		
Plastic 250ml	PFAS (1one)	X2	

** *Samples to be analysed for dissolved metals must be filtered (45micron) prior to filling container*

Echo Risk Consulting

Groundwater Sampling Record

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI

WELL ID: GW3

Date:	29/08/2024
Sampled by:	AD

Well Details	**Sampling Equipment & Methodology (circle applicable)**
Total Depth: 3.97	Method: *low-flow 4-well volume purged dry other*
Screened interval: 0.97 - 3.97	Pump type: *micropurge peristaltic footvalve bailer*
Case diameter: 50mm	Intake depth: ~3.2m
Casing type: PVC	**Observations:** *(damage/water ingress potential/ vegetation etc)* Good condition
Depth to Product (mbTOC) –	
Depth to Water (mbTOC) 2.536m	

Maximum pre-sampling variation[1] (3 consecutive)		<0.1m	±0.1	±0.2°C	±5%	±10mV	±10%	[1] per 3 mins for low flow. per 0.5 well volume for well volume method.
Time	Litres purged (cumulative)	Water Level (m bTOC)	pH	Temp °C	EC (µS/cm)	ORP (mV)	DO (mg/L)	Notes: *(odour, sheen, colour)*
11:42	1L	2.54	7.01	20.1	4,178	152.7	1.31	
11:45	2L	2.54	7.00	20.2	4,178	140.9	1.29	
11:48	3L	2.54	6.99	20.3	4,174	137.5	1.36	
11:51	4L	2.54	6.99	20.2	4,182	137.6	1.28	
11:54	5L	2.54	6.99	20.2	4,185	140.2	1.21	
11:57	6L	2.54	6.99	20.3	4,183	142.5	1.18	
12:00	7L	2.54	6.99	20.3	4,186	143.1	1.17	
12:03	8L	2.54	7.00	20.3	4,187	143.9	1.15	
12:06	9L	2.54	6.99	20.3	4,183	144.2	1.13	
			SAMPLED.					

General Observations/comments: - *odours, sheens, colour, etc*

- low turbidity
- no odour/sheen flows well.

Samples Collected:

Container	**Preservative (analyte)**	**No.**	**Duplicate & Blank IDs**
Plastic 60mL	HNO_3 (metals)**		
Plastic 500mL	Nil (inorganics)		
Glass amber 100-500mL	Nil (SVOC - eg TRH/OCP/PAH)		
Glass vial 40mL	HCl (VOC - eg <C10 TRH, BTEX)		
Plastic 60mL	H_2SO_4 (nutrients)		
Plastic 60mL	NaOH (Cn, CrVI**)		
250mL PFAS		x1	
	small PFAS	x3	

** *Samples to be analysed for dissolved metals must be filtered (45micron) prior to filling container*

KENNARDS HIRE

EQUIPMENT CERTIFICATION REPORT

PGN9003842-9003846 – OIL/WATER INTERFACE METER

Plant Number: 235243 **Serial Number:** 268006

Probe Length: 60m

ITEM	TEST	PASS/ACCEPTABLE	COMMENTS
Battery	Compartment / Capacity	☑	9v spare included
Probe	Clean / Operation	☑	
Earth Lead	Check if equipped	☑	
Tape Check	Cleaned / Checked for cuts	☑	
Function test	At surface level	☑	Oil + H_2O

Checked By: ECB **Date:** 29/08/24 **Signed:**

Accessories List:

Interface Meter	Tape Guide	Decon 90 Solution
Brush	Spare 9v Battery	Transport Box

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003871 WATER QUALITY METER – MULTIFUNCTION (YSI PRO PLUS)

Plant Number: 1098643 **Serial Number:** 21H104244

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	4pH BN: 399527 7pH LN: 325537	☑
Conductivity	12.88 mS/cm	12.88 mS/cm		LN: 399853	☑
Dissolved Oxygen	Sodium Sulphite / Air	0% in Sodium Sulphite	100% in Air	BN: 12265	☑
ORP	240mV @ 20°C	240mV	part A part B	A - LN: 404206 B - LN: 402268	☑

Battery Status 100 %	Temperature 18.0 °C
Electrodes Cleaned and Checked	

Note: Calibration solution traceability information is available upon request.

Checked By: ECB Date: 28/8/24 Signed: [signature]

Accessories List:

User's Manual	pH Sensor	Conductivity/ Temp Sensor
Dissolved Oxygen Sensor	Redox (ORP) Sensor	Flow Cell
User Guide	Stainless Steel Restrictor	Spare Batteries
Calibration Cup		

APPENDIX J NATA LABORATORY CERTIFICATES – GROUNDWATER

Echo Risk Consulting
84 North Terrace
Kent Town
SA 5067

NATA Accredited
Accreditation Number 1261
Site Number 1254

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: **Andrew Durand**

Report **1133789-W**
Project name DSI
Project ID EC0205
Received Date Aug 29, 2024

Client Sample ID			**GW1**	**GW2**	**GW3**	**QC1**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M24-Au0078758**	**M24-Au0078759**	**M24-Au0078760**	**M24-Au0078761**
Date Sampled			**Aug 29, 2024**	**Aug 29, 2024**	**Aug 29, 2024**	**Aug 29, 2024**
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	0.08	< 0.05	< 0.05	0.08
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	0.10	< 0.01	0.02	0.10
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	0.59	< 0.01	0.09	0.53
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	0.07	< 0.01	0.01	0.07
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	0.33	0.01	0.04	0.33
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	87	74	80	77
13C5-PFPeA (surr.)	1	%	103	95	98	90
13C5-PFHxA (surr.)	1	%	92	94	92	81
13C4-PFHpA (surr.)	1	%	93	88	86	81
13C8-PFOA (surr.)	1	%	107	121	108	102
13C5-PFNA (surr.)	1	%	95	92	81	85
13C6-PFDA (surr.)	1	%	89	89	71	78
13C2-PFUnDA (surr.)	1	%	88	85	61	77
13C2-PFDoDA (surr.)	1	%	70	71	45	59
13C2-PFTeDA (surr.)	1	%	46	44	24	37
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	0.18	< 0.05	< 0.05	0.17
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	116	116	96	106
D3-N-MeFOSA (surr.)	1	%	19	56	13	24

Client Sample ID			GW1	GW2	GW3	QC1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Au0078758	M24-Au0078759	M24-Au0078760	M24-Au0078761
Date Sampled			Aug 29, 2024	Aug 29, 2024	Aug 29, 2024	Aug 29, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSA (surr.)	1	%	18	58	11	22
D7-N-MeFOSE (surr.)	1	%	97	104	74	85
D9-N-EtFOSE (surr.)	1	%	110	122	79	91
D5-N-EtFOSAA (surr.)	1	%	80	79	56	66
D3-N-MeFOSAA (surr.)	1	%	81	70	62	69
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	0.25	0.04	0.09	0.26
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	0.05	< 0.01	< 0.01	0.04
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	0.06	0.01	0.02	0.07
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	0.37	0.02	0.10	0.38
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]2.9	[N09]0.08	[N09]0.73	[N09]2.1
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	0.29	< 0.01	0.06	0.27
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]16	[N09]0.31	[N09]2.4	[N09]10
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	109	107	101	98
18O2-PFHxS (surr.)	1	%	94	101	90	99
13C8-PFOS (surr.)	1	%	94	96	96	89
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	54	49	47	47
13C2-6:2 FTSA (surr.)	1	%	89	79	69	72
13C2-8:2 FTSA (surr.)	1	%	51	49	39	45
13C2-10:2 FTSA (surr.)	1	%	100	94	59	76
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	18.9	0.39	3.13	12.1
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	16.33	0.32	2.44	10.33
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	19.23	0.4	3.17	12.43
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	20.32	0.44	3.38	13.47
Sum of PFASs (n=30)*	0.1	ug/L	21.27	0.47	3.56	14.4

Client Sample ID			TB1	RB1
Sample Matrix			Water	Water
Eurofins Sample No.			M24-Au0078762	M24-Au0078763
Date Sampled			Aug 29, 2024	Aug 29, 2024
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	< 0.01	< 0.01

Client Sample ID			TB1	RB1
Sample Matrix			Water	Water
Eurofins Sample No.			M24-Au0078762	M24-Au0078763
Date Sampled			Aug 29, 2024	Aug 29, 2024
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	86	90
13C5-PFPeA (surr.)	1	%	94	100
13C5-PFHxA (surr.)	1	%	90	96
13C4-PFHpA (surr.)	1	%	89	94
13C8-PFOA (surr.)	1	%	116	126
13C5-PFNA (surr.)	1	%	84	89
13C6-PFDA (surr.)	1	%	75	73
13C2-PFUnDA (surr.)	1	%	61	56
13C2-PFDoDA (surr.)	1	%	41	34
13C2-PFTeDA (surr.)	1	%	14	14
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	104	106
D3-N-MeFOSA (surr.)	1	%	60	48
D5-N-EtFOSA (surr.)	1	%	64	46
D7-N-MeFOSE (surr.)	1	%	97	91
D9-N-EtFOSE (surr.)	1	%	105	95
D5-N-EtFOSAA (surr.)	1	%	64	62
D3-N-MeFOSAA (surr.)	1	%	62	59
Perfluoroalkyl sulfonic acids (PFSAs)				
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	101	111
18O2-PFHxS (surr.)	1	%	98	105
13C8-PFOS (surr.)	1	%	89	93

Client Sample ID			TB1	RB1
Sample Matrix			Water	Water
Eurofins Sample No.			M24-Au0078762	M24-Au0078763
Date Sampled			Aug 29, 2024	Aug 29, 2024
Test/Reference	LOR	Unit		
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	55	62
13C2-6:2 FTSA (surr.)	1	%	158	173
13C2-8:2 FTSA (surr.)	1	%	43	44
13C2-10:2 FTSA (surr.)	1	%	53	51
PFASs Summations				
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1	< 0.1

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
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Sep 05, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Sep 05, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Sep 02, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Sep 05, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Aug 29, 2024	
- 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

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
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 & 2780	Site# 25079

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35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
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Company Name: Echo Risk Consulting
Address: 84 North Terrace
Kent Town
SA 5067

Project Name: DSI
Project ID: EC0205

Order No.:
Report #: 1133789
Phone: 0414 496 402
Fax:

Received: Aug 29, 2024 1:30 PM
Due: Sep 5, 2024
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	GW1	Aug 29, 2024		Water	M24-Au0078758	X
2	GW2	Aug 29, 2024		Water	M24-Au0078759	X
3	GW3	Aug 29, 2024		Water	M24-Au0078760	X
4	QC1	Aug 29, 2024		Water	M24-Au0078761	X
5	TB1	Aug 29, 2024		Water	M24-Au0078762	X
6	RB1	Aug 29, 2024		Water	M24-Au0078763	X
Test Counts						6

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. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
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 where annotated.
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 sampling date; 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 seven 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 (CU)	

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 6.0
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 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, 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							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	69			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	68			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	67			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	67			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	69			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	69			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	68			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroundecanoic acid (PFUnDA)	%	69			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	69			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	69			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	75			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	68			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	79			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	66			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	71			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	68			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	62			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	69			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	69			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	65			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	72			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	100			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	55			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	60			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	79			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	66			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	72			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorohexanesulfonic acid (PFHxS)	%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	72			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Au0078763	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Au0078763	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0078763	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0078763	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0078763	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0078763	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0078763	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0078763	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<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)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0078763	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0078763	CP	ug/L	< 0.01	< 0.01	<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
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:

Harry Bacalis	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS
Roopesh Rangarajan	Senior Analyst-PFAS



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.

Echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	29/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Containers: Soil Jar	250ml unpreserved plastic (PFAS)	100ml unpreserved plastic (PFAS)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	60ml Ferrous Iron (HCL)	Required Analyses: R21 NEPM Soil Classification Screen	R7 - SA EPA Waste Classification Screen	B9 (TRH, BTEXN, PAH, OCP, metals)	B7 (TRH, BTEXN, PAH, metals)	B6 (TRH/BTEXN/metals)	PFAS	M8 (metals)	BTEXN	OCP
GW1		29-Aug-24	w		X2												X			
GW2		29-Aug-24	w		X2												X			
GW3		29-Aug-24	w		X	X3											X			
QC1		29-Aug-24	w		X												X			
QC2		29-Aug-24	w		X							Please forward to ALS with attached COC								
TB1		29-Aug-24	W		X												X			
RB1		29-Aug-24	W		X												X			

Relinquished by: AD	Date/Time: 29/8/24 -1pm	
Received by: Pasquale	Date/Time: 29/08 1:30pm	Notes to Lab: 7.1°C + 0.1°C = 7.2°C ambient
Relinquished by:	Date/Time:	
Received by:	Date/Time:	
Relinquished by:	Date/Time:	
Received by:	Date/Time:	

#1133789

Pasquale

Echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	29/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	!Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers									Required Analyses								
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	60ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	250ml Plastic (PFAS)	60ml Ferrous Iron (HCL)	5-5 (TRH, BTEXN,)Metals)	OCP	PFAS	VHC	Asbestos (in building material)	5-2 (metals)	TRH (C6-C9) / BTEXN		
QC2		29/08/24	W								X				X						

Relinquished by: AD	Date/Time: 29/8/24 -1pm	
Received by: Pazpurat	Date/Time: 29/08 1300PM	Notes to Lab:
Relinquished by:	Date/Time:	
Received by:	Date/Time:	
Relinquished by:	Date/Time:	
Received by:	Date/Time:	

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Eurofins Environment Testing Australia Pty Ltd

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Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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NZBN: 9429046024954

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+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: Echo Risk Consulting
Contact name: Andrew Durand
Project name: DSI
Project ID: EC0205
Turnaround time: 5 Day
Date/Time received Aug 29, 2024 1:30 PM
Eurofins reference 1133789

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

Contact

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

Karl Bulow on phone : or by email: KarlBulow@eurofins.com

Results will be delivered electronically via email to Andrew Durand - andrew.durand@echorisk.com.au.

Note: A copy of these results will also be delivered to the general Echo Risk Consulting email address.

Global Leader - Results you can trust

CERTIFICATE OF ANALYSIS

Work Order	: **EM2414889**	Page	: 1 of 5
Client	: **ECHO RISK CONSULTING**	Laboratory	: Environmental Division Melbourne
Contact	: Andrew Durand	Contact	: Customer Services EM
Address	: 84 North Terrace Kent Town 5067	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: DSI	Date Samples Received	: 02-Sep-2024 09:55
Order number	: EC0205	Date Analysis Commenced	: 04-Sep-2024
C-O-C number	: ----	Issue Date	: 05-Sep-2024 12:57
Sampler	: AD		
Site	: 34 Airport Road, Brooklyn Park		
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*
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

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

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X-INJ: The direct injection LCMSMS method may be used where the sample matrix is not suitable for Solid Phase Extraction (e.g. significant particulate load) or where only a single sample container is received.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC2	----	----	----	----
			Sampling date / time	29-Aug-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2414889-001	---------	---------	---------	---------
				Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	**0.05**	----	----	----	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	**0.24**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	**0.30**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**2.95**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	**0.15**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**11.7**	----	----	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	**0.17**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	**0.02**	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.10	µg/L	<0.10	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	**0.12**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	**0.68**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	**0.09**	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	**0.30**	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC2	----	----	----	----
				Sampling date / time	29-Aug-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2414889-001	---------	---------	---------	---------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		**0.15**	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**16.9**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**14.6**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**16.1**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**110**	----	----	----	----
13C8-PFOA	----	0.02	%		**97.5**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EM2414889**	Page	: 1 of 6
Client	: **ECHO RISK CONSULTING**	Laboratory	: Environmental Division Melbourne
Contact	: Andrew Durand	Contact	: Customer Services EM
Address	: 84 North Terrace Kent Town 5067	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: DSI	Date Samples Received	: 02-Sep-2024
Order number	: EC0205	Date Analysis Commenced	: 04-Sep-2024
C-O-C number	: ----	Issue Date	: 05-Sep-2024
Sampler	: AD		
Site	: 34 Airport Road, Brooklyn Park		
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 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*
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

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

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6033580)									
EM2414841-123	Anonymous	EP231X-INJ: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X-INJ: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X-INJ: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6033580)									
EM2414841-123	Anonymous	EP231X-INJ: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X-INJ: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6033580) - continued									
EM2414841-123	Anonymous	EP231X-INJ: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.10	<0.10	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6033580)									
EM2414841-123	Anonymous	EP231X-INJ: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6033580)									
EM2414841-123	Anonymous	EP231X-INJ: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6033580)									
EM2414841-123	Anonymous	EP231X-INJ: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X-INJ: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X-INJ: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				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
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6033580)								
EP231X-INJ: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	0.5 µg/L	88.0	70.0	130
EP231X-INJ: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.444 µg/L	96.7	72.0	130
EP231X-INJ: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.471 µg/L	99.6	71.0	127
EP231X-INJ: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.457 µg/L	102	68.0	131
EP231X-INJ: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.477 µg/L	104	69.0	134
EP231X-INJ: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.465 µg/L	96.9	65.0	140
EP231X-INJ: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	0.5 µg/L	96.9	69.0	127
EP231X-INJ: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.482 µg/L	100	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6033580)								
EP231X-INJ: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.10	2.5 µg/L	96.4	73.0	129
EP231X-INJ: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	95.1	72.0	129
EP231X-INJ: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	94.8	72.0	129
EP231X-INJ: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	99.3	72.0	130
EP231X-INJ: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	99.6	71.0	133
EP231X-INJ: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	113	69.0	130
EP231X-INJ: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	100	71.0	129
EP231X-INJ: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	103	69.0	133
EP231X-INJ: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	108	72.0	134
EP231X-INJ: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	121	65.0	144
EP231X-INJ: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	105	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6033580)								
EP231X-INJ: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	93.5	67.0	137
EP231X-INJ: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	105	68.0	141
EP231X-INJ: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	99.6	70.0	130
EP231X-INJ: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	96.8	70.0	130
EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	103	70.0	130
EP231X-INJ: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	99.5	65.0	136

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6033580) - continued								
EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	95.3	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6033580)								
EP231X-INJ: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.469 µg/L	108	63.0	143
EP231X-INJ: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.476 µg/L	106	64.0	140
EP231X-INJ: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.48 µg/L	113	67.0	138
EP231X-INJ: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.483 µg/L	126	70.0	130
EP231P: PFAS Sums (QCLot: 6033580)								
EP231X-INJ: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X-INJ: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X-INJ: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

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: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6033580)							
EM2414861-001	Anonymous	EP231X-INJ: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.5 µg/L	101	70.0	130
		EP231X-INJ: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.444 µg/L	102	72.0	130
		EP231X-INJ: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.471 µg/L	83.1	71.0	127
		EP231X-INJ: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.457 µg/L	93.2	68.0	131
		EP231X-INJ: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.477 µg/L	106	69.0	134
		EP231X-INJ: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.465 µg/L	98.1	65.0	140
		EP231X-INJ: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.5 µg/L	103	69.0	127
		EP231X-INJ: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.482 µg/L	111	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6033580)							
EM2414861-001	Anonymous	EP231X-INJ: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	101	73.0	129
		EP231X-INJ: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	100.0	72.0	129
		EP231X-INJ: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	98.0	72.0	129
		EP231X-INJ: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	101	72.0	130
		EP231X-INJ: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	102	71.0	133
		EP231X-INJ: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	110	69.0	130
		EP231X-INJ: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	104	71.0	129
		EP231X-INJ: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	103	69.0	133

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6033580) - continued							
EM2414861-001	Anonymous	EP231X-INJ: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	108	72.0	134
		EP231X-INJ: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.5 µg/L	116	65.0	144
		EP231X-INJ: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	108	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6033580)							
EM2414861-001	Anonymous	EP231X-INJ: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	96.7	67.0	137
		EP231X-INJ: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	109	68.0	141
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	102	70.0	130
		EP231X-INJ: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	94.7	70.0	130
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	104	70.0	130
		EP231X-INJ: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	109	65.0	136
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	96.7	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6033580)							
EM2414861-001	Anonymous	EP231X-INJ: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.469 µg/L	119	63.0	143
		EP231X-INJ: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.476 µg/L	109	64.0	140
		EP231X-INJ: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.48 µg/L	108	67.0	138
		EP231X-INJ: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.483 µg/L	91.6	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2414889**	Page	: 1 of 4
Client	: **ECHO RISK CONSULTING**	Laboratory	: Environmental Division Melbourne
Contact	: Andrew Durand	Telephone	: +61-3-8549 9600
Project	: DSI	Date Samples Received	: 02-Sep-2024
Site	: 34 Airport Road, Brooklyn Park	Issue Date	: 05-Sep-2024
Sampler	: AD	No. of samples received	: 1
Order number	: EC0205	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X-INJ) QC2	**29-Aug-2024**	**04-Sep-2024**	25-Feb-2025	✓	**04-Sep-2024**	25-Feb-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X-INJ) QC2	**29-Aug-2024**	**04-Sep-2024**	25-Feb-2025	✓	**04-Sep-2024**	25-Feb-2025	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X-INJ) QC2	**29-Aug-2024**	**04-Sep-2024**	25-Feb-2025	✓	**04-Sep-2024**	25-Feb-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X-INJ) QC2	**29-Aug-2024**	**04-Sep-2024**	25-Feb-2025	✓	**04-Sep-2024**	25-Feb-2025	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X-INJ) QC2	**29-Aug-2024**	**04-Sep-2024**	25-Feb-2025	✓	**04-Sep-2024**	25-Feb-2025	✓

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: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	WATER	In house: Direct injection analysis of fresh waters after dilution (1:1) with mobile phase solvent. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. 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.

Preparation Methods	Method	Matrix	Method Descriptions
Preparation for PFAS in water.	EP231-PR	WATER	Method presumes direct injection without workup. Preparation includes addition of internal standard and surrogate, and filtration prior to analysis.

1

Echo Risk Consulting

echo Risk Consulting

Chain of Custody

Client:	Ventia
Location:	34 Airport Road, Brooklyn Park
Project:	DSI
Date:	29/8/2024

Sampled by:	AD
Contact:	0402 762 065
Purchase Order:	EC0205
Turnaround:	Standard

Results to be emailed to: andrew.durand@echorisk.com.au & nick.waniarcha@echorisk.com.au

				Containers										Required Analyses								
Sample ID	Depth (m)	Sample Date	Matrix (soil / water)	Soil Jar	Plastic Jar (PFAS)	60ml Plastic (Nitric Acid Preserved)	100ml Glass Amber (semi-volatile)	40ml Vials (HCL preserved)	60ml Plastic Nturients (H2SO4)	60ml Plastic - Cyanide/Cr VI (NaOH)	250ml Plastic (PFAS)	60ml Ferrous Iron (HCL)		S-5 (TRH, BTEXN,]Metals)	OCP	PFAS	VHC	Asbestos (in building material)	S-2 (metals)	TRH (C6-C9) / BTEXN		
1 QC2		29/08/24	W								X					X						

Environmental Division
Melbourne
Work Order Reference
EM2414889

Telephone : + 61-3-8549 9600

Relinquished by: AD	Date/Time: 29/8/24 -1pm	
Received by: Pazpual	Date/Time: 29/08 1:30PM	Notes to Lab: ALS
Relinquished by: Nicole R (EF)	Date/Time: 2/9 8am	
Received by:	Date/Time:	
Relinquished by:	Date/Time:	
Received by:	Date/Time:	

RICHARD BAEZ - ALS
02/09/24 - 9:55

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2414889**

Client	: **ECHO RISK CONSULTING**	Laboratory	: Environmental Division Melbourne
Contact	: Andrew Durand	Contact	: Customer Services EM
Address	: 84 North Terrace Kent Town 5067	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: andrew.durand@echorisk.com.au	E-mail	: ALSEnviro.Melbourne@alsglobal.com
Telephone	: ----	Telephone	: +61-3-8549 9600
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: DSI	Page	: 1 of 2
Order number	: EC0205	Quote number	: EM2023ECHRIS0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: 34 Airport Road, Brooklyn Park		
Sampler	: AD		

Dates

Date Samples Received	: 02-Sep-2024 09:55	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 09-Sep-2024	Scheduled Reporting Date	: **09-Sep-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 5.6°C - Ice Bricks present
Receipt Detail	:	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 direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Melbourne, NATA accreditation no. 825, site no. 13778.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

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: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X-INJ PFAS - Full Suite (31 analytes)
EM2414889-001	29-Aug-2024 00:00	QC2	✓

Proactive Holding Time Report

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

Requested Deliverables

Andrew Durand

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

Nick Waniarcha

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

APPENDIX K STATEMENT OF LIMITATIONS

STATEMENT OF LIMITATIONS - ECHO RISK CONSULTING PTY LTD

This report has been prepared in accordance with the agreement between The Client and Echo Risk Consulting Pty Ltd (Echo).

Within the limitations of the agreed upon scope of services, this work has been undertaken and performed in a professional manner, in accordance with generally accepted practices, using a degree of skill and care ordinarily exercised by members of its profession and consulting practice. Opinions and judgements expressed herein are based on Echo's understanding of current regulatory standards and should not be construed as legal opinions. No other warranty, expressed or implied, is made.

This report is solely for the use of The Client and any reliance on this report by third parties shall be at such party's sole risk. This report shall only be presented in full and may not be used to support any other objective than those set out in the report, except where written approval with comments is provided by Echo.

The first stage in the site assessment process generally involves site history research and/or a site inspection. This stage is intended to establish whether there is a likelihood of site contamination. Dependent on the location of the site and site conditions, there could be contamination present which could not have been identified by a preliminary investigation of this nature. The investigations rely on information provided to Echo by third parties. Echo cannot guarantee completeness or accuracy of any descriptions or conclusions based on information supplied to it during site surveys, visits and interviews. The extent of risk The Client wishes to accept is something which The Client must determine and accordingly, the Client waives any claim against Echo and agrees to defend, indemnify and hold Echo harmless from any claim or liability for injury or loss allegedly arising from errors, omissions or inaccuracies in documents or other information provided to Echo by The Client.

If recommendations have been made on whether to conduct intrusive investigations, these have been based on the likelihood of site contamination and are generally based on the sensitivity of the proposed future use of the site. The site assessment process is often ongoing, with additional stages of investigation being required to resolve issues raised in previous stages. In cases where intrusive investigations (or other sampling) have been conducted, then the following limitations apply:

- Professional judgment has been used to interpret the data obtained from site sampling and subsequent laboratory testing to characterise contamination that is present on site. The Client accepts that even a comprehensive sampling and testing program, implemented with the appropriate equipment and experienced personnel under the direction of a trained professional who functions in accordance with a professional standard of care, may fail to detect certain conditions because they are hidden and therefore cannot be considered in development of a subsurface exploration program.
- Where relevant, the extent of sampling and analysis has been targeted towards areas where contamination is most likely, based on site history and visual assessment. The potential for contamination that occurs in unexpected locations or from unexplained sources cannot be ruled out. Soil contamination can be expected to be non-homogenous across the stratified soils where present on site, and the concentrations of contaminants may vary significantly within areas where the contamination has occurred. Contaminant movement can follow paths of high permeability and it is possible that sampling will not have intersected these preferential pathways. The scope of services included with the Proposal is that which The Client agreed to or selected considering their own risk preferences and other considerations.
- Intrusive investigations may result in contamination of certain sub-surface areas, as when a probe or boring device moves through a contaminated area, linking it to an aquifer or other water body not previously contaminated. Echo has applied its best efforts to minimise and eliminate such cross contamination during the conduct of any sub-surface investigation. Because sub-surface sampling is a necessary aspect of the work which Echo may perform on The Client's behalf, The client waives any claims against Echo and agrees to defend, indemnify and hold Echo harmless from any claims or liability for injury or loss which may arise as a result of alleged cross contamination caused by sampling.

Preliminary findings which may result from this investigation/study may require verification through further analytical testing programs. The final decision to conduct additional investigative activities will be dependent upon The Client's assessment of the business risks involved. The Client agrees to hold Echo harmless from any claim, losses or damages arising out of The Client 's rejection of any additional work suggested as a result of the work performed hereunder.

This report is based on conditions encountered and information reviewed at the time of preparation. Echo disclaims responsibility for any changes that may have occurred after this time.