MFS Peterborough Station

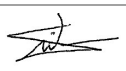
Supplementary Detailed Site Investigation

South Australian Metropolitan Fire Service

14 February 2025

→ The Power of Commitment



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Executive Summary

Background

GHD Pty Ltd (GHD) was commissioned by the South Australian (SA) Metropolitan Fire Service (MFS) to undertake a supplementary Detailed Site Investigation (DSI) for the MFS Peterborough Station, located at 86 Main Street, Peterborough, South Australia 5422 (the site). Historically, during training activities, MFS has used AFFF containing per- and poly-fluoroalkyl substances (PFAS) at the site. In recent years, the SA Environment Protection Authority (EPA) has requested MFS to investigate the potential presence of residual PFAS at their sites and assess potential receptor exposure risks. GHD completed a preliminary site investigation (PSI) for the MFS Peterborough Station in 2023 (GHD 2023a). Subsequently, a Sampling and Analysis Quality Plan (SAQP) (GHD 2023b) and DSI (GHD 2024) were compiled for the site. The DSI identified PFAS impacts in on-site soils and groundwater and recommended additional investigations to further delineate impacts on-site and in the immediate surrounding areas. These recommendations were endorsed by the SA Environment Protection Authority (EPA) in a letter dated 9 July 2024 (GENI 63252-3) (Appendix A), with further advice to include:

– An investigation on whether surface water migrating from the site is impacting receiving waters and presenting a risk to ecological receptors.

Objectives

The primary objectives of the supplementary DSI were to:

– Address identified data gaps in understanding the nature and extent of identified PFAS contamination off-site.
– Refine the conceptual site model (CSM) receptor linkages and evaluate the exposure risks to human health and the environment.

Scope of Work

To achieve the above objectives, the scope of work for the additional investigations was as follows:

– Undertake an off-site drilling program to assess the following:
  - Potential for PFAS contamination in groundwater hydraulically downgradient of the site.
  - Potential ambient/background PFAS impacts from other sources upgradient of the site.
– Assess the potential for impacted surface water runoff to serve as a pathway for the migration of PFAS to nearby surface water receptors.
– Preparation of a supplementary DSI report, including refinement of the conceptual site model (CSM).

Conclusions

– PFAS soil impacts are noted on-site and are attributed to the historical use of AFFF containing PFAS at the station.
– PFAS concentrations in on-site soils were below the adopted Site-specific Health Investigation Levels (SSHILs).
– PFAS soil impacts are not uniformly distributed across historic on-site source areas and are primarily confined within surface and near-surface strata (approximately 0 – 0.5 m bgl), in which concentrations above the adopted ecological assessment criterion were noted.
– PFAS concentrations exceeded the HIL B criteria at a depth of 1.5 – 1.6 m bgl within BH08; however, at this depth, it is not considered likely to affect current site users.
– Vegetation was observed growing within these areas where elevated PFAS concentrations were reported, presenting a potential SPR linkage with respect to ecological exposure.
– Although changes in the hydraulic gradient are subtle, the inferred groundwater flow direction is to the southeast.
– All three on-site monitoring wells exceeded the adopted PFAS human-health and ecological guidelines.

- The up-gradient well MW06 reported exceedances of the human-health drinking water quality guideline value, representing a possible off-site source of contamination.
- Considering the gentle hydraulic gradient and absence of groundwater abstraction surrounding the site, significant off-site migration of the PFAS plume is considered unlikely.
- With no exceedances of the adopted human-health criteria reported down-gradient of the site, health exposure risks via this pathway are improbable.
- Groundwater depths in the area are in excess of 10 m bgl, making the uptake of groundwater by vegetation root systems unlikely and thus precluding the likelihood of ecological and human-health exposure risks through this pathway or via contact during intrusive work for site maintenance/construction.
- Surface water samples collected from SW01, located directly adjacent to the site, exceeded the human-health drinking water quality guideline value.
- PFAS concentrations were an order of magnitude lower at the two downgradient locations, only exceeding the ecological criteria for high-conservation value systems.
- A stormwater detention basin was identified approximately 1.3 km west of the site, which receives ingress from a wide catchment, including runoff from the site.
- Without a formal appraisal of the ecosystem sensitivity in and around the detention basin and due to the uncertainty of stormwater collection and reuse in Peterborough, this represents a potentially complete SPR linkage. The following is noted in regard to the potential surface water pathway:
    - Water was found to flow to the west before draining into a concrete-lined stormwater drain that flowed north.
    - PFAS exceedances occurred in all three samples analysed.
    - It is unknown how stormwater runoff is processed and used within the township.

Recommendations

- Additional sampling of surface water during increased rainfall events to confirm temporal PFAS variance/ presence within stormwater runoff into the local detention basin.
- If PFAS, above the adopted assessment criteria, is identified in stormwater runoff from Peterborough Fire Station, leading to the detention basin, consultation with the relevant authority about stormwater collection and usage within Peterborough township may be required.
- Should the proposed additional surface water monitoring reveal that the site is a contributory source of PFAS impacts in the stormwater detention basin, it is recommended that a preliminary Human Health and Ecological Risk Assessment of potential exposure risks be conducted, taking cognisance of water ingress from a wide catchment.
- Considering other potential sources of PFAS impacts have been identified in the area, a broader investigation into cumulative impacts by the regulatory authority may be warranted.
- Continue with the proposed capital works program, which will effectively seal off a portion of the residual source area and thereby mitigate identified exposure risks on-site.
- The implementation of the HSE protocol (as outlined in the MFS Contractors Information sheet (Appendix J)) during any future intrusive works on site will mitigate potential exposure risks to maintenance and construction workers.

Limitations

This report is subject to, and must be read in conjunction with, the limitations set out in Section 1.5 and the assumptions and qualifications contained throughout the Report.

Table of Abbreviations

Abbreviation	Full Form
AFAC	Australasian Fire and Emergency Service Authorities Council
AFFF	Aqueous Film-Forming Foam
AHD	Australian Height Datum
COC	Chain of Custody
COPC	Chemicals of Potential Concern
CSM	Conceptual Site Model
DO	Dissolved Oxygen
DQIs	Data Quality Indicators
DQOs	Data Quality Objectives
EC	Electrical Conductivity
GAR	South Australian Guidelines for the Assessment and Remediation of Site Contamination 2019
GHD	GHD Pty Ltd
HEPA	Heads of Environment Protection Authorities Australia
HIL	Human Health Investigation Level
IP	Interface Probe
JSEA	Job Safety and Environment Analysis
LOR	Limit of Reporting
m bgl	Metres Below Ground Level
MFS	South Australian Metropolitan Fire Service
mg/L	Milligrams / Litre
MW	Monitoring Well
NATA	National Association of Testing Authorities
NEMP	PFAS National Environmental Management Plan Version 2.0 - January 2020
NEPC	National Environmental Protection Council
NHMRC	National Health and Medical Research Council
ORP	Oxidation-Reduction Potential
PFAA	Perfluoroalkyl acids
PFAS	Per- and Poly-Fluoroalkyl Substances
PFHxS	Perfluorohexane Sulfonate
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
PFPeA	Perfluoropentanoic acid
PFCA	Perfluoroalkyl Carboxylic Acids
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance and Quality Control
RPD	Relative Percentage Difference
SA EPA	South Australian Environment Protection Authority
SAQP	Sampling and Analysis Quality Plan

Abbreviation	Full Form
SPR	Source-Pathway-Receptor
SWL	Standing Water Level
TDS	Total Dissolved Solids
TOC	Top of Casing
WQEPP	South Australian Environmental Protection (Water Quality) Policy 2015
µg/L	Micrograms / Litre
µS/cm	Microsiemens / centimetre

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1. Introduction

In 2024, GHD Pty Ltd (GHD) was commissioned by the South Australian (SA) Metropolitan Fire Service (MFS) to undertake a Detailed Site Investigation (DSI) for MFS Peterborough Station, located at 86 Main Street, Peterborough, South Australia 5422 (the site). The findings from this investigation were as follows:

– A total of 20 soil samples were taken from 12 sampling locations strategically distributed across the historical training site and washdown area. Of these, 11 samples yielded concentrations exceeding the guideline values for indirect ecological exposure (developed sites), and one sample yielded concentrations exceeding the guideline values for direct ecological exposure.
– The highest reported concentrations of PFAS in soils were identified within the site's southern portion within the unpaved rear yard.
– No exceedances of human health HIL B or the MFS regional (retained) SSHIL assessment criteria were reported in soil. The potential risks to human health for the current site use are considered low and acceptable.
– Exceedances of the adopted PFAS (PFHxS+PFOS) Interim Screening Criteria, representing exposure scenarios for domestic and recreational groundwater use, were reported in samples from all the monitoring wells on-site. Since the human-health drinking water guidelines are more stringent than the recreational use criteria, results inherently exceeded the former guidelines.

Based on the findings, the following recommendations were proposed:

– Further intrusive assessment works to delineate the nature and spatial extent of soil and groundwater contamination off-site.
– Sealing of the unpaved rear yard where most of the samples with reported high PFAS concentrations were collected.
– Installation of a series of off-site groundwater monitoring wells (one up-hydraulic gradient and three down-hydraulic gradient, progressively further away from the site) to assess the lateral extent of groundwater impacts and exposure risks via the groundwater pathway.
– Conduct a groundwater-use survey within the vicinity of the site to evaluate the potential exposure risk attributable to the possible use of groundwater for currently unidentified domestic/recreational purposes. It is noted that the groundwater-use survey will be deferred until a better understanding of the degree and extent of PFAS impacts from the site is established.

MFS further engaged GHD to undertake an in-situ waste classification for the proposed capital works program at the station. Details regarding the capital works program and associated footprint can be found in the MFS Peterborough - Capital Works Area In-situ Waste Classification Letter (GHD 2024a). Results from this soil sampling have been incorporated into the supplementary investigation.

1.1 Background

Historically, MFS has used AFFF containing PFAS at the site during training activities. However, it is understood that MFS commenced phasing out the use of AFFF containing perfluorooctane sulfonate (PFOS) in 2007 and perfluorooctanoic acid (PFOA) in 2014 after consultation with the Australasian Fire and Emergency Service Authorities Council (AFAC) and the SA EPA. MFS replaced all firefighting foam concentrate in 2016, and currently, all MFS appliances utilise firefighting foams that are fluorine-free. During 2017/2018, MFS removed all fire extinguishers containing PFAS from their inventory.

1.2 Objectives

The primary objectives of the supplementary DSI were to:

– Address data gaps in understanding the nature and extent of identified PFAS contamination off-site.
– Refine the conceptual site model (CSM) receptor linkages and evaluate the exposure risks to human health and the environment.

1.3 Scope of works

This supplementary DSI has been prepared with reference to industry standards and guidelines, including:

– NHMRC 2008, Guidelines for Managing Risks in Recreational Water, National Health and Medical Research Council and Natural Resources Management Ministerial Council, Commonwealth of Australia, updated with the recent changes in the ADWG - V3.8 - September 2022.
– National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013 (NEPM).
– Gov SA 2015, Environment Protection (Water Quality) Policy 2015 (WQEPP), Version 1.7.2020, Government of South Australia, updated 2020.
– ANZG 2018, Australian and New Zealand Guidelines for Fresh and Marine Water Quality, online resource www.waterquality.gov.au/anz-guidelines, Australian and New Zealand Governments, updated 26 July 2021, (AWQG).
– SA EPA 2019a, Guidelines for the Assessment and Remediation (GAR) of Site Contamination, Environment Protection Authority, South Australia, November 2019.
– SA EPA 2019b, Guidelines for Regulatory Monitoring and Testing – Groundwater Sampling, Environment Protection Authority, South Australia, 2019.
– HEPA 2020, PFAS National Environmental Management Plan (Version 2.0), Heads of Environment Protection Authorities Australia and New Zealand, January 2020, (PFAS NEMP).
– NSW EPA 2022, Sampling Design Guidelines for Contaminated Land, Environment Protection Authority, New South Wales, August 2022.

To achieve the above objectives, the scope of work for the additional investigations was as follows:

– Undertake an off-site drilling program to assess:
  - The potential for PFAS contamination in groundwater hydraulically downgradient of the site.
  - The potential for ambient/background PFAS impacts from other sources upgradient of the site.
– Assess the potential for impacted surface water runoff to serve as a pathway for the migration of PFAS to nearby surface water receptors.
– Preparation of a supplementary DSI report, including a refinement of the conceptual site model (CSM).

1.4 Person requesting works

The investigation was requested by Deputy Chief Officer Cameron Devey, MFS, 99 Wakefield St, Adelaide, SA 5000.

1.5 Limitations

This report: has been prepared by GHD for South Australian Metropolitan Fire Service and may only be used and relied on by South Australian Metropolitan Fire Service for the purpose agreed between GHD and South Australian Metropolitan Fire Service as set out in Section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than South Australian Metropolitan Fire Service arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

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Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

1.6 Assumptions

The assessment, conclusions and recommendations outlined in this report are based on the following assumptions:

– Surrounding land uses include a mix of commercial and residential properties in all directions and an industrial corridor (rail line) immediately south of the site.
– No fruit, vegetables, or herbs are grown on-site for human consumption.
– The term PFAS refers to a large number of per- and poly-fluorinated compounds. The primary analytical suite adopted for this assessment incorporated 28 compounds, including PFOS, PFHxS and PFOA, which are the primary focus of this report.
– The screening levels used in this report were consistent with the guidance provided by Australian regulators at the time of reporting.

2. Site information and environmental setting

For detailed site information, including environmental setting, refer to the DSI (GHD 2024b).

3. Previous investigations

Previous PFAS investigations at the MFS Peterborough Fire Station have been carried out by GHD in 2019, 2022 and 2023. Details of these investigations can be found in the following reports:

– GHD (2019) *MFS State-wide Appliance and Station Sampling*, Report for South Australian Metropolitan Fire Service, May 2019.
– GHD (2022) *MFS 17 Fire Stations PFAS Risk Profiling*, Report for South Australian Metropolitan Fire Service, October 2022.
– GHD (2023a) *MFS Peterborough Station, Preliminary Site Investigation*, Report for South Australian Metropolitan Fire Service, July 2023.
– GHD (2023b) *MFS Peterborough Station, Sampling and Analysis Quality Plan*, Report for South Australian Metropolitan Fire Service, July 2023.
– GHD (2024b) *MFS Peterborough Station, Detailed Site Investigation*, Report for South Australian Metropolitan Fire Service, February 2024.

The findings of DSI report are summarised in Section 1.

4. Assessment criteria

Since PFAS is the contaminant of concern being addressed by this environmental investigation, the pertinent assessment criteria were adopted from the following documents:

– HEPA 2020, PFAS National Environmental Management Plan (Version 2.0), Heads of Environment Protection Authorities Australia and New Zealand, January 2020, (PFAS NEMP).
– NHMRC 2011, Australian Drinking Water Guidelines 6 (ADWG), Version 3.7, National Water Quality Management Strategy, National Health and Medical Research Council and Natural Resources Management Ministerial Council, Commonwealth of Australia, updated September 2022.
– GHD 2023c, Derivation of Site-specific Health Investigation Levels for Urban and Regional Fire Stations – South Australian Metropolitan Fire Service (MFS), June 2023.

4.1 Groundwater

Screening criteria for groundwater are chosen based on environmental values (EVs) outlined in the SA Environment Protection (Water Quality) Policy 2015 (as amended) (SA EPA 2015) (EPP) and the regulatory requirements for the protection of all water bodies (surface and groundwater) under the Environment Protection Act 1993. For more information on the determination of EVs for the site and selection of screening criteria, refer to the DSI (GHD 2024b).The adopted groundwater screening/investigation levels are summarised in Table 4.1.

Table 4.1 Adopted PFAS interim screening criteria for groundwater

Exposure Scenario	PFOS[1] (µg/L)	PFHxS[2] (µg/L)	Sum of PFOS and PFHxS (µg/L)	PFOA[3] (µg/L)	Source
Human Health - Recreational Water (domestic)[4]	0.7	0.7	0.7	5.6	NHMRC 2008 ADWG (NHMRC 2011)[5]
Human Health - Drinking Water	0.07	0.07	0.07	0.56	PFAS NEMP (HEPA 2020) ADWG (NHMRC 2011)
Freshwater 95% Species Protection – Slightly to moderately disturbed ecosystems	0.13	-	-	220	PFAS NEMP (HEPA 2020)
Freshwater 99% Species Protection – High conservation value ecosystems	0.00023	-	-	19	

Notes:
[1] PFOS – perfluorooctane sulfonate.
[2] PFHxS – perfluorohexane sulfonate.
[3] PFOA – perfluorooctanoic acid.
[4] The NHMRC 2008 Guidelines for Managing Risks in Recreational Water recommend health guideline values for recreational water that correspond to 10 times the current human-health drinking water guideline value. These guideline values apply in a domestic setting where groundwater is used for recreational purposes such as the filling of swimming pools.
[5] Australian Drinking Water Guidelines 6, Version 3.7, updated January 2022.

4.2 Surface water

Results from surface water samples collected during the supplementary investigation have been assessed against the following guidelines, protective of human-health and ecological exposure risks in the receiving environment. Criteria were selected following a conservative approach, with environmental values and stormwater use scenarios still uncertain.

Table 4.2 Adopted PFAS assessment criteria – surface water

Exposure Scenario	PFOS[1] (µg/L)	PFHxS[2] (µg/L)	Sum of PFOS and PFHxS (µg/L)	PFOA[3] (µg/L)	Source
Human Health - Recreational Water (domestic)[4]	2	2	2	10	NHMRC 2008 ADWG (NHMRC 2011)[5]
Freshwater 95% Species Protection – Slightly to moderately disturbed ecosystems	0.13	-	-	220	PFAS NEMP (HEPA 2020)
Freshwater 99% Species Protection – High conservation value ecosystems	0.00023	-	-	19	

Notes:
[1] PFOS – perfluorooctane sulfonate.
[2] PFHxS – perfluorohexane sulfonate.
[3] PFOA – perfluorooctanoic acid.
[4] The NHMRC 2008 Guidelines for Managing Risks in Recreational Water recommend health guideline values for recreational water that correspond to 10 times the current human-health drinking water guideline value. These guideline values apply in a domestic setting where groundwater is used for recreational purposes such as the filling of swimming pools.
[5] Australian Drinking Water Guidelines 6, Version 3.7, updated January 2022.

4.3 Soil

In accordance with the PFAS NEMP 2020 and ASC NEPM (as amended 2013), the PFAS assessment criteria listed in Table 4.3 were adopted for the assessment of analytical results obtained from soil samples collected on-site. For the rationale and reasoning for adopting the selected criteria, refer to the DSI (GHD 2024).

Table 4.3 Adopted PFAS assessment criteria – soil

Exposure scenario	PFHxS[1] mg/kg	PFOS[2] mg/kg	Sum of PFOS and PFHxS mg/kg	PFOA[3] mg/kg	Reference Document
Human Health Investigation Levels (HIL)					
SSHIL – Regional (retained) MFS Station	-	-	40	50	Derivation of site-specific health investigation levels for regional fire stations (GHD 2023c)
HIL B – residential with limited soil contact[4]	2	2	2	20	PFAS NEMP 2.0 (HEPA 2020)
Ecological Screening Levels					
Ecological indirect exposure – developed sites	-	0.14[5]	-	-	PFAS NEMP 2.0 (HEPA 2020)
Ecological direct exposure	-	1	-	10	

Notes:
[1] PFHxS – perfluorohexane sulfonate.
[2] PFOS – perfluorooctane sulfonate.
[3] PFOA – perfluorooctanoic acid.
[4] Trigger level for further union engagement.
[5] For intensively developed sites with no secondary consumers and minimal potential for indirect ecological exposure, a higher criterion of up to 0.14 mg/kg is appropriate.

5. Groundwater investigation

5.1 Groundwater scope

Four groundwater monitoring wells (MW04 – MW07) were installed on 25 and 26 September 2024 under the supervision of experienced GHD environmental professionals.

The scope of the groundwater investigation undertaken is summarised below:

– Installation and development of four off-site groundwater monitoring wells (MW04 - MW07). Location rationales are provided in Table 5.1.
  - Before You Dig Plans were reviewed before intrusive works, and all investigation locations were cleared for underground services by an accredited service locator to ensure safe drilling conditions.
  - Representative soil samples were taken at regular intervals during the well installation process, with selected samples submitted for laboratory analysis. Refer to Section 6 for details on the soil sampling program.
– Surveying of the newly installed groundwater monitoring wells relative to the Australian Height Datum (AHD).
– Collection and analysis of groundwater samples from seven monitoring wells (three existing and four newly installed) for:
  - PFAS (extended suite) compounds.
  - Total Oxidisable Precursors (limited to one on-site and one off-site monitoring well).
  - Major cations and anions (from one off-site monitoring well).
– Samples were stored under chilled conditions in an esky and transported to analytical laboratories under chain of custody documentation.
– Comparison of reported analytical results against adopted groundwater assessment criteria.

Table 5.1 Groundwater monitoring well locations

Well ID	Location Description
MW01	The northwestern corner of the rear yard.
MW02	The southwestern corner of the rear yard.
MW03	Adjacent to the eastern boundary of the rear yard.
MW04	Hydraulically up-hydraulic gradient, adjacent to the site's northern boundary on Main Street.
MW05	Hydraulically up-hydraulic gradient, approximately 80 m north-west of the site on Edith Street.
MW06	Hydraulically up-hydraulic gradient, approximately 170 m north-west of the site on the corner of High Street and Kitchener Street.
MW07	Hydraulically down-gradient, approximately 120 m southeast of the site on Railway Terrace.

Sample locations, including historical samples, are represented in Figure 3 at the end of the report.

Refer to Section 7 and Appendix I for a discussion on the QA/QC procedures undertaken as part of this investigation.

5.1.1 Well Installation methodology

WB Drilling Pty Ltd drilled and installed all groundwater monitoring wells under the supervision of experienced GHD environmental professionals. Well installation followed the same methodology as previous monitoring wells installed on the site (MW01 - MW03). Refer to the DSI report for a detailed well installation methodology. Copies of well permits are provided in Appendix B, and survey data is provided in Appendix C.

Table 5.2 below presents a summary of the construction and survey details of the wells. Groundwater well construction logs are presented in Appendix D.

Table 5.2 Well-construction details

Well ID	Well Construction Permit No.	Installation Date	Installation Depth (m bgl)	Screen Interval (m bgl)	Co-ordinates (GDA20 Z54)		Ground Level (m AHD)	TOC (m AHD)
					Easting	Northing		
MW04	P-503506	27/09/2024	15	12 - 15	298257.399	6349622.335	531.804	531.689
MW05	P-503505	25/09/2024	15	12 - 15	298229.647	6349708.223	531.049	530.964
MW06	P-503507	25/09/2024	15	12 - 15	298139.077	6349753.515	530.497	530.395
MW07	P-503504	26/09/2024	12	9 - 12	298388.025	6349529.874	532.975	532.897

5.1.2 Groundwater sampling methodology

Groundwater samples were collected in accordance with GHD's standard operating procedures for groundwater sampling and in alignment with SA EPA guidelines for regulatory monitoring and testing – Groundwater sampling (SA EPA 2019b).

– Newly installed groundwater wells (MW04 – MW07) were left for a minimum of seven days following well development to allow for the stabilisation of aquifer conditions. Groundwater sampling was conducted on 8 and 9 October 2024.
– Wells were gauged from the top of the well casing using an interface probe prior to sampling.
– All monitoring wells were purged and sampled using a low-flow sampling technique (bladder pump). Field water quality parameters were collected, including pH, redox potential, dissolved oxygen, electrical conductivity, and temperature at regular intervals during purging to ensure stable conditions prior to sample collection.
– Groundwater samples were collected into laboratory-supplied bottles suitable for PFAS analysis, stored under chilled conditions, and delivered to the analytical laboratory with accompanying chain of custody documentation.

The groundwater gauging and sampling records are provided in Appendix G. Calibration certificates for equipment used during the monitoring event are provided in Appendix H.

5.2 Groundwater investigation results

5.2.1 Groundwater levels and inferred groundwater flow

Groundwater levels in the wells were gauged from a marked point on the well casing on 8 October 2024 using an electronic interface water level meter during the groundwater monitoring event (GME). The groundwater sampling records are attached in Appendix G.

Groundwater levels are presented in Table 5.3.

Table 5.3 Relative groundwater levels (to AHD)

Well ID	Surveyed Top of Casing (TOC) (m AHD)	Surveyed Ground Level (m AHD)	Depth to groundwater (m bTOC)	Relative Groundwater Level (m AHD)
MW01	531.739	531.838	12.017	519.722
MW02	531.772	531.860	12.047	519.725
MW03	531.770	531.863	12.054	519.716
MW04	531.689	531.804	11.973	519.716
MW05	530.964	531.049	11.115	519.849
MW06	530.395	530.497	10.361	520.034
MW07	532.897	532.975	13.489	519.408

The groundwater gauging results and survey data were used to prepare a groundwater contour map, as shown in Figure 4 at the end of the report. Groundwater was inferred to flow in a south-easterly direction, the opposite of what was initially inferred on-site following the previous DSI. This was likely due to the small dataset and relatively flat topography, with the difference in the relative groundwater level between the two farthest points off-site being approximately 0.3 m AHD.

5.2.2 Field-measured water quality parameters

No contamination indicators (such as hydrocarbon presence, chemical odours or sheens) were noted in any of the monitoring wells during the well installation, well development or sampling phases of the investigation. Groundwater quality parameters were monitored during purging and before sampling. The final values of these parameters prior to sampling are summarised in Table 5.4.

Table 5.4 Field-measured groundwater quality parameters

Well ID	Date Sampled	Temp (°C)	pH	Dissolved oxygen (mg/L)	Oxidation-reduction potential (mV)	Electrical conductivity (µS/cm)
MW01	08/10/2024	21.3	6.61	28.8	103.2	2,232
MW02	08/10/2024	19.2	6.98	62.5	91.5	2,794
MW03	08/10/2024	22.0	6.73	44.2	112.9	2,654
MW04	09/10/2024	17.3	6.89	43.5	73.8	3,595
MW05	09/10/2024	17.5	6.66	43.7	120.1	4,607
MW06	09/10/2024	13.4	6.48	20.6	125.1	3,176
MW07	09/10/2024	19.1	6.81	39.9	46.1	3,519

The above field parameters are indicative of the following:

– Groundwater encountered was neutral/slightly acidic, with the pH ranging between 6.48 and 6.98.

- Groundwater was considered brackish, with electrical conductivity values ranging between 2,232 and 4,607 µS/cm.

5.2.3 Analytical results

A summary of exceedances of the adopted groundwater criteria is tabulated below, with locations shown in Figure 6. For detailed analytical groundwater results, please refer to Table 2 in Appendix F at the end of the report. Laboratory reports are contained in Appendix E.

Table 5.5 Summary of groundwater exceedances against adopted criteria

Location	Approximate Distance from Nearest Site Boundary (m)	Date	PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
MW01	0 (on-site)	08/10/2024	**88.7**	**1.73**	2.12	**90.4**
MW02	0 (on-site)	08/10/2024	1.40	**0.198**	0.0238	1.60
MW03	0 (on-site)	08/10/2024	**32.2**	**1.56**	0.752	**33.8**
MW04	10 (northern boundary)	09/10/2024	**3.46**	**2.16**	0.112	**5.62**
MW05	80 (northern boundary)	09/10/2024	0.0116	0.0151	0.0014	0.0267
MW06	170 (northern boundary)	09/10/2024	0.0286	**0.110**	0.0061	0.139
MW07	125 (southern boundary)	09/10/2024	0.0039	0.0083	0.0006	0.0122

Notes:
Yellow denotes an exceedance of the human-health assessment criteria for drinking water.
Green denotes an exceedance of the human-health assessment criteria for recreational water use.
Dark aqua denotes an exceedance of the freshwater assessment criteria for 95% species protection.
Light aqua denotes an exceedance of the freshwater assessment criteria for 99% species protection.
Bolded text denotes an exceedance of multiple criteria.
For full assessment criteria, refer to Table 4.1.

In addition to the above PFAS analyses, major cation and anion analytes were also analysed at one monitoring well (Table 5.6 Summary of major cations and anions – Groundwater) to indicate general groundwater quality in the area. PFAS Total Oxidisable Precursor Assay (TOPA) analysis was conducted on samples obtained from two monitoring wells (on-site and off-site).

Table 5.6 Summary of major cations and anions – Groundwater

Location	Approximate Distance from Western Site Boundary (m)	Date	Chloride (mg/L)	Sulphate (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	TDS (mg/L)
MW05	80 (northern boundary)	09/10/2024	1,460	213	163	24	757	3,200

The TDS concentrations reported for MW05 align with those collected in the field. This confirms the salinity of groundwater in the vicinity of the site as being brackish, with water unsuitable for potable use.

Table 5.7 Summary of TOPA PFAS concentrations

ID	PFHxS (µg/L)			PFOS (µg/L)			PFOA (µg/L)			Sum of PFHxS and PFOS (µg/L)		
	Std	TOPA	% Diff	Std	TOPA	% Diff	Std	TOPA	% Diff	Std	TOPA	% Diff
MW01	88.7	75.5	16.07	1.73	1.44	18.29	2.12	1.63	26.13	90.4	76.9	16.13
MW05	0.011	0.011	0	0.015	0.012	22.22	0.112	0.002	192.9	0.026	0.023	12.24

Note: These results indicate the worst-case scenario, as complete transformation may not occur (Chiang 2019).

All TOPA results were below the values obtained from the standard PFAS analyses. The reported lower results of regulated perfluoroalkyl acids (PFAA) may be attributed to transformations of PFAA under oxidising conditions. Although decreases in regulated PFAAs occurred, an overall increase in currently unregulated Perfluoroalkyl Carboxylic Acids (PFCA) was reported. The largest percentage difference in PFCA analyte was Perfluoropentanoic acid (PFPeA), which reported a 115.03% increase from the standard PFAS analysis. This indicates the presence of possible PFAS precursor compounds; however, under current conditions, these transform into unregulated PFCA compounds.

The full set of analytical results for the TOPA analysis is available in Appendix F.

6. Soil sampling

6.1 Soil scope and methodology

Samples were collected between 24 and 27 September 2024. The scope of the soil investigation undertaken is summarised below:

– Soil sampling and associated logging were undertaken during the installation of the four new off-site monitoring wells (MW04 – MW07).
– Four soil bores (BH07 – BH10) were also drilled on-site as part of a separate scope of works (capital works), the results of which have been included for additional delineation of on-site soils.
– Samples were taken at the surface (0.0 - 0.2 m bgl), near the surface (0.4 - 0.5 m bgl), and at 0.5 m intervals thereafter or where lithological changes were observed.
– Samples were collected directly into laboratory-supplied containers suitable for PFAS analysis using a clean pair of nitrile gloves on each occasion.
– Samples were stored under chilled conditions in an esky and transported to the analytical laboratories under chain of custody documentation.
– Three samples from each soil borehole location and two soil samples from each new monitoring well location were submitted for laboratory analysis of PFAS (Extended Suite). This resulted in the analysis of 20 primary soil samples and two duplicate pairs as part of the QAQC protocol. Refer to Section 7 and Appendix I for further discussion on this investigation's quality assurance (QA) and quality control (QC) procedures.
– Comparison of reported analytical results against the assessment criteria adopted for the soil assessment.

Soil sample locations are depicted in Figure 2.

6.2 Subsurface conditions

Subsurface conditions encountered during the soil investigation were generally as follows:

– Fill material was predominantly encountered from the surface down to 0.4 m bgl. This material is generally comprised of silty clay with fine to medium gravel.
– Natural soil was encountered from 0.4 m bgl to maximum drilling depth. This material also generally comprises silty clay with fine to medium gravel.
– No evidence of staining nor the presence of any distinguishable olfactory odours were noted during sampling.

Additional details of the lithological layers observed during the soil sampling program can be found in Appendix D.

6.3 Analytical results

The soil analytical testing results are summarised in Table 1 in Appendix F. Laboratory reports are contained in Appendix E.

Results above the adopted soil assessment criteria are presented in Table 6.1 and Figure 5.

Table 6.1 Results above adopted PFAS assessment criteria

Location	Depth (m bgl)	PFHxS (mg/kg)	PFOS (mg/kg)	PFOA (mg/kg)	Sum of PFHxS and PFOS (mg/kg)
BH07	0.0 - 0.2	0.11	**1.2**	0.0082	1.31
BH08	0.0 - 0.2	0.02	0.36	<0.005	0.38
	0.5 - 0.6	0.014	0.73	<0.005	0.744
	1.5 - 1.6	2.3	0.62	0.18	2.92
BH10	0.5 - 0.6	<0.005	0.3	<0.005	0.0181
	1.5 - 1.6	<0.005	0.18	<0.005	0.18

Notes:
Yellow denotes an exceedance of the human-health assessment criteria for residential sites - minimal opportunities for soil access (HIL B).
Dark aqua denotes an exceedance of the ecological indirect exposure assessment criteria for developed sites.
Light aqua denotes an exceedance of the ecological direct exposure assessment criteria.
Bolded text denotes an exceedance of multiple criteria.
For full assessment criteria, refer to Table 4.3.

The concentrations of all remaining PFAS chemicals in the samples assessed were reported below the adopted ecological and health assessment criteria.

7. Surface water investigation

7.1 Surface water scope and methodology

Four surface water samples were collected on 8 October 2024 by an experienced GHD environmental professional.

The scope of the surface water investigation undertaken is summarised below:

– Four surface water samples were collected to assess the potential for off-site migration of PFAS through surface water discharge from the site:
  - One sample was directly from the fire hydrant.
  - Three samples progressively moved west, at approximate 50-60m intervals, from the site along Main Street.
– In the absence of rainfall and stormwater runoff during sampling, surface water samples close to the site were collected by allowing hydrant water to flow over the designated wash bay and subsequent ingress into the drain servicing the area, under simulated conditions.
– Samples were collected directly into laboratory-supplied containers suitable for PFAS analysis.
– Samples were stored under chilled conditions in an esky and transported to analytical laboratories under chain of custody documentation.
– One sample from each location was submitted for laboratory analysis.
– Comparison of reported analytical results against the assessment criteria adopted for surface water.

7.2 Field observations

During field investigations, surface water was observed to flow westerly when exiting the site.

7.3 Surface water analytical results

A summary of exceedances of the adopted surface water criteria is tabulated below. For detailed analytical surface water results, please refer to Table 3 in the appendices at the end of the report. Laboratory reports are contained in Appendix E.

Table 7.1 Summary of surface water exceedances against adopted criteria

Location	Approximate Distance from Nearest Site Boundary (m)	Date	PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
SW_HYDRANT	0 (direct from hydrant on-site)	08/10/2024	<0.0005	0.0004	<0.0005	0.0004
SW01	0 (north-west corner on-site)	08/10/2024	0.249	0.196	0.0498	0.445
SW02	90 (western boundary)	08/10/2024	0.0156	0.0214	0.0032	0.0370
SW03	160 (western boundary)	08/10/2024	0.0125	0.0211	0.0020	0.0336

Notes:
Dark aqua denotes an exceedance of the freshwater assessment criteria for 95% species protection.
Light aqua denotes an exceedance of the freshwater assessment criteria for 99% species protection.
For full assessment criteria, refer to Table 4.2.

In addition to the above PFAS analyses, major cation and anion analytes were also analysed at the three down-gradient surface water locations, for an indication of general water quality after discharge from the site (Table 7.2). Reported results are indicative of relatively good quality surface water runoff from the site.

Table 7.2 Summary of major cations and anions – surface water

Location	Date	Chloride (mg/L)	Sulphate (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)
SW01	08/10/2024	109	48	11	5	83
SW02	08/10/2024	105	47	11	4	80
SW03	08/10/2024	107	48	11	5	82

8. Quality Assurance and Quality Control

A comprehensive QA/QC assessment was completed for all analytical sample data to evaluate the data's suitability on which to base the investigation. This included a review of results obtained from duplicate samples, field blanks and rinsate blank samples. In addition, the nominated laboratories' quality control protocol was appraised as part of the QA/QC assessment.

The QA/QC assessment found that the majority of Data Quality Indicators (DQIs) were within the specified tolerance levels. A small proportion of RPD exceedances were reported for some PFAS analytes in both soil and groundwater. However, RPD exceedances are likely due to the low-level concentrations detected for PFAS compounds close to LOR, which increases the likelihood of RPD exceedance. Given that all other RPD values are within the acceptable range, GHD considers the data set to be of acceptable quality on which to base this assessment.

The QA/QC assessment is provided in Appendix I.

9. Conceptual site model

Fundamental to any contamination investigation is the development of a Conceptual Site Model (CSM), which is a description of the plausible mechanisms ('pathway') by which people and ecology ('receptors') may be exposed to

chemicals in the environment ('sources'). Potential risks to human health or the environment cannot occur unless there is a complete Source-Pathway-Receptor (SPR) linkage. Conversely, complete SPR linkages do not, by default, indicate a risk and the site investigation process is used to evaluate the extent of potential risks.

For detailed information regarding potential contamination sources, contaminants of concern, site exposure pathways, and receptors refer to the DSI report (GHD 2024b).

9.1 Potential source-pathway-receptor linkages

Based on the potential SPR linkages identified in this investigation and information obtained from the PSI and DSI (GHD 2023a, GHD 2024b), a CSM has been developed and refined for the site. Potential linkages and exposure risks are summarised in Table 9.1. A graphical representation of the CSM is depicted in Figure 7

SPR linkages were assessed under the following categories:

– Unknown – Not enough data available to indicate if a linkage is present or absent.
– Possible – Data indicates PFAS impacts or a potential source has been identified, and receptors are present; however, the extent of PFAS impacts and/or pathways to a receptor are not understood.
– Likely – PFAS impact has been confirmed, and pathways to receptors are likely present; however, the extent of the connection has not been confirmed or is not fully understood.
– Confirmed – PFAS impact greater than the adopted assessment criteria is shown to be present at the receptor; hence, SPR linkage has been confirmed present.
– Unlikely – Source and/or pathways have not been identified or identified below the assessment criteria protective of the receptor; hence, SPR linkage is unlikely to be complete.

SPR linkages classified as 'unknown', 'possible' or 'likely' warrant further investigation.

Table 9.1 CSM for PFAS exposure – SPR linkage assessment

Source	Potential Receptors	Exposure Pathways	Risk from exposure through SPR Linkages
On-site PFAS-impacted soils	Site users, visitors, maintenance, and construction workers	Direct dermal contact with contaminated soil Incidental ingestion of contaminated soil Inhalation of contaminated soil or dust from disturbed soils	**Unlikely** Site-specific Health Investigation Levels (SSHILs) have been derived using exposure assumptions that reflect the typical usage pattern of regional MFS fire stations. It is noted, however, that a more conservative land use guideline – HIL B (residential with limited soil access) – has been adopted following a precautionary approach and as a trigger for further union engagement. PFAS concentrations detected to date in on-site soils were below the adopted human-health assessment criteria, with the exception of one sample collected in the southwestern corner of the rear yard. Given the depth at which this sample was collected (1.5 m bgl), it is considered unlikely that site users, visitors, maintenance, or construction workers would be exposed to PFAS in quantities detrimental to their health via these exposure pathways. Implementing the HSE protocol (as outlined in the MFS Contractors Information sheet) during any future intrusive works on site will mitigate potential exposure risks to maintenance and construction workers.
	The ecosystem at and immediately surrounding the site	Direct contact with contaminated soil Ingestion of contaminated soil Bioaccumulation through indirect contact	**Possible** Analytical results have indicated the presence of PFAS concentration in soils exceeding the direct (developed sites) and indirect ecological criteria. Exceedances were noted in samples taken within the unpaved rear yard, part of the historical training and washdown area. With the current assessment, PFAS soil impacts have been detected to depths of about 1.6 m bgl. Identified vegetation within the impacted footprint includes grasses and shrubs. Although potentially only applicable to lower-order species, an SPR linkage can be drawn given the accessibility of the impacted soils within the rear yard.
	Groundwater beneath the site	Rainwater/surface runoff leaching impacted soil followed by migration through porous media into groundwater. Historical soaking of washdown wastewater into the ground	**Confirmed** Analytical results of the groundwater samples taken from the on-site monitoring wells yielded PFAS concentrations above the adopted PFAS criteria. The presence of PFAS in the groundwater samples suggests the percolation of PFAS to the aquifer beneath the site from historical activities that involved the utilisation of AFFF.
Off-site PFAS-impacted soils	Off-site maintenance and subsurface construction workers	Direct dermal contact with contaminated soil Incidental ingestion of contaminated soil	**Unlikely** PFAS concentrations in off-site soils were below the adopted human-health assessment criteria. It is unlikely that off-site maintenance or

Source	Potential Receptors	Exposure Pathways	Risk from exposure through SPR Linkages
		Inhalation of contaminated soil or dust from disturbed soils	construction workers would be exposed to PFAS in quantities detrimental to their health.
	Off-site residential occupants	Direct dermal contact with contaminated soil	**Unlikely** PFAS concentrations reported in off-site soil samples did not exceed the adopted criteria for human health. It is unlikely that off-site residential occupants in the vicinity of the MFS site would ingest PFAS in quantities that would be detrimental to health.
		Incidental ingestion of contaminated soil	
		Uptake through edible vegetation or biota.	
		Inhalation of contaminated soil or dust from disturbed soils	
	The ecosystem surrounding the site	Direct contact with contaminated soil	**Unlikely** No ecological exceedances were identified within off-site soil samples. It is unlikely that this pathway will impact the ecosystem surrounding the site.
		Ingestion of contaminated soil	
		Bioaccumulation through indirect contact	
	Groundwater beneath impacted soil	Rainwater/surface runoff leaching impacted soil followed by migration through porous media into groundwater.	**Unlikely** Concentrations reported within off-site soils were generally below detectable levels.
PFAS-impacted Groundwater	People using groundwater for domestic and drinking purposes	Consumption of contaminated Groundwater	**Unlikely** TDS values for monitoring wells sampled were within the brackish range, making groundwater unpalatable for human consumption. Concentrations of PFAS were also below the adopted human-health drinking water quality criteria down-hydraulic gradient of the site (within MW07). Water Connect identified three wells downgradient of the site with no recorded purpose. These were approximately 200 meters downgradient of the site at a greater distance than MW07. Given the inferred groundwater flow direction, off-site exceedances of the human-health criteria for groundwater (observed at MW06) are possibly attributed to another source.
	People use groundwater for irrigation of vegetable gardens and/or fruit trees with which they grow produce for consumption.	Consumption of fruit and vegetables irrigated with contaminated groundwater.	**Unlikely** Concentrations of PFAS were below the adopted human-health drinking water quality criteria down-hydraulic gradient of the site (within MW07).
		Consumption of PFAS impacted edible vegetation	**On-site: No** No edible vegetation is grown on-site.

Source	Potential Receptors	Exposure Pathways	Risk from exposure through SPR Linkages
	People growing edible vegetation in open soil which may interact with impacted groundwater/pore water		**Off-site: Unlikely** Groundwater depths in the area are in excess of 10 m bgl, making groundwater uptake by typical edible vegetation root systems unlikely. Considering off-site soil samples yielded results at the LOR with the only detectable concentration identified at MW06 below both human-health and ecological criteria, pore water is not expected to contain PFAS concentrations that would be detrimental to human health via this exposure pathway.
	People using groundwater for recreational purposes such as filling swimming pools or ingress of contaminated groundwater into surface water bodies used for recreational purposes	Incidental ingestion of contaminated groundwater	**Unlikely** Concentrations of PFAS in the groundwater down-hydraulic gradient of the site (MW07) were below the relevant recreational water criteria. Currently, there are three bores down-gradient of the site with no listed purpose; however, it is unlikely that recreational users will ingest quantities that are detrimental to their health.
	Down gradient off-site maintenance and sub-surface construction workers that come into contact with PFAS-impacted Groundwater	Direct dermal contact or incidental ingestion of contaminated groundwater	**Unlikely** Concentrations of PFAS in Groundwater were below the adopted human-health drinking water quality criteria down-hydraulic gradient of the site (within MW07). Whilst it is possible that off-site maintenance or sub-surface construction workers could incidentally ingest impacted groundwater, it is unlikely that they will ingest quantities detrimental to their health.
PFAS-impacted surface water originating from the site	Consumers of crops/harvests from agricultural land utilising impacted surface water from the detention basin (approximately 1.3 km west of the site) for irrigation	Consumption of PFAS-impacted crops	**Unknown** It is currently unknown whether water collected within the west detention basin, down-gradient of the site, is beneficially reused within the area. Water collecting in the stormwater detention basin may be utilised to irrigate fields/agricultural land; however, further stormwater testing would be required to determine whether an SPR linkage is present.
	Anglers consuming fish from impacted stormwater detention basin	Consumption of fish in which PFAS has bioaccumulated	**Unknown** At this stage, whether the stormwater detention basin provides a habitat for fish species or whether fishing occurs within this surfacewater body is unknown.
	People swimming in stormwater detention basin	Incidental ingestion of contaminated surface water	**Unlikely** Currently, recreational swimming within the detention basin is considered unlikely, as it appears restricted to the public.
	Freshwater ecosystems downstream of the site supported by ingress of surface water	Bioaccumulation of PFAS in the food chain	**Unknown** The degree to which surface water entering the detention basin (from multiple sources) may be impacted by PFAS is currently unknown. Furthermore, the sensitivity and viability of the surface water body to sustain ecosystems are unknown.

10. Discussion

10.1 PFAS soil impacts

PFAS impacts were identified in on-site soil, primarily confined within the surface and near-surface soils (approximately 0.0 - 0.5 m bgl). No exceedances of the SSHILs were reported in either on-site or off-site soils. The highest on-site PFAS concentrations in soils were observed within the former training area (BH08), which exceeded HIL B criteria. Due to the depth of contamination (1.5 – 1.6 m bgl), it does not currently represent a risk to site users. Implementing the HSE protocol (as outlined in the MFS Contractors Information sheet) during any future intrusive works on site will mitigate potential exposure risks to maintenance and construction workers.

Ecological (indirect exposure) guidelines were exceeded at locations on-site; no exceedances were identified off-site. Ecological (indirect exposure) and ecological (direct exposure) guidelines were exceeded in two samples (BH07_0.0-0.2 and BH10_1.5-1.6), collected directly south of the station building within the proposed capital works footprint. This represents a potentially complete SPR linkage as all exceedances were identified between 0.0 and 1.6 m bgl, which comprises the root zone of the soil profile. During increased rainfall, water-soluble PFAS constituents would become bioavailable to vegetation in this area, potentially representing a potentially complete SPR linkage. However, the capital works envisaged for this footprint, entailing the installation of a facilities room, will effectively seal PFAS-impacted soils in this area and thereby mitigate potential ecological exposure risks in future.

10.2 PFAS groundwater impacts

The gauging of SWLs from both the newly installed monitoring wells and those from the previous DSI facilitated the refinement of the inferred local groundwater flow direction. Groundwater was inferred as flowing in a south-easterly direction. In relation to off-site impacts, PFAS concentrations above the human-health drinking water quality criteria were identified up-hydraulic gradient of the site in MW06. No exceedances of the adopted human-health criteria were reported down the hydraulic gradient of the site (at MW07). This indicates the possible presence of an off-site source contributing to Groundwater PFAS impacts observed at MW06.

On-site wells MW01 and MW03 reported similar concentrations of PFAS as compared to results from the previous DSI, representing ongoing leaching of PFAS into Groundwater from the source area. Considering the gentle hydraulic gradient and absence of groundwater abstraction surrounding the site, significant off-site migration of the PFAS plume is considered unlikely. With no exceedances of the adopted human-health criteria reported down-gradient of the site, the groundwater salinity being generally unsuitable for beneficial uses (drinking water and irrigation), health exposure risks via this pathway are considered unlikely. No domestic bores were identified within the 500 m down-hydraulic gradient of the site; however, three bores with no registered use were identified.

Groundwater depths in the area are in excess of 10 m bgl, making groundwater uptake by vegetation root systems unlikely, thus precluding the likelihood of ecological and human-health exposure risks through this pathway.

10.3 PFAS surface water impacts

Elevated concentrations of PFAS were identified in surface water collected as runoff from the site. Samples collected from SW01, located directly adjacent to the site, were in excess of the 95% ecological guidelines. However, PFAS concentrations were an order of magnitude lower at the two downgradient locations, only exceeding the ecological criteria for high-conservation value systems. A stormwater detention basin was identified approximately 1.3 km west of the site, which receives ingress from a wide catchment, including runoff. Although this stormwater detention basin may conservatively be classified as a moderately disturbed (artificial) system (warranting 95% species protection), the Water Quality Guidelines advise that a 99% level of protection be used for moderately disturbed systems for chemicals that bioaccumulate (including PFAS). Without a formal appraisal of the ecosystem sensitivity in and around the detention basin and due to the uncertainty of stormwater collection and reuse in Peterborough, this represents a potentially complete SPR linkage and requires some additional investigation to address the perceived risk.

11. Existence of site contamination

Based on the information presented in this supplementary DSI report, PFAS-impacted groundwater contamination hotspots exist on- and off-site. Site contamination also exists in relation to the aquifer underlying the site.

Section 5B from the *Environment Protection (Site Contamination) Amendment Act 2007* (EP Act) states that:

1. For the purposes of the Act, site contamination exists at a site if:
    a. chemical substances are present on or below the surface of the site in concentrations above the background concentrations (if any) and
    b. the chemical substances have, at least in part, come to be present there as a result of an activity at the site or elsewhere, and
    c. the presence of the chemical substances in those concentrations has resulted in:
        i. actual or potential harm to the health or safety of human beings that is not trivial, taking into account current or proposed land uses or
        ii. actual or potential harm to water that is not trivial or
        iii. other actual or potential environmental harm that is not trivial, taking into account current or proposed land uses.

It is understood that the SA EPA was notified, under Section 83A of the Environment Protection Act 1993, of Groundwater PFAS impacts on 30 October 2024.

12. Conclusions and recommendations

The primary objectives of the supplementary DSI were to:

– Address identified data gaps in understanding the nature and extent of identified PFAS impacts off-site.
– Refine the conceptual site model (CSM) receptor linkages and evaluate the exposure risks to human health and the environment.

In fulfilment of these objectives, GHD undertook the following tasks:

– An off-site drilling program to assess the following:
    - Potential for PFAS contamination in groundwater hydraulically downgradient of the site.
    - Potential ambient/background PFAS impacts from other sources upgradient of the site.
– Assess the potential for impacted surface water runoff to serve as a pathway for the migration of PFAS to nearby surface water receptors.
– Preparation of a supplementary DSI report, including refinement of the conceptual site model (CSM).

The following conclusions were drawn based on the findings of the investigation:

Soil investigation:

– PFAS soil impacts are noted on-site, which can be attributed to the historical use of AFFF containing PFAS at the station.
– PFAS concentrations in on-site soils were below the adopted Site-specific Health Investigation Levels (SSHILs).
– PFAS soil impacts are not uniformly distributed across historic on-site source areas and are primarily confined within surface and near-surface strata (approximately 0 – 0.5 m bgl), in which concentrations above the adopted ecological assessment criterion were noted.
– PFAS concentrations exceeded the HIL B criteria at a depth of 1.5 – 1.6 m bgl within BH08; however, at this depth, they are not considered likely to affect current site users.

– Vegetation was observed growing within these areas where elevated PFAS concentrations were reported, presenting a potential SPR linkage with respect to ecological exposure.

Groundwater investigation:

– Although changes in the hydraulic gradient are subtle, the inferred groundwater flow direction is to the southeast.
– Field parameters and laboratory TDS values align, classifying groundwater in the vicinity of the site as brackish.
– All three on-site monitoring wells exceed the adopted PFAS human-health and ecological guidelines.
– The up-gradient well MW06 reported exceedances of the human-health drinking water quality guideline value, representing a likely off-site source of contamination.
– Considering the gentle hydraulic gradient and absence of groundwater abstraction surrounding the site, significant off-site migration of the PFAS plume is considered unlikely.
– With no exceedances of the adopted human-health criteria reported in groundwater down-gradient of the site, health exposure risks via this pathway are improbable.
– Groundwater depths in the area are in excess of 10 m bgl, making the uptake of groundwater by vegetation root systems unlikely and thus precluding the likelihood of ecological and human-health exposure risks through this pathway or via contact during intrusive work for site maintenance/construction.

Surface water investigation:

– Surface water samples collected from SW01, located directly adjacent to the site, exceeded the human-health drinking water quality guideline value.
– PFAS concentrations were lower at the two downgradient locations, only exceeding the ecological criteria for high-conservation value systems.
– A stormwater detention basin was identified approximately 1.3 km west of the site, which receives ingress from a wide catchment, including runoff.
– Without a formal appraisal of the ecosystem sensitivity in and around the detention basin and due to the uncertainty of stormwater collection and reuse in Peterborough, this represents a potentially complete SPR linkage. The following is noted in regard to the potential surface water pathway:
    - Water was found to flow to the west before draining into a concrete-lined stormwater drain that flowed north.
    - PFAS exceedances occurred in all three samples analysed.
    - It is unknown how stormwater runoff is processed and used within the township.

To address the potential for ecological and human-health exposure risks (i.e., those with unknown, confirmed or possible complete source-pathway-receptor linkages), the following recommendations are proposed:

– Additional surface water sampling during increased rainfall events to confirm temporal PFAS variance/ presence within stormwater runoff into the local detention basin.
– If PFAS, above the adopted assessment criteria, is identified in stormwater runoff from Peterborough Fire Station, leading to the detention basin, consultation with the relevant authority about stormwater collection and usage within Peterborough township may be required.
– Should the proposed additional surface water monitoring reveal that the site is a contributory source of PFAS impacts in the stormwater detention basin, it is recommended that a preliminary Human Health and Ecological Risk Assessment of potential exposure risks be conducted, taking cognisance of water ingress from a wide catchment.
– Considering other potential sources of PFAS impacts have been identified in the area, a broader investigation into cumulative impacts by the regulatory authority may be warranted.
– Continue with the proposed capital works program, which will effectively seal off a portion of the residual source area and thereby mitigate identified exposure risks on-site.
– The implementation of the HSE protocol (as outlined in the MFS Contractors Information sheet (Appendix J)) during any future intrusive works on site will mitigate potential exposure risks to maintenance and construction workers.

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Figures

Figure 1 *MFS Peterborough Site Location Plan*

Figure 2 *MFS Peterborough Soil Sampling Locations*

Figure 3 *MFS Peterborough Surface Water and Groundwater Sampling Locations*

Figure 4 *MFS Peterborough Interpolated Groundwater Contour Map*

Figure 5 *MFS Peterborough Soil Exceedances of Adopted Criteria*

Figure 6 *MFS Peterborough Surface Water and Groundwater Exceedances of Adopted Criteria*

Figure 7 *MFS Peterborough Conceptual Site Model Cross Section*



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Paper Size ISO A3

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Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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South Australian Metropolitan Fire
MFS Peterborough Further DSI

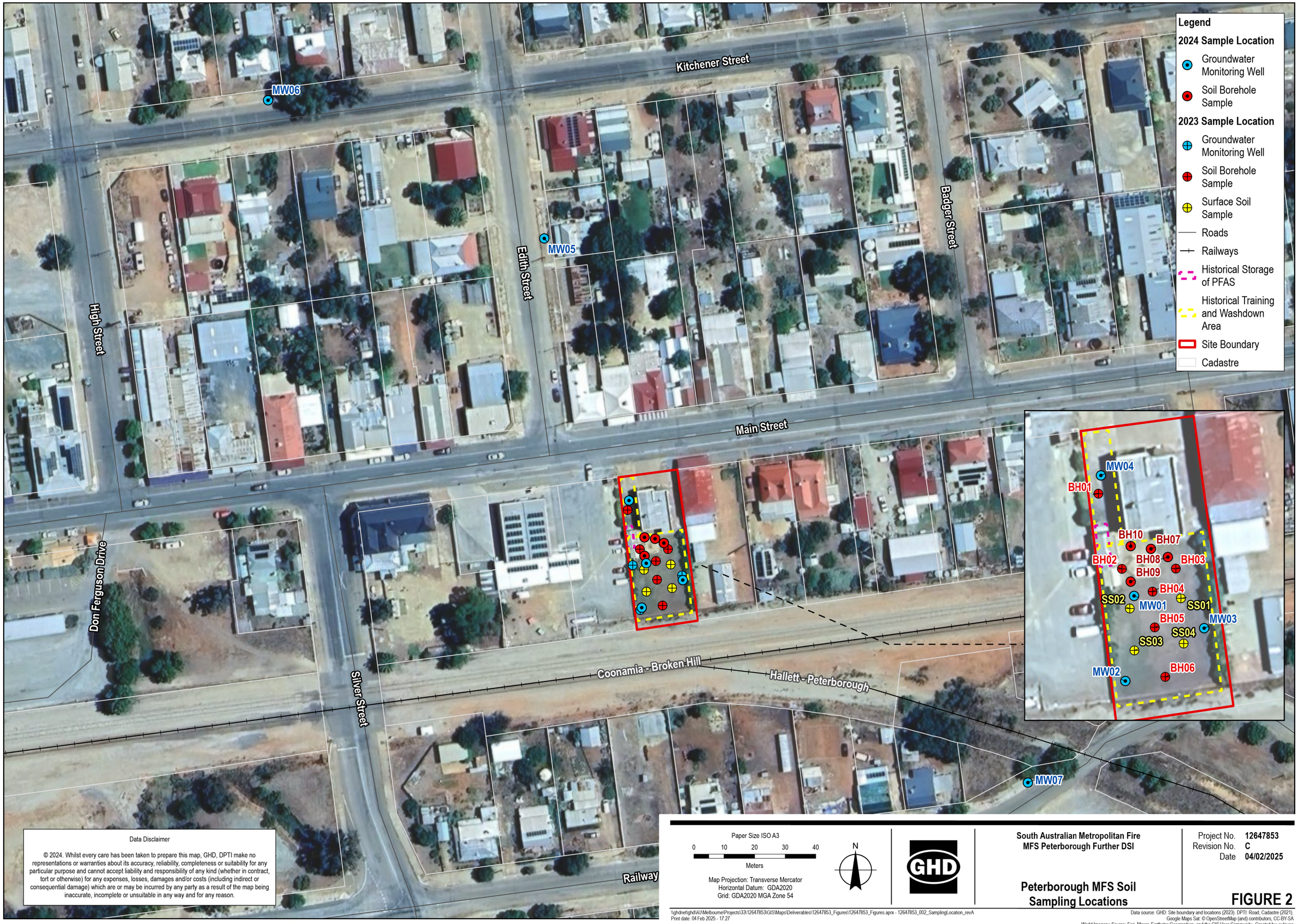
Project No. **12647853**
Revision No. **A**
Date **07/11/2024**

MFS Peterborough Site Location Plan

FIGURE 1

\\ghdnet\ghd\AU\Melbourne\Projects\33\12647853\GIS\Maps\Deliverables\12647853_Figures\12647853_Figures.aprx - 12647853_001_SiteLocationPlan_revA
Print date: 07 Nov 2024 - 09:51

Data source: GHD: Site boundary and locations (2023). DPTI: Road, Cadastre (2021)
Google Maps Sat. © OpenStreetMap (and) contributors, CC-BY-SA
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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
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South Australian Metropolitan Fire
MFS Peterborough Further DSI

Peterborough MFS Soil Sampling Locations

Project No. **12647853**
Revision No. **C**
Date **04/02/2025**

FIGURE 2

\\ghdnet\ghd\AU\Melbourne\Projects\33\12647853\GIS\Maps\Deliverables\12647853_Figures\12647853_Figures.aprx - 12647853_002_SamplingLocation_revA
Print date: 04 Feb 2025 - 17:27

Data source: GHD: Site boundary and locations (2023). DPTI: Road, Cadastre (2021). Google Maps Sat. © OpenStreetMap (and) contributors, CC-BY-SA
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Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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South Australian Metropolitan Fire
MFS Peterborough Further DSI

Project No. 12647853
Revision No. A
Date 21/11/2024

MFS Peterborough Surface and Groundwater Sampling Locations

FIGURE 3

\\ghdnet\ghd\AU\Melbourne\Projects\33\12647853\GIS\Maps\Deliverables\12647853_Figures\12647853_Figures.aprx - 12647853_003_SWGWLocation_revA
Printdate: 21 Nov 2024 - 10:03

Data source: GHD Site boundary and locations (2023); DPTI: Road, Cadastre (2021); Google Maps Sat: ©OpenStreetMap (and) contributors, CC-BY-SA
World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community. Created by: ejuan



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Paper Size ISO A3

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Meters

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Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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South Australian Metropolitan Fire
MFS Peterborough Further DSI

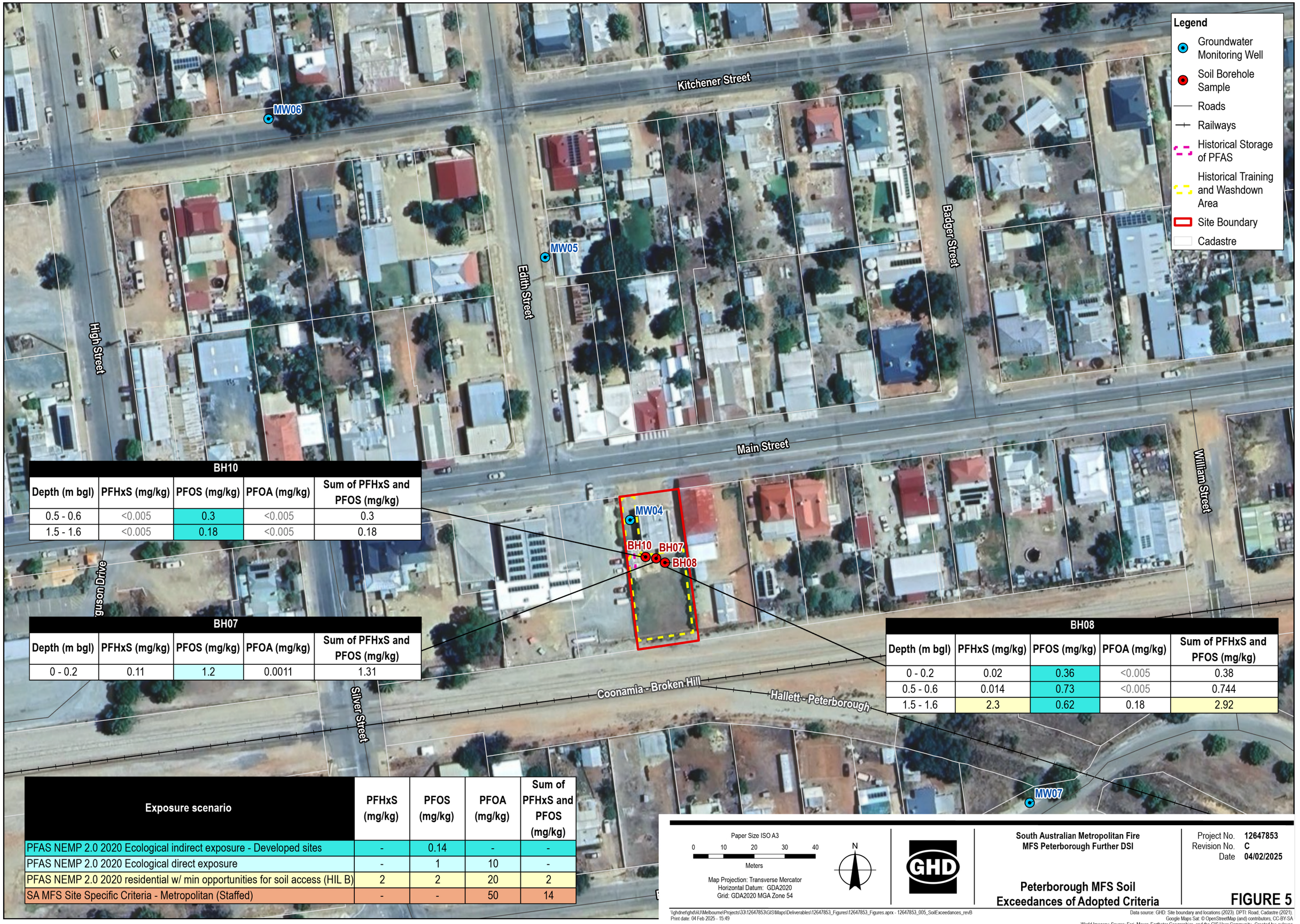
Groundwater Contour Map

Project No. **12647853**
Revision No. **B**
Date **04/02/2025**

FIGURE 4

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Print date: 04 Feb 2025 - 15:45

Data source: GHD: Site boundary, locations (2023), and Groundwater Contour (2024). DPTI: Road, Cadastre (2021).
Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA
World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community. Created by: aulayao



BH10				
Depth (m bgl)	PFHxS (mg/kg)	PFOS (mg/kg)	PFOA (mg/kg)	Sum of PFHxS and PFOS (mg/kg)
0.5 - 0.6	<0.005	0.3	<0.005	0.3
1.5 - 1.6	<0.005	0.18	<0.005	0.18

BH07				
Depth (m bgl)	PFHxS (mg/kg)	PFOS (mg/kg)	PFOA (mg/kg)	Sum of PFHxS and PFOS (mg/kg)
0 - 0.2	0.11	1.2	0.0011	1.31

BH08				
Depth (m bgl)	PFHxS (mg/kg)	PFOS (mg/kg)	PFOA (mg/kg)	Sum of PFHxS and PFOS (mg/kg)
0 - 0.2	0.02	0.36	<0.005	0.38
0.5 - 0.6	0.014	0.73	<0.005	0.744
1.5 - 1.6	2.3	0.62	0.18	2.92

Exposure scenario	PFHxS (mg/kg)	PFOS (mg/kg)	PFOA (mg/kg)	Sum of PFHxS and PFOS (mg/kg)
PFAS NEMP 2.0 2020 Ecological indirect exposure - Developed sites	-	0.14	-	-
PFAS NEMP 2.0 2020 Ecological direct exposure	-	1	10	-
PFAS NEMP 2.0 2020 residential w/ min opportunities for soil access (HIL B)	2	2	20	2
SA MFS Site Specific Criteria - Metropolitan (Staffed)	-	-	50	14

Paper Size ISO A3

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Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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GHD

South Australian Metropolitan Fire
MFS Peterborough Further DSI

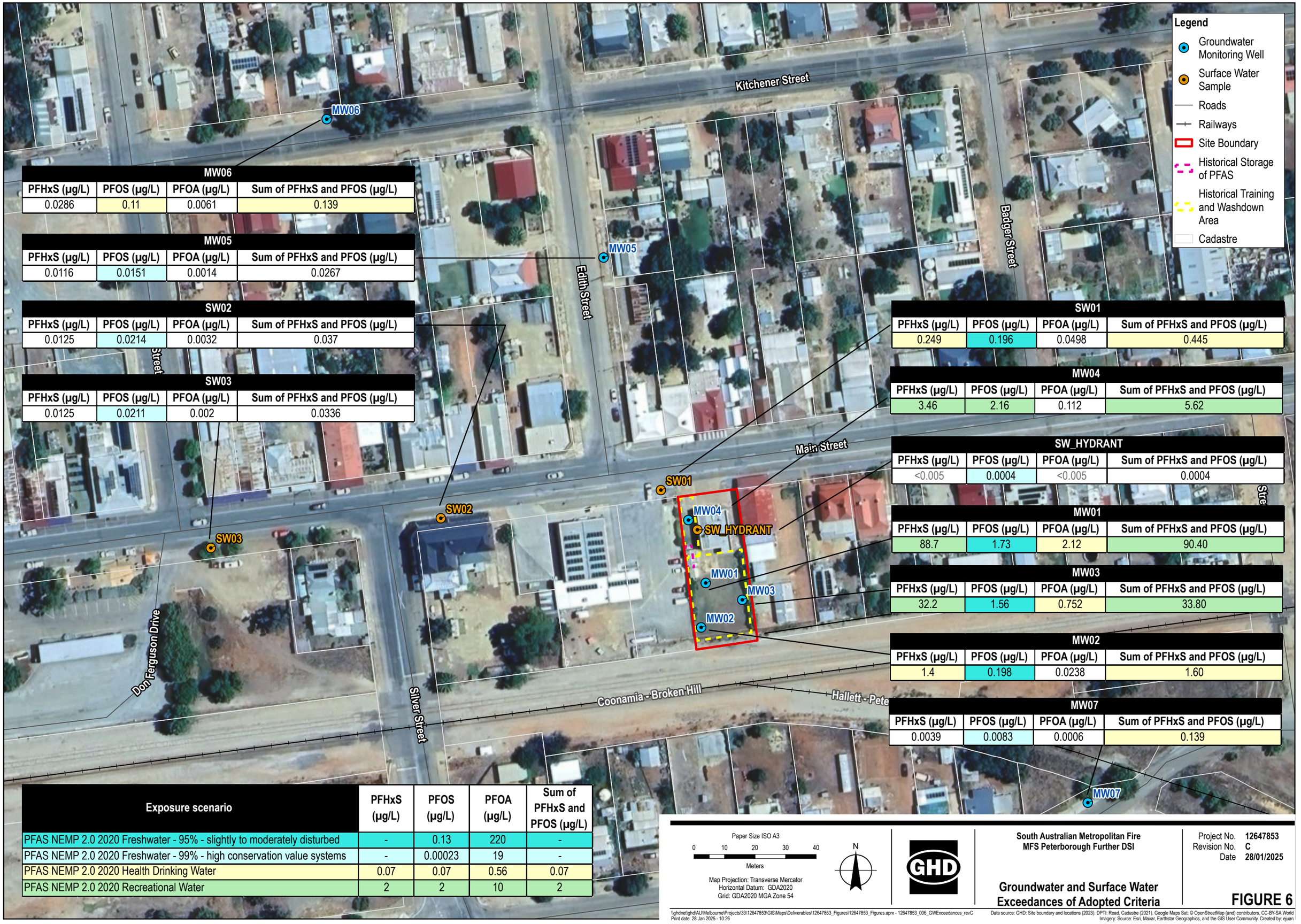
Peterborough MFS Soil Exceedances of Adopted Criteria

Project No. 12647853
Revision No. C
Date 04/02/2025

FIGURE 5

\\ghdnet\ghd\AU\Melbourne\Projects\33\12647853\GIS\Maps\Deliverables\12647853_Figures\12647853_Figures.aprx - 12647853_005_SoilExceedances_revB
Print date: 04 Feb 2025 - 15:49

Data source: GHD: Site boundary and locations (2023). DPTI: Road, Cadastre (2021). Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA
World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community. Created by: aulayao



MW06			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
0.0286	0.11	0.0061	0.139

MW05			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
0.0116	0.0151	0.0014	0.0267

SW02			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
0.0125	0.0214	0.0032	0.037

SW03			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
0.0125	0.0211	0.002	0.0336

SW01			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
0.249	0.196	0.0498	0.445

MW04			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
3.46	2.16	0.112	5.62

SW_HYDRANT			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
<0.005	0.0004	<0.005	0.0004

MW01			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
88.7	1.73	2.12	90.40

MW03			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
32.2	1.56	0.752	33.80

MW02			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
1.4	0.198	0.0238	1.60

MW07			
PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
0.0039	0.0083	0.0006	0.139

Exposure scenario	PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed	-	0.13	220	-
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems	-	0.00023	19	-
PFAS NEMP 2.0 2020 Health Drinking Water	0.07	0.07	0.56	0.07
PFAS NEMP 2.0 2020 Recreational Water	2	2	10	2

Paper Size ISO A3

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Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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GHD

South Australian Metropolitan Fire
MFS Peterborough Further DSI

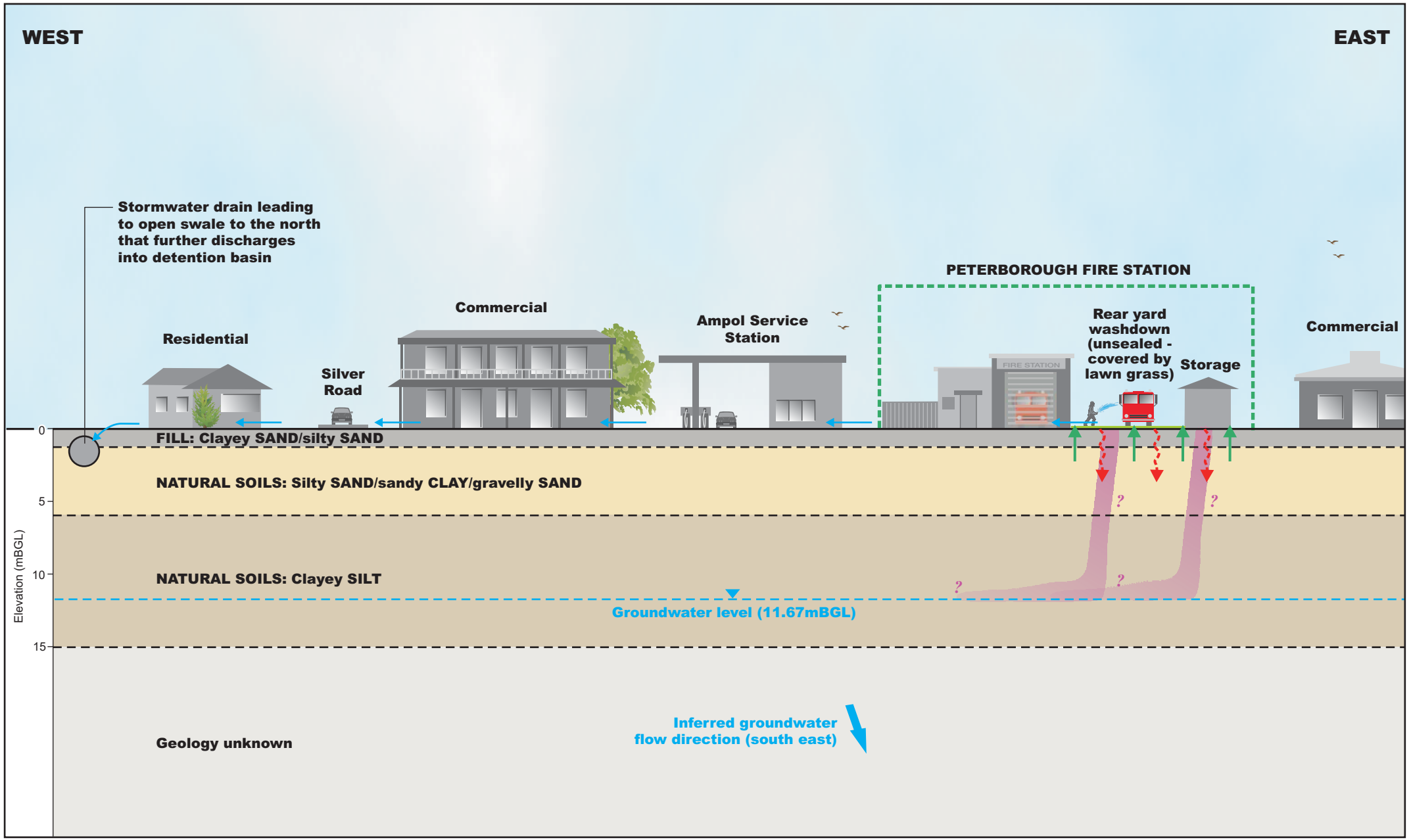
Groundwater and Surface Water Exceedances of Adopted Criteria

Project No. 12647853
Revision No. C
Date 28/01/2025

FIGURE 6

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Print date: 28 Jan 2025 - 10:26

Data source: GHD: Site boundary and locations (2023). DPTI: Road, Cadastre (2021). Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA.World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community. Created by: ejuan



LEGEND

- Inferred PFAS point source
- Surface water flow direction
- PFAS biotic uptake (transpiration)
- PFAS impacted surface runoff infiltration

Conceptual diagram only - scale is approximate

GHD

SA MFS
Peterborough Fire Station
86 Main Street, Peterborough, South Adelaide, SA 5422

Conceptual site model cross section

Project No. 12647853
Revision No. A
Date 05/02/2025

FIGURE 7

AU\Launceston\Projects\Admin\Graphics\12\647853\12647853_LST_01.cdr

Level 4, 211 Victoria Square Adelaide SA 5000 T 61 8 8111 6600 F 61 8 8111 6699 E ademail@ghd.com W www.ghd.com

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Appendices

Appendix A

SA EPA Letter

Environment Protection Authority
GPO Box 2607 Adelaide SA 5001
T (08) 8204 2004
Country areas 1800 623 445

EPA GENI 63252-3

Ms Krystle Mitchell
Senior Scientific and Environmental Officer
South Australian Metropolitan Fire Service
By email: Krystle.Mitchell@eso.sa.gov.au

Dear Ms Mitchell,

RE: REVIEW OF SITE CONTAMINATION REPORT – ACTION REQUIRED

Site: Peterborough Fire Station, 86 Main Street, PETERBOROUGH SA 5422 (CT 5670/797)

Thank you for providing the Environment Protection Authority (EPA) with a copy of the following report:

- *MFS Peterborough Fire Station Detailed Site Investigation, South Australian Metropolitan Fire Service*, prepared by GHD and dated 7 March 2024.

Details of this report have been recorded in the EPA Public Register[1]. This information will be made available to interested parties upon written enquiry to the Public Register Administrator of the EPA and will be included in the Site Contamination Index on the EPA website (http://www.epa.sa.gov.au). The information will also be available to all prospective purchasers of the site in the Form 1 of the Regulations under the *Land and Business (Sale and Conveyancing) Act 1994* (refer to the 'Particulars Relating To Environment Protection'), and through Section 7 statements.

Based on the information included in the report the site has been deemed to be a Level 1 regulatory priority in accordance with the EPA Site Contamination Regulatory Framework[2]. This priority level assists the EPA in selecting the appropriate regulatory approach and reporting timeframe to ensure that site contamination is managed effectively.

As such, the EPA recommends that you engage a suitably qualified consultant to undertake assessment to achieve the following EPA goals:

- Goal 2: Determine nature and extent of site contamination, and
- Goal 3: Identify and assess any potential risks to human health or the environment.

To achieve the above goals the investigations conducted should specifically include:

- Delineating the nature and extent of the contamination in soil and groundwater onsite and offsite.
- Conducting a groundwater-use survey within the vicinity of the site.
- Developing a community engagement plan to support offsite investigations.
- Investigating whether surface water migrating from the site is impacting receiving waters and presenting a risk to ecological receptors.

Please provide the EPA with a report documenting the above investigations by **30 April 2025**.

[1] In accordance with section 109(3)(i) of the *Environment Protection Act 1993*
[2] https://www.epa.sa.gov.au/files/15469_sc_regulatory_framework.pdf

Please provide a copy of this letter to your engaged consultant to assist them in developing a scope of works for the site.

The EPA advises that stormwater and wastewater management at the site may benefit from a review to ensure that activities undertaken (including the wash down of vehicles) complies with the general environmental duty[3]. Onsite stormwater management may also assist in preventing the potential migration of PFAS from the MFS site to stormwater and ultimately to sensitive receiving environments during rain events.

Fact sheets relating to your obligations under the *Environment Protection Act 1993* and how to engage a site contamination consultant can be found at www.epa.sa.gov.au.

If you would like further assistance on this or any other matter, please contact Mollie Owens on (08) 8204 8525 or at mollie.owens@sa.gov.au.

Yours sincerely



James Coley

PRINCIPAL ADVISER, SITE CONTAMINATION

ENVIRONMENT PROTECTION AUTHORITY

Date: 9 July 2024

cc: GHD Pty Ltd (by email: ben.petticrew@ghd.com & thomas.duncan@ghd.com)

cc: Ruby Jones, MFS (by email: ruby.jones@eso.sa.gov.au)

[3] Section 25 of the Act

Appendix B

Well Permits

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

GHD Pty Ltd

Permit Number:	**P-503506**
Permit Term:	**1 year(s)**
Expiry Date:	**23 August 2025**

To undertake the following water affecting activity

Activity	**Construct a new well**
Well Use	**Monitoring or Investigation**
At location	**138.84137599200005,-32.972927820999985** **CT6217/66, D958A35**

Conditions

269999	WAA-100 - The activity authorised by this permit must only be undertaken on the land identified as follows: CT6217/66 D958 A35
270000	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.
270001	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.
270006	WAA-110 - The authorised activity must be undertaken by a licensed driller.
270015	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.
270002	WAA-105 - Water samples are required from all wells drilled in respect of this permit.
270007	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.
270003	WAA-106 - Strata samples are not required.
270004	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.
270005	WAA-108 - All wells must be drilled vertical unless written permission is obtained from the Minister.
270008	WAA-124 - If the extracted groundwater supply is required for human consumption, it is recommended that the water be quality tested.
270009	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.
270010	WAA-134 - This permit does not authorise the taking of water from the well for any purpose other than testing.
270011	WAA-136 - Wells are to be backfilled when no longer required for ongoing monitoring or investigation purposes.
270012	WAA-137 - The well subject to this permit must not be completed as an industrial water supply well unless prior approval has been obtained from the department.
270013	WAA-143 - This permit authorises the construction of a well on the portion of road adjacent to the land parcel described above.
270014	WAA-149 - Due to known soil/groundwater contamination in the sediments and aquifers above, cautions should be taken in the drilling and cementing of this well.

AUTHORISATION: MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

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

GHD Pty Ltd

Permit Number:	**P-503505**
Permit Term:	**1 year(s)**
Expiry Date:	**23 August 2025**

To undertake the following water affecting activity

Activity	**Construct a new well**
Well Use	**Monitoring or Investigation**
At location	**138.84080871699996,-32.972919494999985** **CT6217/66, D958A35**

Conditions

269977	WAA-100 - The activity authorised by this permit must only be undertaken on the land identified as follows: CT6217/66 D958 A35
269978	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.
269979	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.
269984	WAA-110 - The authorised activity must be undertaken by a licensed driller.
269993	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.
269980	WAA-105 - Water samples are required from all wells drilled in respect of this permit.
269985	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.
269981	WAA-106 - Strata samples are not required.
269982	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.
269983	WAA-108 - All wells must be drilled vertical unless written permission is obtained from the Minister.
269986	WAA-124 - If the extracted groundwater supply is required for human consumption, it is recommended that the water be quality tested.
269987	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.
269988	WAA-134 - This permit does not authorise the taking of water from the well for any purpose other than testing.
269989	WAA-136 - Wells are to be backfilled when no longer required for ongoing monitoring or investigation purposes.
269990	WAA-137 - The well subject to this permit must not be completed as an industrial water supply well unless prior approval has been obtained from the department.
269991	WAA-143 - This permit authorises the construction of a well on the portion of road adjacent to the land parcel described above.
269992	WAA-149 - Due to known soil/groundwater contamination in the sediments and aquifers above, cautions should be taken in the drilling and cementing of this well.

AUTHORISATION: MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

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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.

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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

GHD Pty Ltd

Permit Number:	**P-503507**
Permit Term:	**1 year(s)**
Expiry Date:	**23 August 2025**

To undertake the following water affecting activity

Activity	**Construct a new well**
Well Use	**Monitoring or Investigation**
At location	**138.83969055900002,-32.97206398100002** **CT5221/487, D958A40**

Conditions

270021	WAA-100 - The activity authorised by this permit must only be undertaken on the land identified as follows: CT5221/487 D958 A40
270022	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.
270023	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.
270037	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.
270024	WAA-105 - Water samples are required from all wells drilled in respect of this permit.
270029	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.
270025	WAA-106 - Strata samples are not required.
270026	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.
270027	WAA-108 - All wells must be drilled vertical unless written permission is obtained from the Minister.
270028	WAA-110 - The authorised activity must be undertaken by a licensed driller.
270030	WAA-124 - If the extracted groundwater supply is required for human consumption, it is recommended that the water be quality tested.
270031	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.
270032	WAA-134 - This permit does not authorise the taking of water from the well for any purpose other than testing.
270033	WAA-136 - Wells are to be backfilled when no longer required for ongoing monitoring or investigation purposes.
270034	WAA-137 - The well subject to this permit must not be completed as an industrial water supply well unless prior approval has been obtained from the department.
270035	WAA-143 - This permit authorises the construction of a well on the portion of road adjacent to the land parcel described above.
270036	WAA-149 - Due to known soil/groundwater contamination in the sediments and aquifers above, cautions should be taken in the drilling and cementing of this well.

AUTHORISATION: MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

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Additional information about the site use approval

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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).

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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

GHD Pty Ltd

Permit Number:	**P-503504**
Permit Term:	**1 year(s)**
Expiry Date:	**23 August 2025**

To undertake the following water affecting activity

Activity	**Construct a new well**
Well Use	**Monitoring or Investigation**
At location	**138.842447428,-32.973791328999994** **CT6068/890, D83697A1002**

Conditions

269956	WAA-100 - The activity authorised by this permit must only be undertaken on the land identified as follows: CT6068/890 D83697 A1002
269957	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.
269958	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.
269963	WAA-110 - The authorised activity must be undertaken by a licensed driller.
269971	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.
269959	WAA-105 - Water samples are required from all wells drilled in respect of this permit.
269964	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.
269960	WAA-106 - Strata samples are not required.
269961	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.
269962	WAA-108 - All wells must be drilled vertical unless written permission is obtained from the Minister.
269965	WAA-124 - If the extracted groundwater supply is required for human consumption, it is recommended that the water be quality tested.
269966	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.
269967	WAA-134 - This permit does not authorise the taking of water from the well for any purpose other than testing.
269968	WAA-136 - Wells are to be backfilled when no longer required for ongoing monitoring or investigation purposes.
269969	WAA-137 - The well subject to this permit must not be completed as an industrial water supply well unless prior approval has been obtained from the department.
269970	WAA-149 - Due to known soil/groundwater contamination in the sediments and aquifers above, cautions should be taken in the drilling and cementing of this well.

AUTHORISATION: MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

Date: 23 August 2024

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Appendix C

Well Survey Results

LINKUP CONSTRUCTION SURVEYS PTY LTD

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To: Tom Duncan
Company: GHD
Phone: 0413 476 581

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

Date: 24/10/2024

Monitoring well coordinates – Peterborough MFS

Well or Bore No.	Easting GDA20	Northing GDA20	R.L. Top of Casing A.H.D.	Natural Surface A.H.D.
MW01	298263.051	6349601.751	531.739	531.838
MW02	298261.564	6349587.210	531.772	531.860
MW03	298275.012	6349596.238	531.770	531.863
MW04	298257.399	6349622.335	531.689	531.804
MW05	298229.647	6349708.223	530.964	531.049
MW06	298139.077	6349753.515	530.395	530.497
MW07	298388.025	6349529.874	532.897	532.975

All Survey information was based from the GDA20 Z54 grid system and Australian Height Datum (AHD), Triangulated from Network Survey Marks.

Appendix D

Borehole Logs

BOREHOLE LOG

ENVIRONMENTAL-GROUNDWATER

MONITORING WELL MW04

Client MFS
Project MFS Peterborough Further DSI
Project No. 12647853
Site Peterborough MFS Fire Station
Location 86 Main St
Date Drilled 27/09/2024

Drill Co. WB Drilling
Driller WB Drilling
Rig Type 4WD Mounted Rig
Drill Method Pushtube
Total Depth (m) 15.00
Casing Diameter (mm) 50

Easting, Northing 298257.399, 6349622.335
Grid Ref GDA94_MGA_zone_54
Elevation mAHD 531.804
TOC mAHD 531.689
Logged By SM
Checked By TW

B.C.L No. P-53506 **Casing** 5 mm PVC (Class 18) **Screen** 0.5mm Slotted PVC (Class 18) **Surface Completion** Gatic

Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Well Details	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials,separate phase liquids, imported fill, ash.	Elevation (m)
0	PT		MW04_0.4-0.5		MW04		CRUSHED STONE	D	MD	no odour no staining	0
							Silty CLAY uniform, subrounded to rounded, dark red, no plasticity, trace fine gravel (FILL)	D	S	no odour no staining	
1							Silty CLAY uniform, subrounded to rounded, pale red, no plasticity, trace medium gravel (NATURAL - SOIL)				-1
2							Silty CLAY uniform, subrounded to rounded, pale white and pale brown, no plasticity, trace medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-2
3							Silty CLAY uniform, subrounded to rounded, pale yellow and pale brown, no plasticity, trace medium to coarse gravel (NATURAL - SOIL)	D	F	no odour no staining	-3
4	SFA						Silty CLAY uniform, subrounded to rounded, pale brown, low plasticity, with fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-4
5					Grout						-5
6											-6
7							Silty CLAY uniform, subrounded to rounded, pale yellow, low to medium plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-7
8											-8
9											-9
10											-10
11					Bentonite						-11
12				▽			Silty CLAY uniform, subrounded to rounded, pale yellow mottled dark red, low to medium plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-12
13					Sand						-13
14			MW04_14.0								-14
15							Termination Depth at: 15.00 m. Target depth achieved				-15

Notes

This log is not intended for geotechnical purposes. Hollow triangle symbolises water strike, solid triangle symbolises recovered water level.

Drilling Abbreviations	Moisture Abbreviations	Consistency Abbreviations	
AH-Air Hammer, AR-Air Rotary, BE-Bucket Excavation, CC-Concrete Coring, DC-Diamond Core, FH-Foam Hammer, HA-Hand Auger, HE-Hand Excavation (shovel), HFA-Hollow Flight Auger, MR-Mud Rotary, NDD-Non Destructive Drilling, PT-Pushtube, RB-Rotary Blade, SD-Sonic Drilling, SFA-Solid Flight Auger, SS-Split Spoon, WB-Wash Bore, WS-Window Sampler	D-Dry, SM-Slightly Moist, M-Moist, VM-Very Moist, W-Wet, S-Saturated	**Granular Soils** VL-Very Loose, L-Loose, MD-Medium Dense, D-Dense,VD - Very Dense	**Cohesive Soils** VS-Very Soft, S-Soft, F-Firm, ST-Stiff, VST-Very Stiff, H-Hard

BOREHOLE LOG

ENVIRONMENTAL-GROUNDWATER

MONITORING WELL MW05

Client MFS
Project MFS Peterborough Further DSI
Project No. 12647853
Site Peterborough MFS Fire Station
Location 86 Main St
Date Drilled 25/09/2024

Drill Co. WB Drilling
Driller WB Drilling
Rig Type 4WD Mounted Rig
Drill Method Pushtube
Total Depth (m) 15.00
Casing Diameter (mm) 50

Easting, Northing 298229.647, 6349708.223
Grid Ref GDA94_MGA_zone_54
Elevation mAHD 531.049
TOC mAHD 530.964
Logged By SM
Checked By TW

B.C.L No. P-53505 **Casing** 5 mm PVC (Class 18) **Screen** 0.5mm Slotted PVC (Class 18) **Surface Completion** Gatic

Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Well Details	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials,separate phase liquids, imported fill, ash.	Elevation (m)
0	PT		MW05_0-0.2		MW05		CRUSHED STONE	D	F	no odour no staining	0
							Silty CLAY uniform, subrounded to rounded, dark red, no plasticity, trace fine gravel (FILL)	D	S		
1							Silty CLAY uniform, subrounded to rounded, pale red, no plasticity, trace medium gravel (NATURAL - SOIL)				-1
2											-2
3											-3
4	SFA										-4
5					Grout						-5
6							Silty CLAY uniform, subrounded to rounded, pale yellow, low to medium plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-6
7											-7
8											-8
9											-9
10							Silty CLAY uniform, subrounded to rounded, pale yellow mottled dark red, low to medium plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-10
11					Bentonite						-11
12				▽							-12
13											-13
14					Sand						-14
15			MW05_15.0				Termination Depth at: 15.00 m. Target depth achieved				-15

Notes

This log is not intended for geotechnical purposes. Hollow triangle symbolises water strike, solid triangle symbolises recovered water level.

Drilling Abbreviations	Moisture Abbreviations	Consistency Abbreviations	
AH-Air Hammer, AR-Air Rotary, BE-Bucket Excavation, CC-Concrete Coring, DC-Diamond Core, FH-Foam Hammer, HA-Hand Auger, HE-Hand Excavation (shovel), HFA-Hollow Flight Auger, MR-Mud Rotary, NDD-Non Destructive Drilling, PT-Pushtube, RB-Rotary Blade, SD-Sonic Drilling, SFA-Solid Flight Auger, SS-Split Spoon, WB-Wash Bore, WS-Window Sampler	D-Dry, SM-Slightly Moist, M-Moist, VM-Very Moist, W-Wet, S-Saturated	**Granular Soils** VL-Very Loose, L-Loose, MD-Medium Dense, D-Dense,VD - Very Dense	**Cohesive Soils** VS-Very Soft, S-Soft, F-Firm, ST-Stiff, VST-Very Stiff, H-Hard

BOREHOLE LOG

ENVIRONMENTAL-GROUNDWATER

MONITORING WELL MW06

Client MFS
Project MFS Peterborough Further DSI
Project No. 12647853
Site Peterborough MFS Fire Station
Location 86 Main St
Date Drilled 25/09/2024

Drill Co. WB Drilling
Driller WB Drilling
Rig Type 4WD Mounted Rig
Drill Method Pushtube
Total Depth (m) 15.00
Casing Diameter (mm) 50

Easting, Northing 298139.077, 6349753.515
Grid Ref GDA94_MGA_zone_54
Elevation mAHD 530.497
TOC mAHD 530.395
Logged By SM
Checked By TW

B.C.L No. P-53507 **Casing** 5 mm PVC (Class 18) **Screen** 0.5mm Slotted PVC (Class 18) **Surface Completion** Gatic

Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Well Details	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials,separate phase liquids, imported fill, ash.	Elevation (m)
0	PT		MW06_0-0.2		MW06		CRUSHED STONE	D	F	no odour no staining	0
							Silty CLAY uniform, subrounded to rounded, dark brown to dark red, no plasticity, trace fine gravel (FILL)	D	S	no odour no staining	
1											-1
							Silty CLAY uniform, angular to subangular, pale red, no plasticity, trace coarse gravel, some rock fragments (NATURAL - SOIL)				
2											-2
							Silty CLAY uniform, angular to subangular, pale red and pale brown, no plasticity, with coarse gravel, and rock fragments (NATURAL - SOIL)	D	F	no odour no staining	
3											-3
							Silty CLAY uniform, subrounded to rounded, pale yellow, no plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	
4	SFA										-4
5					Grout		Silty CLAY uniform, subrounded to rounded, pale brown, low plasticity, some fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-5
6							Silty CLAY uniform, subrounded to rounded, pale yellow, low to medium plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-6
7											-7
8											-8
9											-9
10											-10
11			MW06_11.0		Bentonite						-11
12				▽			Silty CLAY uniform, subrounded to rounded, pale yellow mottled dark red, low to medium plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-12
13											-13
14					Sand						-14
15							Termination Depth at: 15.00 m. Target depth achieved				-15

Notes

This log is not intended for geotechnical purposes. Hollow triangle symbolises water strike, solid triangle symbolises recovered water level.

Drilling Abbreviations	Moisture Abbreviations	Consistency Abbreviations	
AH-Air Hammer, AR-Air Rotary, BE-Bucket Excavation, CC-Concrete Coring, DC-Diamond Core, FH-Foam Hammer, HA-Hand Auger, HE-Hand Excavation (shovel), HFA-Hollow Flight Auger, MR-Mud Rotary, NDD-Non Destructive Drilling, PT-Pushtube, RB-Rotary Blade, SD-Sonic Drilling, SFA-Solid Flight Auger, SS-Split Spoon, WB-Wash Bore, WS-Window Sampler	D-Dry, SM-Slightly Moist, M-Moist, VM-Very Moist, W-Wet, S-Saturated	**Granular Soils** VL-Very Loose, L-Loose, MD-Medium Dense, D-Dense,VD - Very Dense	**Cohesive Soils** VS-Very Soft, S-Soft, F-Firm, ST-Stiff, VST-Very Stiff, H-Hard

BOREHOLE LOG

ENVIRONMENTAL-GROUNDWATER

MONITORING WELL MW07

Client MFS
Project MFS Peterborough Further DSI
Project No. 12647853
Site Peterborough MFS Fire Station
Location 86 Main St
Date Drilled 26/09/2024

Drill Co. WB Drilling
Driller WB Drilling
Rig Type 4WD Mounted Rig
Drill Method Pushtube
Total Depth (m) 18.00
Casing Diameter (mm) 50

Easting, Northing 298388.025, 6349529.874
Grid Ref GDA94_MGA_zone_54
Elevation mAHD 532.975
TOC mAHD 530.395
Logged By SM
Checked By TW

B.C.L No. P-53504 **Casing** 5 mm PVC (Class 18) **Screen** 0.5mm Slotted PVC (Class 18) **Surface Completion** Gatic

Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Well Details	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials,separate phase liquids, imported fill, ash.	Elevation (m)
0	PT		MW07_0-0.2				CRUSHED STONE	D	F	no odour no staining	
							Silty CLAY uniform, subrounded to rounded, dark brown to dark red, no plasticity, trace coarse gravel (FILL)	D	S	no odour no staining	
1							Silty CLAY uniform, angular to subangular, pale red and pale white, no plasticity, trace medium gravel, some rock fragments (NATURAL - SOIL)	D	F	no odour no staining	-1
2							Silty CLAY uniform, angular to subangular, pale red and pale brown, no plasticity, with coarse gravel, and rock fragments (NATURAL - SOIL)	D	F	no odour no staining	-2
3							Silty CLAY uniform, angular to subangular, pale yellow, no plasticity, with fine gravel (NATURAL - SOIL)	D	F	no odour no staining	-3
4	SFA										-4
5							Silty CLAY uniform, subrounded to rounded, pale brown, low plasticity, some fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-5
6							Silty CLAY, uniform, subrounded to rounded, pale yellow, low to medium plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	ST	no odour no staining	-6
7					Grout						-7
8											-8
9							Silty CLAY uniform, subrounded to rounded, pale yellow with mottled red, low to medium plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-9
10											-10
11											-11
12				▽			Silty CLAY uniform, subrounded to rounded, pale yellow mottled dark red, low to medium plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	F	no odour no staining	-12
13											-13
14					Bentonite						-14
15			MW07_15.0		Sand						-15

Notes

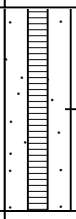
This log is not intended for geotechnical purposes. Hollow triangle symbolises water strike, solid triangle symbolises recovered water level.

Drilling Abbreviations	Moisture Abbreviations	Consistency Abbreviations	
AH-Air Hammer, AR-Air Rotary, BE-Bucket Excavation, CC-Concrete Coring, DC-Diamond Core, FH-Foam Hammer, HA-Hand Auger, HE-Hand Excavation (shovel), HFA-Hollow Flight Auger, MR-Mud Rotary, NDD-Non Destructive Drilling, PT-Pushtube, RB-Rotary Blade, SD-Sonic Drilling, SFA-Solid Flight Auger, SS-Split Spoon, WB-Wash Bore, WS-Window Sampler	D-Dry, SM-Slightly Moist, M-Moist, VM-Very Moist, W-Wet, S-Saturated	**Granular Soils** VL-Very Loose, L-Loose, MD-Medium Dense, D-Dense,VD - Very Dense	**Cohesive Soils** VS-Very Soft, S-Soft, F-Firm, ST-Stiff, VST-Very Stiff, H-Hard

BOREHOLE LOG

ENVIRONMENTAL-GROUNDWATER

MONITORING WELL MW07

Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Well Details	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials,separate phase liquids, imported fill, ash.	Elevation (m)
16											-16
17											-17
18							Termination Depth at: 18.00 m. Target depth achieved.				-18
19											-19
20											-20
21											-21
22											-22
23											-23
24											-24
25											-25
26											-26
27											-27
28											-28
29											-29
30											-30
31											-31
32											-32
33											-33
34											-34

Notes

This log is not intended for geotechnical purposes. Hollow triangle symbolises water strike, solid triangle symbolises recovered water level.

Drilling Abbreviations	Moisture Abbreviations	Consistency Abbreviations	
AH-Air Hammer, AR-Air Rotary, BE-Bucket Excavation, CC-Concrete Coring, DC-Diamond Core, FH-Foam Hammer, HA-Hand Auger, HE-Hand Excavation (shovel), HFA-Hollow Flight Auger, MR-Mud Rotary, NDD-Non Destructive Drilling, PT-Pushtube, RB-Rotary Blade, SD-Sonic Drilling, SFA-Solid Flight Auger, SS-Split Spoon, WB-Wash Bore, WS-Window Sampler	D-Dry, SM-Slightly Moist, M-Moist, VM-Very Moist, W-Wet, S-Saturated	**Granular Soils** VL-Very Loose, L-Loose, MD-Medium Dense, D-Dense,VD - Very Dense	**Cohesive Soils** VS-Very Soft, S-Soft, F-Firm, ST-Stiff, VST-Very Stiff, H-Hard

BOREHOLE LOG

ENVIRONMENTAL-SOIL BORE

SOIL BORE BH07

Client MFS
Project MFS Peterborough Further DSI
Project No. 12647853
Site Peterborough MFS Fire Station
Location 86 Main St
Date Drilled 24/09/2024

Drill Co. WB Drilling
Driller WB Drilling
Rig Type Pushtube
Total Depth (m) 2.00
Diameter (mm) 50

Easting 298260.67
Northing 6349599.48
Grid Ref GDA94_MGA_zone_54
Elevation 530 m AHD
Logged By SM
Checked By TW

Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials,separate phase liquids, imported fill, ash.	Elevation (m)
0	PT		BH07_0-0.2			TOPSOIL/GRASSMAT				
0.1						Silty CLAY poorly graded, angular to subangular, dark brown, no plasticity, with roots, and fine to medium gravel (FILL)	D	S	no odour no staining	-0.1
0.2										-0.2
0.3										-0.3
0.4			BH07_0.5			Silty CLAY poorly graded, angular to subangular, dark red- brown with mottled grey, no plasticity, with fine to medium gravel (NATURAL - SOIL)	D	VS	no odour no staining	-0.4
0.5										-0.5
0.6										-0.6
0.7										-0.7
0.8										-0.8
0.9										-0.9
1						Silty CLAY poorly graded, angular to subangular, dark red- brown with mottled orange, no plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	ST	no odour no staining	-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4			BH07_1.5 (QA/QC05)							-1.4
1.5						Silty CLAY poorly graded, angular to subangular, dark red- brown with mottled white, no plasticity, some fine to medium gravel (NATURAL - SOIL)	D	ST	no odour no staining	-1.5
1.6										-1.6
1.7										-1.7
1.8										-1.8
1.9										-1.9
2						Termination Depth at: 2.00 m. Target depth achieved.				-2

Notes

This log is not intended for geotechnical purposes.

Drilling Abbreviations	Moisture Abbreviations	Consistency Abbreviations	
AH-Air Hammer, AR-Air Rotary, BE-Bucket Excavation, CC-Concrete Coring, DC-Diamond Core, FH-Foam Hammer, HA-Hand Auger, HE-Hand Excavation (shovel), HFA-Hollow Flight Auger, MR-Mud Rotary, NDD-Non Destructive Drilling, PT-Pushtube, SD-Sonic Drilling, SFA-Solid Flight Auger, SS-Split Spoon, WB-Wash Bore, WS-Window Sampler	D-Dry, SM-Slightly Moist, M-Moist, VM-Very Moist, W-Wet, S-Saturated	**Granular Soils** VL-Very Loose, L-Loose, MD-Medium Dense, D-Dense,VD - Very Dense	**Cohesive Soils** VS-Very Soft, S-Soft, F-Firm, ST-Stiff, VST-Very Stiff, H-Hard

BOREHOLE LOG

ENVIRONMENTAL-SOIL BORE

SOIL BORE BH08

Client MFS
Project MFS Peterborough Further DSI
Project No. 12647853
Site Peterborough MFS Fire Station
Location 86 Main St
Date Drilled 24/09/2024

Drill Co. WB Drilling
Driller WB Drilling
Rig Type Pushtube
Total Depth (m) 2.00
Diameter (mm) 50

Easting 298262.85
Northing 6349588.99
Grid Ref GDA94_MGA_zone_54
Elevation 530 m AHD
Logged By SM
Checked By TW

Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials,separate phase liquids, imported fill, ash.	Elevation (m)
0			BH08_0-0.2			TOPSOIL/GRASSMAT				0
0.1						Silty CLAY poorly graded, angular to subangular, pale brown, no plasticity, some rootlets (FILL)	D	S	no odour no staining	-0.1
0.2										-0.2
0.3						Silty CLAY poorly graded, angular to subangular, pale brown- white, no plasticity, with rock fragments, and fine to medium gravel (FILL)	D	S	no odour no staining	-0.3
0.4			BH08_0.5							-0.4
0.5						Silty CLAY poorly graded, angular to subangular, pale red- brown with mottled white, low plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	ST	no odour no staining	-0.5
0.6										-0.6
0.7										-0.7
0.8										-0.8
0.9										-0.9
1										-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4			BH08_1.5							-1.4
1.5										-1.5
1.6						Silty CLAY poorly graded, angular to subangular, mottled red- white, low plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	ST	no odour no staining	-1.6
1.7										-1.7
1.8										-1.8
1.9										-1.9
2						Termination Depth at: 2.00 m. Target depth achieved.				-2

Notes

This log is not intended for geotechnical purposes.

Drilling Abbreviations	Moisture Abbreviations	Consistency Abbreviations	
AH-Air Hammer, AR-Air Rotary, BE-Bucket Excavation, CC-Concrete Coring, DC-Diamond Core, FH-Foam Hammer, HA-Hand Auger, HE-Hand Excavation (shovel), HFA-Hollow Flight Auger, MR-Mud Rotary, NDD-Non Destructive Drilling, PT-Pushtube, SD-Sonic Drilling, SFA-Solid Flight Auger, SS-Split Spoon, WB-Wash Bore, WS-Window Sampler	D-Dry, SM-Slightly Moist, M-Moist, VM-Very Moist, W-Wet, S-Saturated	**Granular Soils** VL-Very Loose, L-Loose, MD-Medium Dense, D-Dense,VD - Very Dense	**Cohesive Soils** VS-Very Soft, S-Soft, F-Firm, ST-Stiff, VST-Very Stiff, H-Hard

BOREHOLE LOG

ENVIRONMENTAL-SOIL BORE

SOIL BORE BH09

Client MFS
Project MFS Peterborough Further DSI
Project No. 12647853
Site Peterborough MFS Fire Station
Location 86 Main St
Date Drilled 24/09/2024

Drill Co. WB Drilling
Driller WB Drilling
Rig Type Pushtube
Total Depth (m) 2.00
Diameter (mm) 50

Easting 298271.12
Northing 6349600.7
Grid Ref GDA94_MGA_zone_54
Elevation 530 m AHD
Logged By SM
Checked By TW

Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials,separate phase liquids, imported fill, ash.	Elevation (m)
0			BH09_0-0.2			CONCRETE				0
0.2						Silty CLAY poorly graded, angular to subangular, pale red- brown with mottled yellow, no plasticity, some fine to medium gravel (FILL)	D	ST	no odour no staining	-0.2
0.4			BH09_0.5			Silty CLAY poorly graded, angular to subangular, pale red- brown, low plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	ST	no odour no staining	-0.4
1.4			BH09_1.5							-1.4
1.6						Silty CLAY poorly graded, angular to subangular, mottled red- white, low plasticity, trace fine to medium gravel, and rock fragments (NATURAL - SOIL)	D	F	no odour no staining	-1.6
2						Termination Depth at: 2.00 m. Target depth achieved.				-2

Notes

This log is not intended for geotechnical purposes.

Drilling Abbreviations	Moisture Abbreviations	Consistency Abbreviations	
AH-Air Hammer, AR-Air Rotary, BE-Bucket Excavation, CC-Concrete Coring, DC-Diamond Core, FH-Foam Hammer, HA-Hand Auger, HE-Hand Excavation (shovel), HFA-Hollow Flight Auger, MR-Mud Rotary, NDD-Non Destructive Drilling, PT-Pushtube, SD-Sonic Drilling, SFA-Solid Flight Auger, SS-Split Spoon, WB-Wash Bore, WS-Window Sampler	D-Dry, SM-Slightly Moist, M-Moist, VM-Very Moist, W-Wet, S-Saturated	**Granular Soils** VL-Very Loose, L-Loose, MD-Medium Dense, D-Dense,VD - Very Dense	**Cohesive Soils** VS-Very Soft, S-Soft, F-Firm, ST-Stiff, VST-Very Stiff, H-Hard

BOREHOLE LOG

ENVIRONMENTAL-SOIL BORE

SOIL BORE BH10

Client MFS
Project MFS Peterborough Further DSI
Project No. 12647853
Site Peterborough MFS Fire Station
Location 86 Main St
Date Drilled 27/09/2024

Drill Co. WB Drilling
Driller WB Drilling
Rig Type Pushtube
Total Depth (m) 2.00
Diameter (mm) 50

Easting 298230.34
Northing 6349683.28
Grid Ref GDA94_MGA_zone_54
Elevation 530 m AHD
Logged By SM
Checked By TW

Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials,separate phase liquids, imported fill, ash.	Elevation (m)
0			BH10_0-0.2			CONCRETE				0
0.2						Silty CLAY poorly graded, angular to subangular, pale red- brown with mottled yellow, no plasticity, some fine to medium gravel (FILL)	D	ST	no odour no staining	-0.2
0.4			BH10_0.5			Silty CLAY poorly graded, angular to subangular, pale red- brown, low plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	ST	no odour no staining	-0.4
1.4			BH10_1.5 (QA/QC12)							-1.4
1.6						Silty CLAY fine, poorly graded, angular to subangular, mottled red- white, low plasticity, trace fine to medium gravel, and rock fragments (Reworked NATURAL)	D	F	no odour no staining	-1.6
2						Termination Depth at: 2.00 m. Target depth achieved.				-2

Notes

This log is not intended for geotechnical purposes.

Drilling Abbreviations	Moisture Abbreviations	Consistency Abbreviations	
AH-Air Hammer, AR-Air Rotary, BE-Bucket Excavation, CC-Concrete Coring, DC-Diamond Core, FH-Foam Hammer, HA-Hand Auger, HE-Hand Excavation (shovel), HFA-Hollow Flight Auger, MR-Mud Rotary, NDD-Non Destructive Drilling, PT-Pushtube, SD-Sonic Drilling, SFA-Solid Flight Auger, SS-Split Spoon, WB-Wash Bore, WS-Window Sampler	D-Dry, SM-Slightly Moist, M-Moist, VM-Very Moist, W-Wet, S-Saturated	**Granular Soils** VL-Very Loose, L-Loose, MD-Medium Dense, D-Dense,VD - Very Dense	**Cohesive Soils** VS-Very Soft, S-Soft, F-Firm, ST-Stiff, VST-Very Stiff, H-Hard

Appendix E

Laboratory Reports

CERTIFICATE OF ANALYSIS

Work Order	: **EM2417599**	Page	: 1 of 18
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Terrence Wilson	Contact	: Peter Ravlic
Address	: Level 4, 211 VICTORIA SQUARE ADELAIDE SA, AUSTRALIA 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: 12647853	Date Samples Received	: 11-Oct-2024 12:10
Order number	: ----	Date Analysis Commenced	: 15-Oct-2024
C-O-C number	: ----	Issue Date	: 22-Oct-2024 11:27
Sampler	: JOSHUA ANDERSON, LOUISE WRIGHT		
Site	:		
Quote number	: EN/000		
No. of samples received	: 16		
No. of samples analysed	: 16		

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*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC 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.

- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- It is recognised that total metals is less than dissolved metals for samples EM2417599 #9 However, the difference is within experimental variation of the methods.
- A sampling date discrepancy has been noted on the COC. Please inform ALS if changes are to be made to the SRN.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	MW01	MW02	MW03	MW04	MW05
				Sampling date / time	08-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00	09-Oct-2024 00:00	09-Oct-2024 00:00
					EM2417599-001	EM2417599-002	EM2417599-003	EM2417599-004	EM2417599-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		----	----	----	----	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		----	----	----	----	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		----	----	----	----	**291**
Total Alkalinity as CaCO3	----	1	mg/L		----	----	----	----	**291**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		----	----	----	----	**213**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		----	----	----	----	**1460**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		----	----	----	----	**138**
Magnesium	7439-95-4	1	mg/L		----	----	----	----	**163**
Sodium	7440-23-5	1	mg/L		----	----	----	----	**757**
Potassium	7440-09-7	1	mg/L		----	----	----	----	**24**
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	----	----	----	**0.001**
Cadmium	7440-43-9	0.0001	mg/L		----	----	----	----	<0.0001
Chromium	7440-47-3	0.001	mg/L		----	----	----	----	**0.001**
Copper	7440-50-8	0.001	mg/L		----	----	----	----	**0.005**
Nickel	7440-02-0	0.001	mg/L		----	----	----	----	**0.006**
Lead	7439-92-1	0.001	mg/L		----	----	----	----	<0.001
Zinc	7440-66-6	0.005	mg/L		----	----	----	----	**0.048**
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	----	----	----	**0.004**
Cadmium	7440-43-9	0.0001	mg/L		----	----	----	----	<0.0001
Chromium	7440-47-3	0.001	mg/L		----	----	----	----	**0.006**
Copper	7440-50-8	0.001	mg/L		----	----	----	----	**0.010**
Nickel	7440-02-0	0.001	mg/L		----	----	----	----	**0.016**

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	MW01	MW02	MW03	MW04	MW05
				Sampling date / time	08-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00	09-Oct-2024 00:00	09-Oct-2024 00:00
					EM2417599-001	EM2417599-002	EM2417599-003	EM2417599-004	EM2417599-005
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L		----	----	----	----	**0.001**
Zinc	7440-66-6	0.005	mg/L		----	----	----	----	**0.064**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	----	----	----	<0.0001
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	----	----	----	<0.0001
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		----	----	----	----	**0.03**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		----	----	----	----	**0.01**
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		----	----	----	----	**10.4**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		----	----	----	----	**10.4**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		----	----	----	----	**51.4**
ø Total Cations	----	0.01	meq/L		----	----	----	----	**53.8**
ø Ionic Balance	----	0.01	%		----	----	----	----	**2.29**
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		**5.64**	----	----	----	<0.002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		**8.93**	----	----	----	**0.002**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		**75.5**	----	----	----	**0.011**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		**1.07**	----	----	----	<0.002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		**1.44**	----	----	----	**0.012**
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.002	µg/L		----	----	----	----	<0.002

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	MW03	MW04	MW05
				Sampling date / time	08-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00	09-Oct-2024 00:00	09-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2417599-001	EM2417599-002	EM2417599-003	EM2417599-004	EM2417599-005
					Result	Result	Result	Result	Result
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		<0.002	----	----	----	<0.002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.010	µg/L		----	----	----	----	<0.010
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L		**4.83**	----	----	----	<0.01
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		**6.97**	----	----	----	**0.004**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		**26.0**	----	----	----	**0.013**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		**1.24**	----	----	----	**0.002**
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		**1.63**	----	----	----	**0.002**
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		**0.008**	----	----	----	<0.002
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		<0.002	----	----	----	<0.002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		<0.002	----	----	----	<0.002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		<0.002	----	----	----	<0.002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L		<0.002	----	----	----	<0.002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		<0.005	----	----	----	<0.005
EP231_TOP_C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		<0.002	----	----	----	<0.002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L		<0.005	----	----	----	<0.005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		<0.005	----	----	----	<0.005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L		<0.005	----	----	----	<0.005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L		<0.005	----	----	----	<0.005

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	MW03	MW04	MW05
				Sampling date / time	08-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00	09-Oct-2024 00:00	09-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2417599-001	EM2417599-002	EM2417599-003	EM2417599-004	EM2417599-005
					Result	Result	Result	Result	Result
EP231_TOP_C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L		<0.002	----	----	----	<0.002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L		<0.002	----	----	----	<0.002
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		<0.005	----	----	----	<0.005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		**0.023**	----	----	----	<0.005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<0.005	----	----	----	<0.005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	----	----	----	<0.005
EP231_TOP_P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		**136**	----	----	----	**0.046**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		**76.9**	----	----	----	**0.023**
^ Sum of TOP C4 - C14 as Fluorine	----	0.002	µg/L		**83.5**	----	----	----	**0.030**
Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	----	0.002	µg/L		**133**	----	----	----	**0.046**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		**6.40**	**0.404**	**2.74**	**0.672**	<0.0005
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		**11.6**	**0.404**	**4.88**	**0.848**	**0.0018**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		**88.7**	**1.40**	**32.2**	**3.46**	**0.0116**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		**1.36**	**0.0251**	**0.805**	**0.113**	**0.0005**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		**1.73**	**0.198**	**1.56**	**2.16**	**0.0151**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	MW03	MW04	MW05
				Sampling date / time	08-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00	09-Oct-2024 00:00	09-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2417599-001	EM2417599-002	EM2417599-003	EM2417599-004	EM2417599-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		**0.952**	**0.0652**	**0.370**	**0.160**	<0.0020
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		**1.88**	**0.111**	**0.740**	**0.298**	**0.0009**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		**1.51**	**0.0290**	**0.407**	**0.111**	<0.0005
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		**9.94**	**0.536**	**4.14**	**1.29**	**0.0025**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		**2.12**	**0.0238**	**0.752**	**0.112**	**0.0014**
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		**0.0064**	<0.0005	**0.0017**	**0.290**	<0.0005
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	<0.0005	<0.0005	**0.0006**	<0.0005
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	**0.0016**	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231D: (n:2) Fluorotelomer Sulfonic Acids									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	MW03	MW04	MW05
				Sampling date / time	08-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00	09-Oct-2024 00:00	09-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2417599-001	EM2417599-002	EM2417599-003	EM2417599-004	EM2417599-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		**0.001**	<0.001	<0.001	**0.008**	<0.001
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		**0.062**	<0.001	**0.003**	**0.014**	<0.001
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
EP231P: PFAS Sums									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		**90.4**	**1.60**	**33.8**	**5.62**	**0.0267**
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		**113**	**2.77**	**42.9**	**8.28**	**0.0315**
^ **Sum of PFAS**	----	0.0002	µg/L		**129**	**3.40**	**49.6**	**9.87**	**0.0338**
EP231_TOP_S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		**75.1**	**----**	**----**	**----**	**80.2**
13C8-PFOA	----	0.002	%		**94.0**	**----**	**----**	**----**	**79.9**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		**78.5**	**79.6**	**71.4**	**74.9**	**94.0**
13C8-PFOA	----	0.0005	%		**86.6**	**87.9**	**99.2**	**76.7**	**89.7**

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	MW06	MW07	SW_HYDRANT	SW01	SW02
				Sampling date / time	09-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00
					EM2417599-006	EM2417599-007	EM2417599-008	EM2417599-009	EM2417599-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		----	----	----	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		----	----	----	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		----	----	----	**56**	**56**
Total Alkalinity as CaCO3	----	1	mg/L		----	----	----	**56**	**56**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		----	----	----	**48**	**47**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		----	----	----	**109**	**105**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		----	----	----	**17**	**15**
Magnesium	7439-95-4	1	mg/L		----	----	----	**11**	**11**
Sodium	7440-23-5	1	mg/L		----	----	----	**83**	**80**
Potassium	7440-09-7	1	mg/L		----	----	----	**5**	**4**
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	----	----	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		----	----	----	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		----	----	----	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		----	----	----	**0.002**	<0.001
Nickel	7440-02-0	0.001	mg/L		----	----	----	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L		----	----	----	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		----	----	----	**0.014**	**0.006**
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	----	----	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		----	----	----	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		----	----	----	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		----	----	----	**0.002**	**0.001**
Nickel	7440-02-0	0.001	mg/L		----	----	----	<0.001	<0.001

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	MW06	MW07	SW_HYDRANT	SW01	SW02
				Sampling date / time	09-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00
					EM2417599-006	EM2417599-007	EM2417599-008	EM2417599-009	EM2417599-010
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L		----	----	----	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		----	----	----	**0.013**	**0.010**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	----	----	<0.0001	<0.0001
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	----	----	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		----	----	----	**0.62**	**0.67**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		----	----	----	**0.03**	**0.02**
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		----	----	----	**0.32**	**0.30**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		----	----	----	**0.35**	**0.32**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		----	----	----	**5.19**	**5.06**
ø Total Cations	----	0.01	meq/L		----	----	----	**5.49**	**5.24**
ø Ionic Balance	----	0.01	%		----	----	----	**2.80**	**1.72**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		<0.0005	<0.0005	<0.0005	**0.0009**	<0.0005
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		**0.0020**	**0.0008**	<0.0005	**0.0046**	<0.0005
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		**0.0286**	**0.0039**	<0.0005	**0.249**	**0.0156**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		**0.0130**	<0.0005	<0.0005	**0.0235**	**0.0018**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		**0.110**	**0.0083**	**0.0004**	**0.196**	**0.0214**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW06	MW07	SW_HYDRANT	SW01	SW02
				Sampling date / time	09-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2417599-006	EM2417599-007	EM2417599-008	EM2417599-009	EM2417599-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		<0.0020	<0.0020	<0.0020	**0.0025**	<0.0020
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		**0.0013**	<0.0005	<0.0005	**0.0009**	<0.0005
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	**0.0033**	<0.0005
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		**0.0050**	**0.0006**	<0.0005	**0.0134**	**0.0006**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		**0.0061**	**0.0006**	<0.0005	**0.0498**	**0.0032**
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	**0.0034**	<0.0005
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	<0.0005	<0.0005	**0.0010**	<0.0005
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L		<0.0008	<0.0005	<0.0005	<0.0008	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	**0.0013**	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231D: (n:2) Fluorotelomer Sulfonic Acids									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW06	MW07	SW_HYDRANT	SW01	SW02
				Sampling date / time	09-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00	08-Oct-2024 00:00
Compound		CAS Number	LOR	Unit	EM2417599-006	EM2417599-007	EM2417599-008	EM2417599-009	EM2417599-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	**0.002**	<0.001	<0.001	**0.073**	**0.004**
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	<0.001	<0.001	**0.005**	<0.001
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
EP231P: PFAS Sums									
^	**Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L	**0.139**	**0.0122**	**0.0004**	**0.445**	**0.0370**
^	**Sum of PFAS (WA DER List)**	----	0.0002	µg/L	**0.153**	**0.0134**	**0.0004**	**0.594**	**0.0448**
^	**Sum of PFAS**	----	0.0002	µg/L	**0.168**	**0.0142**	**0.0004**	**0.628**	**0.0466**
EP231S: PFAS Surrogate									
	13C4-PFOS	----	0.0005	%	**87.0**	**89.8**	**95.0**	**85.5**	**93.3**
	13C8-PFOA	----	0.0005	%	**74.7**	**89.8**	**95.5**	**88.5**	**97.1**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW03	FD01	RB01	RB02	FB01
				Sampling date / time	08-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2417599-011	EM2417599-012	EM2417599-013	EM2417599-014	EM2417599-015
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**56**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**56**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**48**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**107**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**17**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**11**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**82**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**5**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.002**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.001**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.025**	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.002**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.003**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.002**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW03	FD01	RB01	RB02	FB01
				Sampling date / time	08-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2417599-011	EM2417599-012	EM2417599-013	EM2417599-014	EM2417599-015
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L		**0.004**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.043**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.70**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.02**	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.27**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.29**	----	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**5.14**	----	----	----	----
ø Total Cations	----	0.01	meq/L		**5.45**	----	----	----	----
ø Ionic Balance	----	0.01	%		**2.94**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		<0.0005	**0.0015**	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		**0.0125**	**0.0106**	<0.0005	<0.0005	<0.0005
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		**0.0016**	**0.0006**	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		**0.0211**	**0.0146**	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	<0.0005	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW03	FD01	RB01	RB02	FB01
				Sampling date / time	08-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2417599-011	EM2417599-012	EM2417599-013	EM2417599-014	EM2417599-015
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		<0.0005	**0.0006**	<0.0005	<0.0005	<0.0005
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		**0.0009**	**0.0022**	<0.0005	<0.0005	<0.0005
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		**0.0020**	**0.0011**	<0.0005	<0.0005	<0.0005
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		<0.0005	<0.0005	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	<0.0005	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	<0.0005	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	<0.0005	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L		<0.0005	<0.0005	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L		<0.0005	<0.0005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	<0.001	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	<0.001	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	<0.001	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	<0.001	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	<0.0005	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW03	FD01	RB01	RB02	FB01
				Sampling date / time	08-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00	09-Oct-2024 00:00	08-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2417599-011	EM2417599-012	EM2417599-013	EM2417599-014	EM2417599-015
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		**0.003**	<0.001	<0.001	<0.001	<0.001
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
EP231P: PFAS Sums									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		**0.0336**	**0.0252**	<0.0002	<0.0002	<0.0002
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		**0.0395**	**0.0291**	<0.0002	<0.0002	<0.0002
^ **Sum of PFAS**	----	0.0002	µg/L		**0.0411**	**0.0312**	**----**	**----**	**----**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		**88.1**	**86.5**	**72.4**	**112**	**80.2**
13C8-PFOA	----	0.0005	%		**88.7**	**81.6**	**70.9**	**117**	**80.8**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	FB02	----	----	----	----
				Sampling date / time	09-Oct-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2417599-016	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		<0.0005	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		<0.0005	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		<0.0020	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		<0.0005	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		<0.0005	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		<0.0005	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		<0.0005	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		<0.001	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		<0.001	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	----	----	----	----
EP231P: PFAS Sums									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		<0.0002	----	----	----	----
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		<0.0002	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		**85.6**	----	----	----	----
13C8-PFOA	----	0.0005	%		**83.7**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231_TOP_S: PFAS Surrogate			
13C4-PFOS	----	70	130
13C8-PFOA	----	70	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	70	130
13C8-PFOA	----	70	130

QUALITY CONTROL REPORT

Work Order	: **EM2417599**	Page	: 1 of 10
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Terrence Wilson	Contact	: Peter Ravlic
Address	: Level 4, 211 VICTORIA SQUARE ADELAIDE SA, AUSTRALIA 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: 12647853	Date Samples Received	: 11-Oct-2024
Order number	: ----	Date Analysis Commenced	: 15-Oct-2024
C-O-C number	: ----	Issue Date	: 22-Oct-2024
Sampler	: JOSHUA ANDERSON, LOUISE WRIGHT		
Site	:		
Quote number	: EN/000		
No. of samples received	: 16		
No. of samples analysed	: 16		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC 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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 6119317)									
EM2417592-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	0.0	No Limit
EM2417664-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	60	66	9.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	60	66	9.5	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6119517)									
EM2417702-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1	1	0.0	No Limit
EM2417599-005	MW05	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	213	213	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6119518)									
EM2417599-005	MW05	ED045G: Chloride	16887-00-6	1	mg/L	1460	1470	0.2	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6125837)									
EM2417599-010	SW02	ED093F: Calcium	7440-70-2	1	mg/L	15	14	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	11	11	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	80	79	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	4	4	0.0	No Limit
EM2417575-007	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	11	11	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	10	10	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 (%)*
ED093F: Dissolved Major Cations (QC Lot: 6125837) - continued									
EM2417575-007	Anonymous	ED093F: Sodium	7440-23-5	1	mg/L	55	55	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	12	0.0	0% - 50%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6125838)									
EM2417599-011	SW03	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.025	0.024	5.7	No Limit
EM2417575-007	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.038	0.039	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 6125973)									
EM2417563-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.006	0.005	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.007	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.053	0.054	0.0	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.0	No Limit
EM2417600-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.063	0.066	4.7	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.061	0.065	7.3	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.053	0.055	3.5	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.022	0.022	0.0	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.041	0.043	5.2	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.094	0.099	5.1	0% - 50%
EG035F: Dissolved Mercury by FIMS (QC Lot: 6125839)									
EM2417599-011	SW03	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EM2417575-007	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6126134)									
EM2417563-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6126134) - continued									
EM2417600-009	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6120652)									
EM2417599-005	MW05	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.03	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6119519)									
EM2417660-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EM2417599-005	MW05	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.01	0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6120653)									
EM2417599-005	MW05	EK059G: Nitrite + Nitrate as N	----	0.01 (0.10)*	mg/L	10.4	10.3	0.5	0% - 20%
EM2417623-006	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6125472)									
EM2417599-001	MW01	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002 (0.010) *	µg/L	5.64	6.16	8.8	0% - 20%
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002 (0.100) *	µg/L	8.93	9.66	7.9	0% - 20%
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002 (0.100) *	µg/L	75.5	81.5	7.7	0% - 20%
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002 (0.100) *	µg/L	1.07	1.21	12.0	0% - 50%
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002 (0.010) *	µg/L	1.44	1.50	4.6	0% - 20%
		EP231X-LL: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.002	µg/L	<0.002	<0.002	0.0	No Limit
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.0	No Limit
		EP231X-LL: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.01	µg/L	2.51	2.54	1.4	0% - 20%
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6125472)									
EM2417599-001	MW01	EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002 (0.010) *	µg/L	6.97	7.34	5.2	0% - 20%
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002 (0.100) *	µg/L	26.0	29.2	11.7	0% - 20%
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002 (0.100) *	µg/L	1.24	1.31	5.4	0% - 50%
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002 (0.010) *	µg/L	1.63	1.84	12.1	0% - 20%
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	0.008	0.008	0.0	No Limit
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.0	No Limit
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.0	No Limit
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	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 (%)*
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6125472) - continued									
EM2417599-001	MW01	EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.0	No Limit
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	0.0	No Limit
		EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01 (0.05)*	µg/L	4.83	5.29	9.2	0% - 20%
EP231_TOP_C: Perfluoroalkyl Sulfonamides (QC Lot: 6125472)									
EM2417599-001	MW01	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.0	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.0	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.0	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.0	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.0	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.0	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.0	No Limit
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6125472)									
EM2417599-001	MW01	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.0	No Limit
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	0.023	0.006	120	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.0	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	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
ED037P: Alkalinity by PC Titrator (QCLot: 6119317)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	103	85.0	116
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6119517)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	500 mg/L	105	90.0	110
				<1	25 mg/L	102	90.0	110
ED045G: Chloride by Discrete Analyser (QCLot: 6119518)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	104	90.0	110
				<1	10 mg/L	108	90.0	110
ED093F: Dissolved Major Cations (QCLot: 6125837)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	93.1	80.0	120
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	80.0	120
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	102	80.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	99.4	80.0	120
EG020F: Dissolved Metals by ICP-MS (QCLot: 6125838)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.3	89.0	111
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.4	83.5	111
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.5	83.2	109
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.8	83.1	107
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.9	84.6	108
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.0	84.3	110
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	86.3	112
EG020T: Total Metals by ICP-MS (QCLot: 6125973)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.6	89.2	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.4	86.4	115
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.0	89.0	112
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.6	88.3	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.4	88.3	112
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.0	88.8	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.4	90.0	115
EG035F: Dissolved Mercury by FIMS (QCLot: 6125839)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.5	71.6	116

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
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6126134)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	102	73.4	119
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6120652)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	104	90.0	110
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6119519)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	105	90.0	110
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6120653)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	90.0	110
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids (QCLot: 6125472)								
EP231X-LL: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.01	µg/L	<0.010	----	----	----	----
EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.475 µg/L	71.8	44.9	136
EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	0.465 µg/L	73.2	33.2	116
EP231X-LL: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	----	----	----	----
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids (QCLot: 6125472)								
EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	----	----	----	----
EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	0.5 µg/L	71.4	47.0	123
EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	----	----	----	----
EP231_TOP_C: Perfluoroalkyl Sulfonamides (QCLot: 6125472)								
EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	----	----	----	----

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
EP231_TOP_C: Perfluoroalkyl Sulfonamides (QCLot: 6125472) - continued								
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	----	----	----	----
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6125472)								
EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	0.05 µg/L	22.0	0	200
EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6122186)								
EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	0.00355 µg/L	76.3	72.0	130
EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	0.00376 µg/L	83.2	71.0	127
EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	0.00379 µg/L	77.0	68.0	131
EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.00381 µg/L	81.3	69.0	134
EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	0.00371 µg/L	75.8	65.0	140
EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	0.00385 µg/L	76.7	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6122186)								
EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.0020	0.02 µg/L	78.2	73.0	129
EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	0.004 µg/L	77.0	72.0	129
EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	0.004 µg/L	77.8	72.0	129
EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	0.004 µg/L	75.5	72.0	130
EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	0.004 µg/L	78.6	71.0	133
EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	0.004 µg/L	83.6	69.0	130
EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	0.004 µg/L	77.3	71.0	129
EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	75.5	69.0	133
EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	0.004 µg/L	85.9	72.0	134
EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	93.1	65.0	144
EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	0.01 µg/L	82.4	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6122186)								
EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	0.004 µg/L	76.5	67.0	137
EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	0.01 µg/L	88.7	68.0	141
EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	0.01 µg/L	75.6	70.0	130

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: 6122186) - continued								
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	0.01 µg/L	79.1	70.0	130
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	0.01 µg/L	79.9	70.0	130
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	0.004 µg/L	81.0	65.0	136
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	0.004 µg/L	90.3	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6122186)								
EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	0.00374 µg/L	71.6	63.0	143
EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	0.0038 µg/L	77.5	64.0	140
EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	0.00384 µg/L	70.4	67.0	138
EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	0.00386 µg/L	88.7	70.0	130
EP231P: PFAS Sums (QCLot: 6122186)								
EP231X-SUT: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	µg/L	<0.0002	----	----	----	----
EP231X-SUT: Sum of PFAS (WA DER List)	----	0.0002	µg/L	<0.0002	----	----	----	----
EP231X-SUT: Sum of PFAS	----	0.0002	µg/L	<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: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6119517)							
EM2417599-009	SW01	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	80.6	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6119518)							
EM2417599-009	SW01	ED045G: Chloride	16887-00-6	400 mg/L	112	70.0	142
EG020F: Dissolved Metals by ICP-MS (QCLot: 6125838)							
EM2417575-007	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	91.6	76.6	124
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	94.8	74.6	118
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.1	71.0	135
		EG020A-F: Copper	7440-50-8	0.2 mg/L	90.5	76.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	92.6	75.0	133
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	91.6	73.0	131

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020F: Dissolved Metals by ICP-MS (QCLot: 6125838) - continued							
EM2417575-007	Anonymous	EG020A-F: Zinc	7440-66-6	0.2 mg/L	94.8	75.0	131
EG020T: Total Metals by ICP-MS (QCLot: 6125973)							
EM2417563-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	103	82.0	123
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	107	81.8	123
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	78.9	119
		EG020A-T: Copper	7440-50-8	1 mg/L	102	80.4	118
		EG020A-T: Lead	7439-92-1	1 mg/L	105	80.5	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	102	80.0	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	102	74.0	120
EG035F: Dissolved Mercury by FIMS (QCLot: 6125839)							
EM2417575-008	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	90.9	70.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6126134)							
EM2417563-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	98.5	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6120652)							
EM2417599-009	SW01	EK055G: Ammonia as N	7664-41-7	1 mg/L	96.5	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6119519)							
EM2417599-009	SW01	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	88.6	80.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6120653)							
EM2417599-009	SW01	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	102	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2417599**	Page	: 1 of 10
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Terrence Wilson	Telephone	: +6138549 9645
Project	: 12647853	Date Samples Received	: 11-Oct-2024
Site	:	Issue Date	: 22-Oct-2024
Sampler	: JOSHUA ANDERSON, LOUISE WRIGHT	No. of samples received	: 16
Order number	: ----	No. of samples analysed	: 16

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

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

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

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EK057G: Nitrite as N by Discrete Analyser						
Clear Plastic Bottle - Natural SW01, SW02, SW03	----	----	----	15-Oct-2024	10-Oct-2024	**5**
Clear Plastic Bottle - Natural MW05	----	----	----	15-Oct-2024	11-Oct-2024	**4**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) SW01, SW02, SW03	**08-Oct-2024**	**----**	----	----	**16-Oct-2024**	22-Oct-2024	✓
Clear Plastic Bottle - Natural (ED037-P) MW05	**09-Oct-2024**	**----**	----	----	**16-Oct-2024**	23-Oct-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) SW01, SW02, SW03	**08-Oct-2024**	**----**	----	----	**15-Oct-2024**	05-Nov-2024	✓
Clear Plastic Bottle - Natural (ED041G) MW05	**09-Oct-2024**	**----**	----	----	**15-Oct-2024**	06-Nov-2024	✓

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
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) SW01, SW02, SW03	**08-Oct-2024**	**----**	----	**----**	**15-Oct-2024**	05-Nov-2024	✓
Clear Plastic Bottle - Natural (ED045G) MW05	**09-Oct-2024**	**----**	----	**----**	**15-Oct-2024**	06-Nov-2024	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW01, SW02, SW03	**08-Oct-2024**	**----**	----	**----**	**17-Oct-2024**	05-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) MW05	**09-Oct-2024**	**----**	----	**----**	**17-Oct-2024**	06-Nov-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SW01, SW02, SW03	**08-Oct-2024**	**----**	----	**----**	**17-Oct-2024**	06-Apr-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) MW05	**09-Oct-2024**	**----**	----	**----**	**17-Oct-2024**	07-Apr-2025	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) SW01, SW02, SW03	**08-Oct-2024**	**17-Oct-2024**	06-Apr-2025	✓	**17-Oct-2024**	06-Apr-2025	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) MW05	**09-Oct-2024**	**17-Oct-2024**	07-Apr-2025	✓	**17-Oct-2024**	07-Apr-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SW01, SW02, SW03	**08-Oct-2024**	**----**	----	**----**	**17-Oct-2024**	05-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) MW05	**09-Oct-2024**	**----**	----	**----**	**17-Oct-2024**	06-Nov-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) SW01, SW02, SW03	**08-Oct-2024**	**----**	----	**----**	**17-Oct-2024**	05-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) MW05	**09-Oct-2024**	**----**	----	**----**	**17-Oct-2024**	06-Nov-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) SW01, SW02, SW03	**08-Oct-2024**	**----**	----	**----**	**16-Oct-2024**	05-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) MW05	**09-Oct-2024**	**----**	----	**----**	**16-Oct-2024**	06-Nov-2024	✓

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
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) SW01, SW02, SW03	**08-Oct-2024**	**----**	----	----	**15-Oct-2024**	10-Oct-2024	×
Clear Plastic Bottle - Natural (EK057G) MW05	**09-Oct-2024**	**----**	----	----	**15-Oct-2024**	11-Oct-2024	×
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) SW01, SW02, SW03	**08-Oct-2024**	**----**	----	----	**16-Oct-2024**	05-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) MW05	**09-Oct-2024**	**----**	----	----	**16-Oct-2024**	06-Nov-2024	✓
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X-LL (TOP)) MW01	**08-Oct-2024**	**17-Oct-2024**	06-Apr-2025	✓	**17-Oct-2024**	06-Apr-2025	✓
HDPE (no PTFE) (EP231X-LL (TOP)) MW05	**09-Oct-2024**	**17-Oct-2024**	07-Apr-2025	✓	**17-Oct-2024**	07-Apr-2025	✓
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X-LL (TOP)) MW01	**08-Oct-2024**	**17-Oct-2024**	06-Apr-2025	✓	**17-Oct-2024**	06-Apr-2025	✓
HDPE (no PTFE) (EP231X-LL (TOP)) MW05	**09-Oct-2024**	**17-Oct-2024**	07-Apr-2025	✓	**17-Oct-2024**	07-Apr-2025	✓
EP231_TOP_C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X-LL (TOP)) MW01	**08-Oct-2024**	**17-Oct-2024**	06-Apr-2025	✓	**17-Oct-2024**	06-Apr-2025	✓
HDPE (no PTFE) (EP231X-LL (TOP)) MW05	**09-Oct-2024**	**17-Oct-2024**	07-Apr-2025	✓	**17-Oct-2024**	07-Apr-2025	✓
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X-LL (TOP)) MW01	**08-Oct-2024**	**17-Oct-2024**	06-Apr-2025	✓	**17-Oct-2024**	06-Apr-2025	✓
HDPE (no PTFE) (EP231X-LL (TOP)) MW05	**09-Oct-2024**	**17-Oct-2024**	07-Apr-2025	✓	**17-Oct-2024**	07-Apr-2025	✓
EP231_TOP_P: PFAS Sums							
HDPE (no PTFE) (EP231X-LL (TOP)) MW01	**08-Oct-2024**	**17-Oct-2024**	06-Apr-2025	✓	**17-Oct-2024**	06-Apr-2025	✓
HDPE (no PTFE) (EP231X-LL (TOP)) MW05	**09-Oct-2024**	**17-Oct-2024**	07-Apr-2025	✓	**17-Oct-2024**	07-Apr-2025	✓

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-SUT) MW01, MW02, MW03, SW_HYDRANT, SW01, SW02, SW03, RB01, FB01	**08-Oct-2024**	**16-Oct-2024**	06-Apr-2025	✓	**16-Oct-2024**	06-Apr-2025	✓
HDPE (no PTFE) (EP231X-SUT) MW04, MW05, MW06, MW07, FD01, RB02, FB02	**09-Oct-2024**	**16-Oct-2024**	07-Apr-2025	✓	**16-Oct-2024**	07-Apr-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, MW03, SW_HYDRANT, SW01, SW02, SW03, RB01, FB01	**08-Oct-2024**	**16-Oct-2024**	06-Apr-2025	✓	**16-Oct-2024**	06-Apr-2025	✓
HDPE (no PTFE) (EP231X-SUT) MW04, MW05, MW06, MW07, FD01, RB02, FB02	**09-Oct-2024**	**16-Oct-2024**	07-Apr-2025	✓	**16-Oct-2024**	07-Apr-2025	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, MW03, SW_HYDRANT, SW01, SW02, SW03	**08-Oct-2024**	**16-Oct-2024**	06-Apr-2025	✓	**16-Oct-2024**	06-Apr-2025	✓
HDPE (no PTFE) (EP231X-SUT) MW04, MW05, MW06, MW07, FD01	**09-Oct-2024**	**16-Oct-2024**	07-Apr-2025	✓	**16-Oct-2024**	07-Apr-2025	✓

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
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, MW03, SW_HYDRANT, SW01, SW02, SW03, RB01, FB01	**08-Oct-2024**	**16-Oct-2024**	06-Apr-2025	✓	**16-Oct-2024**	06-Apr-2025	✓
HDPE (no PTFE) (EP231X-SUT) MW04, MW05, MW06, MW07, FD01, RB02, FB02	**09-Oct-2024**	**16-Oct-2024**	07-Apr-2025	✓	**16-Oct-2024**	07-Apr-2025	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, MW03, SW_HYDRANT, SW01, SW02, SW03, RB01, FB01	**08-Oct-2024**	**16-Oct-2024**	06-Apr-2025	✓	**16-Oct-2024**	06-Apr-2025	✓
HDPE (no PTFE) (EP231X-SUT) MW04, MW05, MW06, MW07, FD01, RB02, FB02	**09-Oct-2024**	**16-Oct-2024**	07-Apr-2025	✓	**16-Oct-2024**	07-Apr-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)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	4	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	0	16	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
PFAS by LCMSMS after SPE and oxidation (TOP)	EP231X-LL (TOP)	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PFAS by LCMSMS after SPE and oxidation (TOP)	EP231X-LL (TOP)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
PFAS by LCMSMS after SPE and oxidation (TOP)	EP231X-LL (TOP)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	0	16	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**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
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
PFAS by LCMSMS after SPE and oxidation (TOP)	EP231X-LL (TOP)	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction followed by oxidation per Houtz, Erika F.; Sedlak, David L. (2012): Oxidative Conversion as a Means of Detecting Precursors to Perfluoroalkyl Acids in Urban Runoff. In Environmental Science & Technology 46 (17), pp. 9342¿9349. Sample extracts are analysed 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. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is concentrated, combined with an equal volume of 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
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Total Oxidisable Precuror Digest for PFAS - Low Level	ORG70-SPE	WATER	In-House SPE followed by oxidation per Houtz, Erika F.; Sedlak, David L. (2012): Oxidative Conversion as a Means of Detecting Precursors to Perfluoroalkyl Acids in Urban Runoff. In Environmental Science & Technology 46 (17), pp. 9342¿9349: A 50 mL sample is concentrated by SPE, taken to near dryness and made up to 5 mL in a reagent solution. The sample is digested with persulfate under alkaline conditions, neutralised and prepared for analysis per EP231.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Samples received without CoC

CLIENT / SENDER:	GHD
PROJECT:	12647853
CONTACT NAME:	
CONTACT NUMBER:	
CARRIER:	
CONNOTE REFERENCE:	
SAMPLER:	JA/LW
NUMBER OF SAMPLES/MATRIX:	
Client services notified by:	

COC SEQUENCE NUMBER (Circle)

COC:	1	2	3	4	5	6	7
OF:	1	2	3	4	5	6	7

SAMPLES RECEIVED BY:

DATE/TIME: 22-6C

ANALYSIS RECEIVED BY:

DATE/TIME: 11/10, 12-10

Comments

FREIGHT

Environmental Division
Melbourne
Work Order Reference
EM2417599

Telephone : +61-3-8549 9600

LAB ID	SAMPLE ID	DATE	MATRIX	NUMBER OF CONTAINERS	Additional Information
	MW02	8/10			
	MW05	9/10/10	SE		METALS
			TOTAL		

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE U3/1 Burma Road Pooraka SA 5095 Ph: 08 8162 5130 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: GHD	TURNAROUND REQUIREMENTS : ☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Adelaide	(Standard TAT may be longer for some tests e.g.. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
	ALS QUOTE:	Free ice / frozen ice bricks present upon receipt? Yes No N/A
PROJECT: 12647853	ORDER NO.:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7
PROJECT MANAGER: Terrence Wilson	CONTACT PH: 0467 034 756	OF: 1 2 3 4 5 6 7 — Random Sample Temperature on Receipt: °C
SAMPLER: Joshua Anderson (JA), Louise Wright (LW)	SAMPLER MOBILE: +61 8 8111 6710	Other comment:
COC emailed to ALS? YES	EDD FORMAT (or default): Esdat	

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Louise Wright	*Kieren Burns*		
DATE/TIME: 10/10/2024 4pm	DATE/TIME: 10/10/2024	DATE/TIME:	DATE/TIME:

Email Reports to: GHDLabReports@ghd.com; Terrence.Wilson@ghd.com; Ben.Petticrew@ghd.com; Joshua.Anderson2@ghd.com

Email Invoice to: accountspayableAU@ghd.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	PFAS – Extended Suite (Super Ultra Trace)	PFAS TOPA (Low Level)	Nitrate, Nitrite, Ammonia	8 Metals (Total)	8 Metals (Dissolved)	Major Cations + Anions	PFAS Short Suite (Super Ultra Trace PFOS)	HOLD	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	MW01	8/10/2024	W	P	2	X	X							
2	MW02	8/10/2024	W	P	2	X								
3	MW03	8/10/2024	W	P	2	X								
4	MW04	9/10/2024	W	P	2	X								
5	MW05	9/10/2024	W	P/N/S	2	X	X	X	X	X	X			
6	MW06	9/10/2024	W	P	2	X								
7	MW07	9/10/2024	W	P	3	X								
8	SW_HYDRANT	8 9/10/2024	W	P	2	X								
9	SW01	8 9/10/2024	W	P/N/S	6	X		X	X	X	X			
10	SW02	8 9/10/2024	W	P/N/S	6	X		X	X	X	X			
11	SW03	8 9/10/2024	W	P/N/S	6	X		X	X	X	X			
				TOTAL										

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE U3/1 Burma Road Pooraka SA 5095 Ph: 08 8162 5130 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: GHD	TURNAROUND REQUIREMENTS : ☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Adelaide	(Standard TAT may be longer for some tests e.g.. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
	ALS QUOTE:	COC SEQUENCE NUMBER (Circle) — Free ice / frozen ice bricks present upon receipt? Yes No N/A
PROJECT: 12647853	ORDER NO.:	COC: 1 2 3 4 5 6 7 — Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Terrence Wilson	CONTACT PH: 0467 034 756	OF: 1 2 3 4 5 6 7 — Other comment:
SAMPLER: Joshua Anderson (JA), Louise Wright (LW)	SAMPLER MOBILE: +61 8 8111 6710	
COC emailed to ALS? YES	EDD FORMAT (or default): Esdat	

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Louise Wright	*Kieren Burns*		
DATE/TIME: 10/10/2024, 4pm	DATE/TIME: 10/10/2024	DATE/TIME:	DATE/TIME:

Email Reports to: GHDLabReports@ghd.com; Terrence.Wilson@ghd.com; Ben.Petticrew@ghd.com; Joshua.Anderson2@ghd.com

Email Invoice to: accountspayableAU@ghd.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	PFAS – Extended Suite (Super Ultra Trace)	PFAS TOPA (Low Level)	Nitrate, Nitrite, Ammonia	8 Metals (Total)	8 Metals (Dissolved)	Major Cations + Anions	PFAS Short Suite (Super Ultra Trace PFOS)	HOLD	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
12	FD01	9/10/2024	W	P	2	X								
7	FS01	9/10/2024	W	P	2	X								Forward to Eurofins
13	RB01	8/10/2024	W	P	2							X		
14	RB02	9/10/2024	W	P	2							X		
15	FB01	8/10/2024	W	P	2							X		
16	FB02	9/10/2024	W	P	2							X		
				TOTAL										

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Richard Baez

From: Joshua Anderson <Joshua.Anderson2@ghd.com>
Sent: Monday, 14 October 2024 11:21 AM
To: Kieren Burns
Cc: Peter Ravlic; Terrence Wilson
Subject: [EXTERNAL] - 12647853/4 COC's
Attachments: 12647854_MFS Port Augusta Supp DSI_GW_COC.xlsx; 12647853_MFS Peterborough Supp DSI_GW_COC.xlsx

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Kieren,

Please find attached the COC's for samples delivered Thursday last week,

Any questions please reach out,

Cheers,

Joshua Anderson
Undergraduate Environmental Scientist
Environment and Planning Team

GHD
Proudly employee-owned | ghd.com
Level 4, 211 Victoria sq, Adelaide, 5000, Australia
D +61 8 8111 6710 **E** Joshua.Anderson2@ghd.com

GHD acknowledges the Traditional Owners of Country throughout Australia.
We pay respect to their continuing culture and Elders past, present and emerging.
Click here **to learn about our Reconciliation Action Plan.**

I acknowledge the Traditional Custodians of the lands on which I work, the Kaurna people of the Adelaide Plains (when working in the office), and pay my respects to their Elders past, present and emerging. Extending this same respect to all Aboriginal and Torres Strait Islander People

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CERTIFICATE OF ANALYSIS

Work Order	: **EM2417181**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Terrence Wilson	Contact	: Peter Ravlic
Address	: Level 4, 211 VICTORIA SQUARE ADELAIDE SA, AUSTRALIA 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: 12647853	Date Samples Received	: 07-Oct-2024 11:20
Order number	: ----	Date Analysis Commenced	: 08-Oct-2024
C-O-C number	: ----	Issue Date	: 10-Oct-2024 16:17
Sampler	: LOUISE WRIGHT, SAM MARSH		
Site	:		
Quote number	: EN/000		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
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	QA05	QA12	----	----	----
				Sampling date / time	24-Sep-2024 00:00	24-Sep-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM2417181-001	EM2417181-002	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**11.5**	**20.5**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0008**	**0.0022**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	**0.0009**	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0053**	**0.257**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	**0.0002**	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	**0.0003**	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	**0.0004**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QA05	QA12	----	----	----
				Sampling date / time	24-Sep-2024 00:00	24-Sep-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM2417181-001	EM2417181-002	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0061**	**0.261**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0061**	**0.259**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0061**	**0.260**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**113**	**98.8**	----	----	----
13C8-PFOA	----	0.0002	%		**97.0**	**97.5**	----	----	----

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	: **EM2417181**	Page	: 1 of 7
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Terrence Wilson	Contact	: Peter Ravlic
Address	: Level 4, 211 VICTORIA SQUARE ADELAIDE SA, AUSTRALIA 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9645
Project	: 12647853	Date Samples Received	: 07-Oct-2024
Order number	: ----	Date Analysis Commenced	: 08-Oct-2024
C-O-C number	: ----	Issue Date	: 10-Oct-2024
Sampler	: LOUISE WRIGHT, SAM MARSH		
Site	:		
Quote number	: EN/000		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

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

Signatories

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Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

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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.

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Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6104048)									
EM2417025-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	16.3	16.9	3.6	0% - 50%
EM2417157-006	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	11.2	10.9	3.1	0% - 50%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6108258)									
EM2416951-004	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	0.0006	0.0006	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2417157-011	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002 (1.00) *	mg/kg	<1.00	<1.00	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 (1.00) *	mg/kg	<1.00	<1.00	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 (1.00) *	mg/kg	<1.00	<1.00	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6108258)									
EM2416951-004	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

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 (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6108258) - continued									
EM2416951-004	Anonymous	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
EM2417157-011	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002 (1.00) *	mg/kg	<1.00	<1.00	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002 (1.00) *	mg/kg	<1.00	<1.00	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002 (1.00) *	mg/kg	<1.00	<1.00	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002 (1.00) *	mg/kg	<1.00	<1.00	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	0.0003	0.0003	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 (1.00)*	mg/kg	<1.00	<1.00	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6108258)									
EM2416951-004	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
EM2417157-011	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	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: 6108258) - continued									
EM2417157-011	Anonymous	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6108258)									
EM2416951-004	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
EM2417157-011	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005 (1.00) *	mg/kg	<1.00	<1.00	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005 (1.00) *	mg/kg	<1.00	<1.00	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005 (1.00) *	mg/kg	<1.00	<1.00	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005 (1.00) *	mg/kg	<1.00	<1.00	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6108258)									
EM2416951-004	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0006	0.0006	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0006	0.0006	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0006	0.0006	0.0	No Limit
EM2417157-011	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002 (1.00) *	mg/kg	<1.00	<1.00	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002 (1.00) *	mg/kg	<1.00	<1.00	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: 6108258)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	86.7	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	105	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	86.6	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	108	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	91.3	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00121 mg/kg	94.2	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6108258)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	88.6	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.6	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.8	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.8	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.5	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.9	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.0	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.8	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	98.5	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6108258)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.4	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	87.4	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	94.0	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	88.3	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.5	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.7	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6108258)								

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: 6108258) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	85.2	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	89.4	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	86.3	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	84.7	70.0	130
EP231P: PFAS Sums (QCLot: 6108258)								
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: 6108258)							
EM2417025-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	95.8	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00118 mg/kg	86.1	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	89.8	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	106	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	85.0	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00121 mg/kg	93.8	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6108258)							
EM2417025-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	90.9	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	89.0	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	80.1	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	87.0	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	94.0	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	98.5	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	92.4	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	95.6	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	97.1	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	87.2	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	99.2	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6108258)							

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: 6108258) - continued							
EM2417025-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	89.8	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	97.0	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	86.8	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	90.7	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	90.1	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	95.2	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	89.3	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6108258)							
EM2417025-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	91.5	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	92.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	96.3	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	73.6	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2417181**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Terrence Wilson	Telephone	: +6138549 9645
Project	: 12647853	Date Samples Received	: 07-Oct-2024
Site	:	Issue Date	: 10-Oct-2024
Sampler	: LOUISE WRIGHT, SAM MARSH	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **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)							
QA05, QA12	**24-Sep-2024**	**----**	----	**----**	**08-Oct-2024**	08-Oct-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
QA05, QA12	**24-Sep-2024**	**09-Oct-2024**	23-Mar-2025	✓	**09-Oct-2024**	18-Nov-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
QA05, QA12	**24-Sep-2024**	**09-Oct-2024**	23-Mar-2025	✓	**09-Oct-2024**	18-Nov-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
QA05, QA12	**24-Sep-2024**	**09-Oct-2024**	23-Mar-2025	✓	**09-Oct-2024**	18-Nov-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
QA05, QA12	**24-Sep-2024**	**09-Oct-2024**	23-Mar-2025	✓	**09-Oct-2024**	18-Nov-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
QA05, QA12	**24-Sep-2024**	**09-Oct-2024**	23-Mar-2025	✓	**09-Oct-2024**	18-Nov-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**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.

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ **Sydney Laboratory** Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066 02 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory** Unit 1 21 Smallwood Place Murarrie QLD 4172 07 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** Unit 2 91 Leach Highway Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

COPY

Company	GHD	Project №	12647853	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Peterborough Further DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)				
Handed over by	Louise Wright				
Email for Invoice	accountspayableAU@ghd.com ben.petticrew				
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com				

Environmental Division Melbourne
Work Order Reference
EM2417181

Telephone : +61-3-8549 9600

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Analyses: PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	Containers: 500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	MW04_12.0	27/9/24	S			X							1		
	MW04_13.0	27/9/24	S			X							1		
	MW04_14.0	27/9/24	S	X									1		
	MW04_15.0	27/9/24	S			X							1		
	BH10_0-0.2	27/9/24	S	X									1		CONCRETE
	BH10_0.4-0.5	27/9/24	S			X							1		
	BH10_0.5	27/9/24	S	X									1		
	BH10_1.0	27/9/24	S			X							1		
	BH10_1.5	27/9/24	S	X									1		
	BH10_2.0	27/9/24	S			X							1		
	QC05	24/9/24	S	X											
	QA05	24/9/24	S	X											
	QC06	25/9/24	S			X									
	QA06	25/9/24	S			X									
	Total Counts			6		8							10		

Containers — Change container type & size if necessary

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

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

Relinquished by Nicole R (QF) 7/10/24 8am

Please forward to ALS

Received: CB Carrier:
C/note: 7/10 @ 11:30
Temp: °C Seal: Y / N
Ice / Icebricks / NA

Method of Shipment									
☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature		Date	30/09/2024	Time 8.30am

Laboratory Use Only							
Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date	Time	Temperature		
Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date	Time	Report №		

Eurofins Environment Testing Australia Pty Ltd

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request

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CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

COPY

14

MA

2/2

Company	GHD	Project №	12647853	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Peterborough Further DSI	EDD Format ESdat, EQuIS etc	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
Email for Invoice	accountspayableAU@ghd.com ben.petticrew
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

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

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

Analyses
Where metals are requested please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

Containers
Change container type & size if necessary.

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	QC07	25/9/24	S			X			1						
	QA07	25/9/24	S			X			1						
	QC08	25/9/24	S			X			1						
	QA08	25/9/24	S			X			1						
	QC09	26/9/24	S			X			1						CONCRETE
	QA09	26/9/24	S			X			1						
	QC10	26/9/24	S			X			1						
	QA10	26/9/24	S			X			1						
	QC11	27/9/24	S			X			1						
	QA11	27/9/24	S			X			1						
	QC12	24/9/24	S	X					1						
2	QA12	24/9/24	S	X					1						Please forward to ALS
	FB03	25/9/24	W		X							1			
	RB03	25/9/24	W		X							1			
	Total Counts			2	2	10			12			2			

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature		Date	30/09/2024	Time	8.30am

Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Temperature	
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report №	

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

Q53009 R10 Modified by: Dr R Symons Approved by: G Jackson Approved on: 8 August 2019

GHD Pty Ltd
GPO Box 2052
Adelaide
SA 5001

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: **Terrance Wilson**

Report **1148885-W**
Project name
Project ID 12647853
Received Date Oct 14, 2024

Client Sample ID			**FS01**
Sample Matrix			**Water**
Eurofins Sample No.			**M24-Oc0033935**
Date Sampled			**Oct 09, 2024**
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace			
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	< 0.005
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA)[N11]	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	0.003
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	[N09]0.001
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	0.001
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA)[N15]	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA)[N11]	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	125
13C5-PFPeA (surr.)	1	%	53
13C5-PFHxA (surr.)	1	%	94
13C4-PFHpA (surr.)	1	%	109
13C8-PFOA (surr.)	1	%	108
13C5-PFNA (surr.)	1	%	122
13C6-PFDA (surr.)	1	%	124
13C2-PFUnDA (surr.)	1	%	101
13C2-PFDoDA (surr.)	1	%	89
13C2-PFTeDA (surr.)	1	%	54
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace			
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	[N09]0.001
Perfluorononanesulfonic acid (PFNS)[N15]	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.001	ug/L	[N09]0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	[N09]0.014
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.0001	ug/L	0.020
Perfluorodecanesulfonic acid (PFDS)[N15]	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	103
18O2-PFHxS (surr.)	1	%	102
13C8-PFOS (surr.)	1	%	104

Client Sample ID			FS01
Sample Matrix			Water
Eurofins Sample No.			M24-Oc0033935
Date Sampled			Oct 09, 2024
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonamido substances- Ultra Trace			
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.005	ug/L	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.005	ug/L	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	< 0.005
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	< 0.005
13C8-FOSA (surr.)	1	%	148
D3-N-MeFOSA (surr.)	1	%	196
D5-N-EtFOSA (surr.)	1	%	189
D7-N-MeFOSE (surr.)	1	%	52
D9-N-EtFOSE (surr.)	1	%	52
D5-N-EtFOSAA (surr.)	1	%	94
D3-N-MeFOSAA (surr.)	1	%	96
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	159
13C2-6:2 FTSA (surr.)	1	%	143
13C2-8:2 FTSA (surr.)	1	%	148
13C2-10:2 FTSA (surr.)	1	%	180
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	0.034
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.021
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.035
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.04
Sum of PFASs (n=30)*	0.005	ug/L	0.041

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
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace	Melbourne	Oct 15, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace	Melbourne	Oct 15, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			
Perfluoroalkyl sulfonamido substances- Ultra Trace	Melbourne	Oct 15, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace	Melbourne	Oct 15, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			

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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Company Name: GHD Pty Ltd SA
Address: GPO Box 2052
Adelaide
SA 5001

Project Name:
Project ID: 12647853

Order No.:
Report #: 1148885
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Oct 14, 2024 4:24 PM
Due: Oct 21, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	FS01	Oct 09, 2024		Water	M24-Oc0033935	X
Test Counts						1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. 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) - Ultra Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.0001			0.0001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Ultra Trace							
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace							
Perfluorobutanoic acid (PFBA)	%	91			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	91			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	102			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	88			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	92			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	94			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	83			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	100			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	112			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	56			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	102			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace							
Perfluorobutanesulfonic acid (PFBS)	%	87			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	84			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	116			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	81			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	88			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	96			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	91			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	68			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Ultra Trace							
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	92			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	100			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	89			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	102			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	93			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	96			50-150	Pass	
Perfluorooctane sulfonamide (FOSA)	%	98			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	98			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	86			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	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) - Ultra Trace				Result 1					
Perfluorobutanoic acid (PFBA)	W24-Oc0019755	NCP	%	81			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S24-Oc0029565	NCP	%	89			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S24-Oc0029565	NCP	%	94			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S24-Oc0029565	NCP	%	82			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S24-Oc0029565	NCP	%	100			50-150	Pass	
Perfluorononanoic acid (PFNA)	S24-Oc0029565	NCP	%	91			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S24-Oc0029565	NCP	%	85			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	R24-Oc0015545	NCP	%	58			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S24-Oc0029565	NCP	%	108			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S24-Oc0029565	NCP	%	56			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S24-Oc0029565	NCP	%	91			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S24-Oc0029565	NCP	%	95			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S24-Oc0029565	NCP	%	85			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S24-Oc0029565	NCP	%	92			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S24-Oc0029565	NCP	%	81			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S24-Oc0029565	NCP	%	92			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanesulfonic acid (PFHpS)	S24-Oc0029565	NCP	%	105			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S24-Oc0029565	NCP	%	93			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S24-Oc0029565	NCP	%	56			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Ultra Trace				Result 1					
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S24-Oc0029565	NCP	%	110			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S24-Oc0029565	NCP	%	118			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S24-Oc0029565	NCP	%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S24-Oc0029565	NCP	%	113			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S24-Oc0029565	NCP	%	93			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S24-Oc0029565	NCP	%	114			50-150	Pass	
Perfluorooctane sulfonamide (FOSA)	S24-Oc0029565	NCP	%	109			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S24-Oc0029565	NCP	%	98			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	W24-Oc0019755	NCP	%	69			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	W24-Oc0019755	NCP	%	106			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S24-Oc0029565	NCP	%	110			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S24-Oc0025611	NCP	ug/L	0.025	0.025	2.0	30%	Pass	
Perfluorodecanoic acid (PFDA)	S24-Oc0025611	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	S24-Oc0025611	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S24-Oc0025611	NCP	ug/L	0.059	0.059	1.0	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S24-Oc0025611	NCP	ug/L	0.064	0.062	4.0	30%	Pass	
Perfluorononanoic acid (PFNA)	S24-Oc0025611	NCP	ug/L	0.004	0.004	1.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	S24-Oc0025611	NCP	ug/L	0.18	0.18	2.0	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S24-Oc0025611	NCP	ug/L	0.077	0.074	4.0	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S24-Oc0025611	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S24-Oc0025611	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	S24-Oc0025611	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S24-Oc0025611	NCP	ug/L	0.005	0.005	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	S24-Oc0025611	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S24-Oc0025611	NCP	ug/L	0.002	0.002	7.0	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S24-Oc0025611	NCP	ug/L	0.004	0.004	1.0	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S24-Oc0025611	NCP	ug/L	0.037	0.039	4.0	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S24-Oc0025611	NCP	ug/L	0.016	0.016	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S24-Oc0025611	NCP	ug/L	0.31	0.30	4.0	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S24-Oc0025611	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances- Ultra Trace				Result 1	Result 2	RPD			
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S24-Oc0025611	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S24-Oc0025611	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S24-Oc0025611	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S24-Oc0025611	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S24-Oc0025611	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S24-Oc0025611	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluorooctane sulfonamide (FOSA)	S24-Oc0025611	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S24-Oc0025611	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S24-Oc0025611	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S24-Oc0025611	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S24-Oc0025611	NCP	ug/L	< 0.001	< 0.001	<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
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.

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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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Eurofins Environment Testing NZ Ltd
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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: GHD Pty Ltd SA
Address: GPO Box 2052
Adelaide
SA 5001

Project Name:
Project ID: 12647853

Order No.:
Report #: 1148885
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Oct 14, 2024 4:24 PM
Due: Oct 21, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	FS01	Oct 09, 2024		Water	M24-Oc0033935	X
Test Counts						1

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE U3/1 Burma Road Pooraka SA 5095 Ph: 08 8162 5130 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E. samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
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☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

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CLIENT: GHD	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☒ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Adelaide		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
	ALS QUOTE:	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
PROJECT: 12647853	**ORDER NO.:**	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Terrence Wilson	**CONTACT PH:** 0467 034 756	OF: 1 2 3 4 5 6 7	Other comment.
SAMPLER: Joshua Anderson (JA), Louise Wright (LW)	**SAMPLER MOBILE:** +61 8 8111 6710	**RELINQUISHED BY:** *Louise Wright*	**RECEIVED BY:** *Kieren Burns*
COC emailed to ALS? YES	**EDD FORMAT (or default):** Esdat	DATE/TIME: 10/10/2024, 4pm	DATE/TIME: 10/10/2024
Email Reports to: GHDLabReports@ghd.com; Terrence.Wilson@ghd.com; Ben.Petticrew@ghd.com; Joshua.Anderson2@ghd.com		**RELINQUISHED BY:** CAITLIN (ALS)	**RECEIVED BY:** Luke H
Email Invoice to: accountspayableAU@ghd.com		DATE/TIME: 14/10/24 14:55	DATE/TIME: 14/10/24

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	PFAS – Extended Suite (Super Ultra Trace)	PFAS TOPA (Low Level)	Nitrate, Nitrite, Ammonia	8 Metals (Total)	8 Metals (Dissolved)	Major Cations + Anions	PFAS Short Suite (Super Ultra Trace PFOS)	HOLD	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	FD01	9/10/2024	W	P	2	X								
→	FS01	9/10/2024	W	P	2	X								Forward to Eurofins
	RB01	8/10/2024	W	P	2							X		
	RB02	9/10/2024	W	P	2							X		# 114885 RA
	FB01	8/10/2024	W	P	2							X		
	FB02	9/10/2024	W	P	2							X		
				TOTAL										

DATE: TIME: 16:25 COURIER: yes TEMPERATURE: 5.7 °C ATTEMPT TO CHILL: YES NO

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

GHD Pty Ltd
GPO Box 2052
Adelaide
SA 5001

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: **Terrance Wilson**

Report **1145986-W**
Project name MFS Peterborough Further DSI
Project ID 12647853
Received Date Oct 04, 2024

Client Sample ID			**FB03**	**RB03**	**FB04**	**RB04**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M24-Oc0011952**	**M24-Oc0011953**	**M24-Oc0011954**	**M24-Oc0011955**
Date Sampled			**Sep 25, 2024**	**Sep 25, 2024**	**Sep 26, 2024**	**Sep 26, 2024**
Test/Reference	LOR	Unit				
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	%	69	27	71	73
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
18O2-PFHxS (surr.)	1	%	135	52	136	143
13C8-PFOS (surr.)	1	%	129	51	127	138
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C8-PFOA (surr.)	1	%	130	52	129	134
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			**FB05**	**RB05**
Sample Matrix			**Water**	**Water**
Eurofins Sample No.			**M24-Oc0011956**	**M24-Oc0011957**
Date Sampled			**Sep 27, 2024**	**Sep 27, 2024**
Test/Reference	LOR	Unit		
Per- and Polyfluoroalkyl Substances (PFASs) - Short				
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05
13C2-6:2 FTSA (surr.)	1	%	49	66
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	< 0.01	< 0.01
18O2-PFHxS (surr.)	1	%	103	140
13C8-PFOS (surr.)	1	%	94	132
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	< 0.01	< 0.01
13C8-PFOA (surr.)	1	%	97	123
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

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) - Short	Melbourne	Oct 04, 2024	28 Days

- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)

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ABN: 50 005 085 521

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46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

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Company Name: GHD Pty Ltd SA
Address: GPO Box 2052
Adelaide
SA 5001

Project Name: MFS Peterborough Further DSI
Project ID: 12647853

Order No.:
Report #: 1145986
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Oct 4, 2024 12:37 PM
Due: Oct 11, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail	HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254	X	X	X	X
External Laboratory				

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	BH07_0-0.2	Sep 24, 2024		Soil	M24-Oc0011930		X	X	
2	BH07_0.5	Sep 24, 2024		Soil	M24-Oc0011931		X	X	
3	BH07_1.5	Sep 24, 2024		Soil	M24-Oc0011932		X	X	
4	BH08_0-0.2	Sep 24, 2024		Soil	M24-Oc0011933		X	X	
5	BH08_0.5	Sep 24, 2024		Soil	M24-Oc0011934		X	X	
6	BH08_1.5	Sep 24, 2024		Soil	M24-Oc0011935		X	X	
7	BH09_0-0.2	Sep 24, 2024		Soil	M24-Oc0011936		X	X	
8	BH09_0.5	Sep 24, 2024		Soil	M24-Oc0011937		X	X	
9	BH09_1.5	Sep 24, 2024		Soil	M24-Oc0011938		X	X	
10	MW05_0-0.2	Sep 25, 2024		Soil	M24-Oc0011939		X	X	
11	MW05_15.0	Sep 25, 2024		Soil	M24-Oc0011940		X	X	
12	MW06_0-0.2	Sep 25, 2024		Soil	M24-Oc0011941		X	X	
13	MW06_11.0	Sep 25, 2024		Soil	M24-Oc0011942		X	X	
14	MW07_0-0.2	Sep 26, 2024		Soil	M24-Oc0011943		X	X	

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Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
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35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402

Company Name: GHD Pty Ltd SA
Address: GPO Box 2052
Adelaide
SA 5001

Project Name: MFS Peterborough Further DSI
Project ID: 12647853

Order No.:
Report #: 1145986
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Oct 4, 2024 12:37 PM
Due: Oct 11, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
15	MW07_15.0	Sep 26, 2024		Soil	M24-Oc0011944		X	X	
16	MW04_0.4-0.5	Sep 27, 2024		Soil	M24-Oc0011945		X	X	
17	MW04_14.0	Sep 27, 2024		Soil	M24-Oc0011946		X	X	
18	BH10_0-0.2	Sep 27, 2024		Soil	M24-Oc0011947		X	X	
19	BH10_0.5	Sep 27, 2024		Soil	M24-Oc0011948		X	X	
20	BH10_1.5	Sep 27, 2024		Soil	M24-Oc0011949		X	X	
21	QC05	Sep 24, 2024		Soil	M24-Oc0011950		X	X	
22	QC12	Sep 24, 2024		Soil	M24-Oc0011951		X	X	
23	FB03	Sep 25, 2024		Water	M24-Oc0011952				X
24	RB03	Sep 25, 2024		Water	M24-Oc0011953				X
25	FB04	Sep 26, 2024		Water	M24-Oc0011954				X
26	RB04	Sep 26, 2024		Water	M24-Oc0011955				X
27	FB05	Sep 27, 2024		Water	M24-Oc0011956				X
28	RB05	Sep 27, 2024		Water	M24-Oc0011957				X
29	BH07_0.4-0.5	Sep 24, 2024		Soil	M24-Oc0011958	X			
30	BH07_1.0	Sep 24, 2024		Soil	M24-Oc0011959	X			
31	BH07_2.0	Sep 24, 2024		Soil	M24-Oc0011960	X			

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Eurofins Environment Testing Australia Pty Ltd
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Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

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Company Name: GHD Pty Ltd SA
Address: GPO Box 2052
Adelaide
SA 5001

Project Name: MFS Peterborough Further DSI
Project ID: 12647853

Order No.:
Report #: 1145986
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Oct 4, 2024 12:37 PM
Due: Oct 11, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
32	BH08_0.4-0.5	Sep 24, 2024		Soil	M24-Oc0011961	X			
33	BH08_1.0	Sep 24, 2024		Soil	M24-Oc0011962	X			
34	BH08_2.0	Sep 24, 2024		Soil	M24-Oc0011963	X			
35	BH09_0.4-0.5	Sep 24, 2024		Soil	M24-Oc0011964	X			
36	BH09_1.0	Sep 24, 2024		Soil	M24-Oc0011965	X			
37	BH09_2.0	Sep 24, 2024		Soil	M24-Oc0011966	X			
38	MW05_0.4-0.5	Sep 25, 2024		Soil	M24-Oc0011967	X			
39	MW05_0.5	Sep 25, 2024		Soil	M24-Oc0011968	X			
40	MW05_1.0	Sep 25, 2024		Soil	M24-Oc0011969	X			
41	MW05_1.5	Sep 25, 2024		Soil	M24-Oc0011970	X			
42	MW05_2.0	Sep 25, 2024		Soil	M24-Oc0011971	X			
43	MW05_2.5	Sep 25, 2024		Soil	M24-Oc0011972	X			
44	MW05_3.0	Sep 25, 2024		Soil	M24-Oc0011973	X			
45	MW05_3.5	Sep 25, 2024		Soil	M24-Oc0011974	X			
46	MW05_4.0	Sep 25, 2024		Soil	M24-Oc0011975	X			
47	MW05_5.0	Sep 25, 2024		Soil	M24-Oc0011976	X			
48	MW05_6.0	Sep 25, 2024		Soil	M24-Oc0011977	X			

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
49	MW05_7.0	Sep 25, 2024		Soil	M24-Oc0011978	X			
50	MW05_8.0	Sep 25, 2024		Soil	M24-Oc0011979	X			
51	MW05_9.0	Sep 25, 2024		Soil	M24-Oc0011980	X			
52	MW05_10.0	Sep 25, 2024		Soil	M24-Oc0011981	X			
53	MW05_11.0	Sep 25, 2024		Soil	M24-Oc0011982	X			
54	MW05_12.0	Sep 25, 2024		Soil	M24-Oc0011983	X			
55	MW05_13.0	Sep 25, 2024		Soil	M24-Oc0011984	X			
56	MW05_14.0	Sep 25, 2024		Soil	M24-Oc0011985	X			
57	MW06_0.4-0.5	Sep 25, 2024		Soil	M24-Oc0011986	X			
58	MW06_0.5	Sep 25, 2024		Soil	M24-Oc0011987	X			
59	MW06_1.0	Sep 25, 2024		Soil	M24-Oc0011988	X			
60	MW06_1.5	Sep 25, 2024		Soil	M24-Oc0011989	X			
61	MW06_2.0	Sep 25, 2024		Soil	M24-Oc0011990	X			
62	MW06_2.5	Sep 25, 2024		Soil	M24-Oc0011991	X			
63	MW06_3.0	Sep 25, 2024		Soil	M24-Oc0011992	X			
64	MW06_3.5	Sep 25, 2024		Soil	M24-Oc0011993	X			
65	MW06_4.0	Sep 25, 2024		Soil	M24-Oc0011994	X			

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Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
66	MW06_4.5	Sep 25, 2024		Soil	M24-Oc0011995	X			
67	MW06_5.0	Sep 25, 2024		Soil	M24-Oc0011996	X			
68	MW06_6.0	Sep 25, 2024		Soil	M24-Oc0011997	X			
69	MW06_7.0	Sep 25, 2024		Soil	M24-Oc0011998	X			
70	MW06_8.0	Sep 25, 2024		Soil	M24-Oc0011999	X			
71	MW06_9.0	Sep 25, 2024		Soil	M24-Oc0012000	X			
72	MW06_10.0	Sep 25, 2024		Soil	M24-Oc0012001	X			
73	MW06_12.0	Sep 25, 2024		Soil	M24-Oc0012002	X			
74	MW07_0.4-0.5	Sep 26, 2024		Soil	M24-Oc0012003	X			
75	MW07_0.5	Sep 26, 2024		Soil	M24-Oc0012004	X			
76	MW07_1.0	Sep 26, 2024		Soil	M24-Oc0012005	X			
77	MW07_1.5	Sep 26, 2024		Soil	M24-Oc0012006	X			
78	MW07_2.0	Sep 26, 2024		Soil	M24-Oc0012007	X			
79	MW07_2.5	Sep 26, 2024		Soil	M24-Oc0012008	X			
80	MW07_3.0	Sep 26, 2024		Soil	M24-Oc0012009	X			
81	MW07_3.5	Sep 26, 2024		Soil	M24-Oc0012010	X			
82	MW07_4.0	Sep 26, 2024		Soil	M24-Oc0012011	X			

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Received: Oct 4, 2024 12:37 PM
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Priority: 5 Day
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Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
83	MW07_4.5	Sep 26, 2024		Soil	M24-Oc0012012	X			
84	MW07_5.0	Sep 26, 2024		Soil	M24-Oc0012013	X			
85	MW07_6.0	Sep 26, 2024		Soil	M24-Oc0012014	X			
86	MW07_7.0	Sep 26, 2024		Soil	M24-Oc0012015	X			
87	MW07_8.0	Sep 26, 2024		Soil	M24-Oc0012016	X			
88	MW07_9.0	Sep 26, 2024		Soil	M24-Oc0012017	X			
89	MW07_10.0	Sep 26, 2024		Soil	M24-Oc0012018	X			
90	MW07_11.0	Sep 26, 2024		Soil	M24-Oc0012019	X			
91	MW07_12.0	Sep 26, 2024		Soil	M24-Oc0012020	X			
92	MW07_13.0	Sep 26, 2024		Soil	M24-Oc0012021	X			
93	MW07_14.0	Sep 26, 2024		Soil	M24-Oc0012022	X			
94	MW04_0-0.2	Sep 27, 2024		Soil	M24-Oc0012023	X			
95	MW04_0.5	Sep 27, 2024		Soil	M24-Oc0012024	X			
96	MW04_1.0	Sep 27, 2024		Soil	M24-Oc0012025	X			
97	MW04_1.5	Sep 27, 2024		Soil	M24-Oc0012026	X			
98	MW04_2.0	Sep 27, 2024		Soil	M24-Oc0012027	X			
99	MW04_2.5	Sep 27, 2024		Soil	M24-Oc0012028	X			

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Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
100	MW04_3.0	Sep 27, 2024		Soil	M24-Oc0012029	X			
101	MW04_3.5	Sep 27, 2024		Soil	M24-Oc0012030	X			
102	MW04_4.0	Sep 27, 2024		Soil	M24-Oc0012031	X			
103	MW04_4.5	Sep 27, 2024		Soil	M24-Oc0012032	X			
104	MW04_5.0	Sep 27, 2024		Soil	M24-Oc0012033	X			
105	MW04_6.0	Sep 27, 2024		Soil	M24-Oc0012034	X			
106	MW04_7.0	Sep 27, 2024		Soil	M24-Oc0012035	X			
107	MW04_8.0	Sep 27, 2024		Soil	M24-Oc0012036	X			
108	MW04_9.0	Sep 27, 2024		Soil	M24-Oc0012037	X			
109	MW04_10.0	Sep 27, 2024		Soil	M24-Oc0012038	X			
110	MW04_11.0	Sep 27, 2024		Soil	M24-Oc0012039	X			
111	MW04_12.0	Sep 27, 2024		Soil	M24-Oc0012040	X			
112	MW04_13.0	Sep 27, 2024		Soil	M24-Oc0012041	X			
113	MW04_15.0	Sep 27, 2024		Soil	M24-Oc0012042	X			
114	BH10_0.4-0.5	Sep 27, 2024		Soil	M24-Oc0012043	X			
115	BH10_1.0	Sep 27, 2024		Soil	M24-Oc0012044	X			
116	BH10_2.0	Sep 27, 2024		Soil	M24-Oc0012045	X			

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
117	QC06	Sep 25, 2024		Soil	M24-Oc0012046	X			
118	QA06	Sep 25, 2024		Soil	M24-Oc0012047	X			
119	QC07	Sep 25, 2024		Soil	M24-Oc0012048	X			
120	QA07	Sep 25, 2024		Soil	M24-Oc0012049	X			
121	QC08	Sep 25, 2024		Soil	M24-Oc0012050	X			
122	QA08	Sep 25, 2024		Soil	M24-Oc0012051	X			
123	QC09	Sep 26, 2024		Soil	M24-Oc0012052	X			
124	QA09	Sep 26, 2024		Soil	M24-Oc0012053	X			
125	QC10	Sep 26, 2024		Soil	M24-Oc0012054	X			
126	QA10	Sep 26, 2024		Soil	M24-Oc0012055	X			
127	QC11	Sep 27, 2024		Soil	M24-Oc0012056	X			
128	QA11	Sep 27, 2024		Soil	M24-Oc0012057	X			
Test Counts						100	22	22	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							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	97			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	85			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	86			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	92			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1					
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Oc0011955	CP	%	99			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Oc0011955	CP	%	89			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Oc0011955	CP	%	90			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Oc0011955	CP	%	104			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-Oc0011954	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Oc0011954	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Oc0011954	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Oc0011954	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
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:

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.

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SA 5001

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Attention: **Terrance Wilson**

Report **1145986-S**
Project name MFS Peterborough Further DSI
Project ID 12647853
Received Date Oct 04, 2024

Client Sample ID			**BH07_0-0.2**	**BH07_0.5**	**BH07_1.5**	**BH08_0-0.2**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M24-Oc0011930**	**M24-Oc0011931**	**M24-Oc0011932**	**M24-Oc0011933**
Date Sampled			**Sep 24, 2024**	**Sep 24, 2024**	**Sep 24, 2024**	**Sep 24, 2024**
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	3.8	11	14	3.8
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	5.2
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	[N09]8.2	< 5	< 5	[N09]< 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	%	61	73	80	76
13C5-PFPeA (surr.)	1	%	60	76	86	79
13C5-PFHxA (surr.)	1	%	52	66	73	132
13C4-PFHpA (surr.)	1	%	56	56	67	82
13C8-PFOA (surr.)	1	%	59	53	60	123
13C5-PFNA (surr.)	1	%	68	56	71	128
13C6-PFDA (surr.)	1	%	67	62	80	111
13C2-PFUnDA (surr.)	1	%	67	62	73	121
13C2-PFDoDA (surr.)	1	%	76	67	83	115
13C2-PFTeDA (surr.)	1	%	109	72	83	164
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]6.2
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			BH07_0-0.2	BH07_0.5	BH07_1.5	BH08_0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Oc0011930	M24-Oc0011931	M24-Oc0011932	M24-Oc0011933
Date Sampled			Sep 24, 2024	Sep 24, 2024	Sep 24, 2024	Sep 24, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	69	62	67	95
D3-N-MeFOSA (surr.)	1	%	84	96	110	123
D5-N-EtFOSA (surr.)	1	%	83	99	118	119
D7-N-MeFOSE (surr.)	1	%	76	57	67	94
D9-N-EtFOSE (surr.)	1	%	79	49	58	99
D5-N-EtFOSAA (surr.)	1	%	90	65	74	132
D3-N-MeFOSAA (surr.)	1	%	58	69	72	129
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]6.2	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]110	[N09]< 5	[N09]< 5	[N09]20
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	5.2	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]1200	[N09]85	[N09]12	[N09]360
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	5.0	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	58	66	77	129
18O2-PFHxS (surr.)	1	%	63	81	91	114
13C8-PFOS (surr.)	1	%	120	71	82	108
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	%	59	68	77	115
13C2-6:2 FTSA (surr.)	1	%	83	62	66	156
13C2-8:2 FTSA (surr.)	1	%	85	84	103	180
13C2-10:2 FTSA (surr.)	1	%	120	82	94	145
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	1310	85	12	380
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	1208.2	85	12	360
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	1318.2	85	12	380
Sum of WA DWER PFAS (n=10)*	10	ug/kg	1318.2	85	12	385.2
Sum of PFASs (n=30)*	50	ug/kg	1334.6	85	< 50	391.4

Client Sample ID			BH08_0.5	BH08_1.5	BH09_0-0.2	BH09_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Oc0011934	M24-Oc0011935	M24-Oc0011936	M24-Oc0011937
Date Sampled			Sep 24, 2024	Sep 24, 2024	Sep 24, 2024	Sep 24, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	6.3	9.9	4.4	17
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	150	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	280	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	7.4	840	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	[N09]150	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	[N09]< 5	[N09]180	< 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	%	79	62	57	87
13C5-PFPeA (surr.)	1	%	83	54	68	86
13C5-PFHxA (surr.)	1	%	131	126	66	86
13C4-PFHpA (surr.)	1	%	78	71	65	92
13C8-PFOA (surr.)	1	%	117	119	62	98
13C5-PFNA (surr.)	1	%	135	92	84	128
13C6-PFDA (surr.)	1	%	134	87	88	137
13C2-PFUnDA (surr.)	1	%	144	83	72	136
13C2-PFDoDA (surr.)	1	%	143	97	67	129
13C2-PFTeDA (surr.)	1	%	128	104	60	121
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	%	114	86	57	108
D3-N-MeFOSA (surr.)	1	%	152	97	154	123
D5-N-EtFOSA (surr.)	1	%	134	87	167	115
D7-N-MeFOSE (surr.)	1	%	111	80	118	106
D9-N-EtFOSE (surr.)	1	%	127	93	77	118
D5-N-EtFOSAA (surr.)	1	%	125	65	72	163
D3-N-MeFOSAA (surr.)	1	%	177	100	83	134
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	420	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	220	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	430	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]14	[N09]2300	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	120	< 5	< 5

Client Sample ID			BH08_0.5	BH08_1.5	BH09_0-0.2	BH09_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Oc0011934	M24-Oc0011935	M24-Oc0011936	M24-Oc0011937
Date Sampled			Sep 24, 2024	Sep 24, 2024	Sep 24, 2024	Sep 24, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]730	[N09]620	< 5	[N09]38
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	135	127	65	91
18O2-PFHxS (surr.)	1	%	121	110	64	103
13C8-PFOS (surr.)	1	%	113	112	97	124
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	88	< 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	%	71	59	57	74
13C2-6:2 FTSA (surr.)	1	%	120	130	76	116
13C2-8:2 FTSA (surr.)	1	%	196	147	125	115
13C2-10:2 FTSA (surr.)	1	%	148	114	94	112
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	744	2920	< 5	38
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	730	800	< 5	38
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	744	3100	< 5	38
Sum of WA DWER PFAS (n=10)*	10	ug/kg	751.4	5028	< 10	38
Sum of PFASs (n=30)*	50	ug/kg	751.4	5798	< 50	< 50

Client Sample ID			BH09_1.5	MW05_0-0.2	MW05_15.0	MW06_0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Oc0011938	M24-Oc0011939	M24-Oc0011940	M24-Oc0011941
Date Sampled			Sep 24, 2024	Sep 25, 2024	Sep 25, 2024	Sep 25, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	11	6.4	25	4.1
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	< 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	%	61	68	97	46
13C5-PFPeA (surr.)	1	%	61	21	88	44
13C5-PFHxA (surr.)	1	%	56	30	97	35
13C4-PFHpA (surr.)	1	%	60	53	94	34

Client Sample ID			BH09_1.5	MW05_0-0.2	MW05_15.0	MW06_0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Oc0011938	M24-Oc0011939	M24-Oc0011940	M24-Oc0011941
Date Sampled			Sep 24, 2024	Sep 25, 2024	Sep 25, 2024	Sep 25, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C8-PFOA (surr.)	1	%	68	80	113	36
13C5-PFNA (surr.)	1	%	93	98	104	46
13C6-PFDA (surr.)	1	%	86	102	103	38
13C2-PFUnDA (surr.)	1	%	98	109	123	34
13C2-PFDoDA (surr.)	1	%	95	129	89	34
13C2-PFTeDA (surr.)	1	%	86	142	85	35
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	%	83	138	101	33
D3-N-MeFOSA (surr.)	1	%	97	162	111	37
D5-N-EtFOSA (surr.)	1	%	85	184	111	39
D7-N-MeFOSE (surr.)	1	%	77	161	89	39
D9-N-EtFOSE (surr.)	1	%	82	171	86	33
D5-N-EtFOSAA (surr.)	1	%	130	84	97	31
D3-N-MeFOSAA (surr.)	1	%	146	132	109	40
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
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]12
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	58	39	113	37
18O2-PFHxS (surr.)	1	%	68	84	107	119
13C8-PFOS (surr.)	1	%	76	120	109	114
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	%	59	64	146	35
13C2-6:2 FTSA (surr.)	1	%	88	125	122	53
13C2-8:2 FTSA (surr.)	1	%	119	192	126	40
13C2-10:2 FTSA (surr.)	1	%	119	178	112	31

Client Sample ID			BH09_1.5	MW05_0-0.2	MW05_15.0	MW06_0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Oc0011938	M24-Oc0011939	M24-Oc0011940	M24-Oc0011941
Date Sampled			Sep 24, 2024	Sep 25, 2024	Sep 25, 2024	Sep 25, 2024
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	12
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	12
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	12
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	12
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			MW06_11.0	MW07_0-0.2	MW07_15.0	MW04_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Oc0011942	M24-Oc0011943	M24-Oc0011944	M24-Oc0011945
Date Sampled			Sep 25, 2024	Sep 26, 2024	Sep 26, 2024	Sep 27, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	27	3.7	24	10
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	%	73	65	46	61
13C5-PFPeA (surr.)	1	%	75	64	51	62
13C5-PFHxA (surr.)	1	%	66	58	47	58
13C4-PFHpA (surr.)	1	%	76	64	55	64
13C8-PFOA (surr.)	1	%	79	66	62	69
13C5-PFNA (surr.)	1	%	105	94	130	73
13C6-PFDA (surr.)	1	%	96	94	131	83
13C2-PFUnDA (surr.)	1	%	104	80	146	84
13C2-PFDoDA (surr.)	1	%	97	79	120	81
13C2-PFTeDA (surr.)	1	%	109	89	122	88
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			MW06_11.0	MW07_0-0.2	MW07_15.0	MW04_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Oc0011942	M24-Oc0011943	M24-Oc0011944	M24-Oc0011945
Date Sampled			Sep 25, 2024	Sep 26, 2024	Sep 26, 2024	Sep 27, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	102	79	137	84
D3-N-MeFOSA (surr.)	1	%	102	79	127	98
D5-N-EtFOSA (surr.)	1	%	110	92	143	92
D7-N-MeFOSE (surr.)	1	%	105	75	104	81
D9-N-EtFOSE (surr.)	1	%	113	76	115	84
D5-N-EtFOSAA (surr.)	1	%	72	74	120	83
D3-N-MeFOSAA (surr.)	1	%	100	102	133	91
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]12
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]53
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	67	66	49	65
18O2-PFHxS (surr.)	1	%	87	71	65	74
13C8-PFOS (surr.)	1	%	102	88	79	88
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	%	61	52	46	57
13C2-6:2 FTSA (surr.)	1	%	95	97	71	80
13C2-8:2 FTSA (surr.)	1	%	143	118	116	90
13C2-10:2 FTSA (surr.)	1	%	97	94	117	109
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	65
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	53
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	65
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	65
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	65

Client Sample ID			MW04_14.0	BH10_0-0.2	BH10_0.5	BH10_1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Oc0011946	M24-Oc0011947	M24-Oc0011948	M24-Oc0011949
Date Sampled			Sep 27, 2024	Sep 27, 2024	Sep 27, 2024	Sep 27, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	22	3.4	20	14
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	%	65	48	75	65
13C5-PFPeA (surr.)	1	%	66	47	70	61
13C5-PFHxA (surr.)	1	%	68	48	74	56
13C4-PFHpA (surr.)	1	%	75	56	79	61
13C8-PFOA (surr.)	1	%	81	60	83	62
13C5-PFNA (surr.)	1	%	98	69	100	69
13C6-PFDA (surr.)	1	%	106	79	114	70
13C2-PFUnDA (surr.)	1	%	106	85	114	69
13C2-PFDoDA (surr.)	1	%	109	82	110	75
13C2-PFTeDA (surr.)	1	%	111	83	98	67
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	%	104	75	93	71
D3-N-MeFOSA (surr.)	1	%	109	100	101	70
D5-N-EtFOSA (surr.)	1	%	103	99	102	68
D7-N-MeFOSE (surr.)	1	%	100	102	76	72
D9-N-EtFOSE (surr.)	1	%	117	106	99	62
D5-N-EtFOSAA (surr.)	1	%	110	78	117	103
D3-N-MeFOSAA (surr.)	1	%	145	101	150	127
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	[N09]8.4	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			MW04_14.0	BH10_0-0.2	BH10_0.5	BH10_1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Oc0011946	M24-Oc0011947	M24-Oc0011948	M24-Oc0011949
Date Sampled			Sep 27, 2024	Sep 27, 2024	Sep 27, 2024	Sep 27, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	[N09]9.7	[N09]300	[N09]180
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	69	52	75	58
18O2-PFHxS (surr.)	1	%	93	65	85	63
13C8-PFOS (surr.)	1	%	120	78	117	73
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	%	65	46	65	52
13C2-6:2 FTSA (surr.)	1	%	92	68	108	79
13C2-8:2 FTSA (surr.)	1	%	176	110	161	130
13C2-10:2 FTSA (surr.)	1	%	172	80	159	113
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	18.1	300	180
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	9.7	300	180
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	18.1	300	180
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	18.1	300	180
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	300	180

Client Sample ID			QC05	QC12
Sample Matrix			Soil	Soil
Eurofins Sample No.			M24-Oc0011950	M24-Oc0011951
Date Sampled			Sep 24, 2024	Sep 24, 2024
Test/Reference	LOR	Unit		
Sample Properties				
% Moisture	1	%	12	14
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5
13C4-PFBA (surr.)	1	%	65	75
13C5-PFPeA (surr.)	1	%	64	72
13C5-PFHxA (surr.)	1	%	62	74
13C4-PFHpA (surr.)	1	%	65	79

Client Sample ID			QC05	QC12
Sample Matrix			Soil	Soil
Eurofins Sample No.			M24-Oc0011950	M24-Oc0011951
Date Sampled			Sep 24, 2024	Sep 24, 2024
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
13C8-PFOA (surr.)	1	%	70	85
13C5-PFNA (surr.)	1	%	84	101
13C6-PFDA (surr.)	1	%	89	112
13C2-PFUnDA (surr.)	1	%	88	113
13C2-PFDoDA (surr.)	1	%	86	116
13C2-PFTeDA (surr.)	1	%	92	109
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	%	95	105
D3-N-MeFOSA (surr.)	1	%	118	129
D5-N-EtFOSA (surr.)	1	%	98	109
D7-N-MeFOSE (surr.)	1	%	79	80
D9-N-EtFOSE (surr.)	1	%	104	110
D5-N-EtFOSAA (surr.)	1	%	98	128
D3-N-MeFOSAA (surr.)	1	%	122	163
Perfluoroalkyl sulfonic acids (PFSAs)				
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]12	[N09]240
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5
13C3-PFBS (surr.)	1	%	61	78
18O2-PFHxS (surr.)	1	%	77	92
13C8-PFOS (surr.)	1	%	114	120
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	%	59	72
13C2-6:2 FTSA (surr.)	1	%	89	102
13C2-8:2 FTSA (surr.)	1	%	138	176
13C2-10:2 FTSA (surr.)	1	%	114	184

Client Sample ID			QC05	QC12
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**M24-Oc0011950**	**M24-Oc0011951**
Date Sampled			**Sep 24, 2024**	**Sep 24, 2024**
Test/Reference	LOR	Unit		
PFASs Summations				
Sum (PFHxS + PFOS)*	5	ug/kg	12	240
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	12	240
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	12	240
Sum of WA DWER PFAS (n=10)*	10	ug/kg	12	240
Sum of PFASs (n=30)*	50	ug/kg	< 50	240

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	Oct 04, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Oct 04, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Oct 04, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Oct 04, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Oct 04, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Oct 04, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Perth
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Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402

Company Name: GHD Pty Ltd SA
Address: GPO Box 2052
Adelaide
SA 5001

Project Name: MFS Peterborough Further DSI
Project ID: 12647853

Order No.:
Report #: 1145986
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Oct 4, 2024 12:37 PM
Due: Oct 11, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail	HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254	X	X	X	X
External Laboratory				

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	BH07_0-0.2	Sep 24, 2024		Soil	M24-Oc0011930		X	X	
2	BH07_0.5	Sep 24, 2024		Soil	M24-Oc0011931		X	X	
3	BH07_1.5	Sep 24, 2024		Soil	M24-Oc0011932		X	X	
4	BH08_0-0.2	Sep 24, 2024		Soil	M24-Oc0011933		X	X	
5	BH08_0.5	Sep 24, 2024		Soil	M24-Oc0011934		X	X	
6	BH08_1.5	Sep 24, 2024		Soil	M24-Oc0011935		X	X	
7	BH09_0-0.2	Sep 24, 2024		Soil	M24-Oc0011936		X	X	
8	BH09_0.5	Sep 24, 2024		Soil	M24-Oc0011937		X	X	
9	BH09_1.5	Sep 24, 2024		Soil	M24-Oc0011938		X	X	
10	MW05_0-0.2	Sep 25, 2024		Soil	M24-Oc0011939		X	X	
11	MW05_15.0	Sep 25, 2024		Soil	M24-Oc0011940		X	X	
12	MW06_0-0.2	Sep 25, 2024		Soil	M24-Oc0011941		X	X	
13	MW06_11.0	Sep 25, 2024		Soil	M24-Oc0011942		X	X	
14	MW07_0-0.2	Sep 26, 2024		Soil	M24-Oc0011943		X	X	

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Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

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ABN: 91 05 0159 898

Perth
46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554

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Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
15	MW07_15.0	Sep 26, 2024		Soil	M24-Oc0011944		X	X	
16	MW04_0.4-0.5	Sep 27, 2024		Soil	M24-Oc0011945		X	X	
17	MW04_14.0	Sep 27, 2024		Soil	M24-Oc0011946		X	X	
18	BH10_0-0.2	Sep 27, 2024		Soil	M24-Oc0011947		X	X	
19	BH10_0.5	Sep 27, 2024		Soil	M24-Oc0011948		X	X	
20	BH10_1.5	Sep 27, 2024		Soil	M24-Oc0011949		X	X	
21	QC05	Sep 24, 2024		Soil	M24-Oc0011950		X	X	
22	QC12	Sep 24, 2024		Soil	M24-Oc0011951		X	X	
23	FB03	Sep 25, 2024		Water	M24-Oc0011952				X
24	RB03	Sep 25, 2024		Water	M24-Oc0011953				X
25	FB04	Sep 26, 2024		Water	M24-Oc0011954				X
26	RB04	Sep 26, 2024		Water	M24-Oc0011955				X
27	FB05	Sep 27, 2024		Water	M24-Oc0011956				X
28	RB05	Sep 27, 2024		Water	M24-Oc0011957				X
29	BH07_0.4-0.5	Sep 24, 2024		Soil	M24-Oc0011958	X			
30	BH07_1.0	Sep 24, 2024		Soil	M24-Oc0011959	X			
31	BH07_2.0	Sep 24, 2024		Soil	M24-Oc0011960	X			

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6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

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Perth
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Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
32	BH08_0.4-0.5	Sep 24, 2024		Soil	M24-Oc0011961	X			
33	BH08_1.0	Sep 24, 2024		Soil	M24-Oc0011962	X			
34	BH08_2.0	Sep 24, 2024		Soil	M24-Oc0011963	X			
35	BH09_0.4-0.5	Sep 24, 2024		Soil	M24-Oc0011964	X			
36	BH09_1.0	Sep 24, 2024		Soil	M24-Oc0011965	X			
37	BH09_2.0	Sep 24, 2024		Soil	M24-Oc0011966	X			
38	MW05_0.4-0.5	Sep 25, 2024		Soil	M24-Oc0011967	X			
39	MW05_0.5	Sep 25, 2024		Soil	M24-Oc0011968	X			
40	MW05_1.0	Sep 25, 2024		Soil	M24-Oc0011969	X			
41	MW05_1.5	Sep 25, 2024		Soil	M24-Oc0011970	X			
42	MW05_2.0	Sep 25, 2024		Soil	M24-Oc0011971	X			
43	MW05_2.5	Sep 25, 2024		Soil	M24-Oc0011972	X			
44	MW05_3.0	Sep 25, 2024		Soil	M24-Oc0011973	X			
45	MW05_3.5	Sep 25, 2024		Soil	M24-Oc0011974	X			
46	MW05_4.0	Sep 25, 2024		Soil	M24-Oc0011975	X			
47	MW05_5.0	Sep 25, 2024		Soil	M24-Oc0011976	X			
48	MW05_6.0	Sep 25, 2024		Soil	M24-Oc0011977	X			

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Perth
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Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
49	MW05_7.0	Sep 25, 2024		Soil	M24-Oc0011978	X			
50	MW05_8.0	Sep 25, 2024		Soil	M24-Oc0011979	X			
51	MW05_9.0	Sep 25, 2024		Soil	M24-Oc0011980	X			
52	MW05_10.0	Sep 25, 2024		Soil	M24-Oc0011981	X			
53	MW05_11.0	Sep 25, 2024		Soil	M24-Oc0011982	X			
54	MW05_12.0	Sep 25, 2024		Soil	M24-Oc0011983	X			
55	MW05_13.0	Sep 25, 2024		Soil	M24-Oc0011984	X			
56	MW05_14.0	Sep 25, 2024		Soil	M24-Oc0011985	X			
57	MW06_0.4-0.5	Sep 25, 2024		Soil	M24-Oc0011986	X			
58	MW06_0.5	Sep 25, 2024		Soil	M24-Oc0011987	X			
59	MW06_1.0	Sep 25, 2024		Soil	M24-Oc0011988	X			
60	MW06_1.5	Sep 25, 2024		Soil	M24-Oc0011989	X			
61	MW06_2.0	Sep 25, 2024		Soil	M24-Oc0011990	X			
62	MW06_2.5	Sep 25, 2024		Soil	M24-Oc0011991	X			
63	MW06_3.0	Sep 25, 2024		Soil	M24-Oc0011992	X			
64	MW06_3.5	Sep 25, 2024		Soil	M24-Oc0011993	X			
65	MW06_4.0	Sep 25, 2024		Soil	M24-Oc0011994	X			

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6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

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Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402

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Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
66	MW06_4.5	Sep 25, 2024		Soil	M24-Oc0011995	X			
67	MW06_5.0	Sep 25, 2024		Soil	M24-Oc0011996	X			
68	MW06_6.0	Sep 25, 2024		Soil	M24-Oc0011997	X			
69	MW06_7.0	Sep 25, 2024		Soil	M24-Oc0011998	X			
70	MW06_8.0	Sep 25, 2024		Soil	M24-Oc0011999	X			
71	MW06_9.0	Sep 25, 2024		Soil	M24-Oc0012000	X			
72	MW06_10.0	Sep 25, 2024		Soil	M24-Oc0012001	X			
73	MW06_12.0	Sep 25, 2024		Soil	M24-Oc0012002	X			
74	MW07_0.4-0.5	Sep 26, 2024		Soil	M24-Oc0012003	X			
75	MW07_0.5	Sep 26, 2024		Soil	M24-Oc0012004	X			
76	MW07_1.0	Sep 26, 2024		Soil	M24-Oc0012005	X			
77	MW07_1.5	Sep 26, 2024		Soil	M24-Oc0012006	X			
78	MW07_2.0	Sep 26, 2024		Soil	M24-Oc0012007	X			
79	MW07_2.5	Sep 26, 2024		Soil	M24-Oc0012008	X			
80	MW07_3.0	Sep 26, 2024		Soil	M24-Oc0012009	X			
81	MW07_3.5	Sep 26, 2024		Soil	M24-Oc0012010	X			
82	MW07_4.0	Sep 26, 2024		Soil	M24-Oc0012011	X			

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6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
83	MW07_4.5	Sep 26, 2024		Soil	M24-Oc0012012	X			
84	MW07_5.0	Sep 26, 2024		Soil	M24-Oc0012013	X			
85	MW07_6.0	Sep 26, 2024		Soil	M24-Oc0012014	X			
86	MW07_7.0	Sep 26, 2024		Soil	M24-Oc0012015	X			
87	MW07_8.0	Sep 26, 2024		Soil	M24-Oc0012016	X			
88	MW07_9.0	Sep 26, 2024		Soil	M24-Oc0012017	X			
89	MW07_10.0	Sep 26, 2024		Soil	M24-Oc0012018	X			
90	MW07_11.0	Sep 26, 2024		Soil	M24-Oc0012019	X			
91	MW07_12.0	Sep 26, 2024		Soil	M24-Oc0012020	X			
92	MW07_13.0	Sep 26, 2024		Soil	M24-Oc0012021	X			
93	MW07_14.0	Sep 26, 2024		Soil	M24-Oc0012022	X			
94	MW04_0-0.2	Sep 27, 2024		Soil	M24-Oc0012023	X			
95	MW04_0.5	Sep 27, 2024		Soil	M24-Oc0012024	X			
96	MW04_1.0	Sep 27, 2024		Soil	M24-Oc0012025	X			
97	MW04_1.5	Sep 27, 2024		Soil	M24-Oc0012026	X			
98	MW04_2.0	Sep 27, 2024		Soil	M24-Oc0012027	X			
99	MW04_2.5	Sep 27, 2024		Soil	M24-Oc0012028	X			

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
100	MW04_3.0	Sep 27, 2024		Soil	M24-Oc0012029	X			
101	MW04_3.5	Sep 27, 2024		Soil	M24-Oc0012030	X			
102	MW04_4.0	Sep 27, 2024		Soil	M24-Oc0012031	X			
103	MW04_4.5	Sep 27, 2024		Soil	M24-Oc0012032	X			
104	MW04_5.0	Sep 27, 2024		Soil	M24-Oc0012033	X			
105	MW04_6.0	Sep 27, 2024		Soil	M24-Oc0012034	X			
106	MW04_7.0	Sep 27, 2024		Soil	M24-Oc0012035	X			
107	MW04_8.0	Sep 27, 2024		Soil	M24-Oc0012036	X			
108	MW04_9.0	Sep 27, 2024		Soil	M24-Oc0012037	X			
109	MW04_10.0	Sep 27, 2024		Soil	M24-Oc0012038	X			
110	MW04_11.0	Sep 27, 2024		Soil	M24-Oc0012039	X			
111	MW04_12.0	Sep 27, 2024		Soil	M24-Oc0012040	X			
112	MW04_13.0	Sep 27, 2024		Soil	M24-Oc0012041	X			
113	MW04_15.0	Sep 27, 2024		Soil	M24-Oc0012042	X			
114	BH10_0.4-0.5	Sep 27, 2024		Soil	M24-Oc0012043	X			
115	BH10_1.0	Sep 27, 2024		Soil	M24-Oc0012044	X			
116	BH10_2.0	Sep 27, 2024		Soil	M24-Oc0012045	X			

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Project ID: 12647853

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Received: Oct 4, 2024 12:37 PM
Due: Oct 11, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
117	QC06	Sep 25, 2024		Soil	M24-Oc0012046	X			
118	QA06	Sep 25, 2024		Soil	M24-Oc0012047	X			
119	QC07	Sep 25, 2024		Soil	M24-Oc0012048	X			
120	QA07	Sep 25, 2024		Soil	M24-Oc0012049	X			
121	QC08	Sep 25, 2024		Soil	M24-Oc0012050	X			
122	QA08	Sep 25, 2024		Soil	M24-Oc0012051	X			
123	QC09	Sep 26, 2024		Soil	M24-Oc0012052	X			
124	QA09	Sep 26, 2024		Soil	M24-Oc0012053	X			
125	QC10	Sep 26, 2024		Soil	M24-Oc0012054	X			
126	QA10	Sep 26, 2024		Soil	M24-Oc0012055	X			
127	QC11	Sep 27, 2024		Soil	M24-Oc0012056	X			
128	QA11	Sep 27, 2024		Soil	M24-Oc0012057	X			
Test Counts						100	22	22	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/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 carboxylic acids (PFCAs)							
Perfluorohexanoic acid (PFHxA)	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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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-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 carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	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	
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)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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 carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	109			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	115			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	114			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	114			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	105			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	111			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	114			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	130			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	122			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	109			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	118			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	111			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	120			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	113			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	82			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	103			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	104			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	126			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	99			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	89			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	140			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	121			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	100			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	109			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	108			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	103			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	112			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	90			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorobutanoic acid (PFBA)	%	93			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	96			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	90			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	97			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	96			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	98			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	93			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	115			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	102			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	77			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	91			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	94			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	88			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	84			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	91			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	81			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	82			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	97			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	76			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	88			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	109			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	117			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	91			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	98			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	96			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	72			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	72			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	89			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	78			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	110			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	112			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	109			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	117			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	107			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	123			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	110			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	126			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	127			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	102			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	112			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	123			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	100			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	110			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	115			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	103			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	97			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	111			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	104			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	104			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	145			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	119			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	98			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	113			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	112			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	100			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	93			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorooctanesulfonic acid (PFOS)	M24-Oc0015118	NCP	%	101			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Oc0011937	CP	%	100			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Oc0011937	CP	%	99			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Oc0011937	CP	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Oc0011937	CP	%	105			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Oc0011937	CP	%	97			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Oc0011937	CP	%	106			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Oc0011937	CP	%	96			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Oc0011937	CP	%	108			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Oc0011937	CP	%	102			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Oc0011937	CP	%	79			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Oc0011937	CP	%	90			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Oc0011937	CP	%	97			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Oc0011937	CP	%	72			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Oc0011937	CP	%	106			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Oc0011937	CP	%	78			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Oc0011937	CP	%	97			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Oc0011937	CP	%	71			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Oc0011937	CP	%	95			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Oc0011937	CP	%	80			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Oc0011937	CP	%	140			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Oc0011937	CP	%	116			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Oc0011937	CP	%	91			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Oc0011937	CP	%	86			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Oc0011937	CP	%	65			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-Oc0011937	CP	%	87			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Oc0011937	CP	%	123			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-Oc0011931	CP	%	11	11	2.0	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Oc0011936	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Oc0011936	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Oc0011936	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-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Oc0011936	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Oc0011936	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Oc0011948	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-Oc0011948	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Oc0011948	CP	ug/kg	< 10	< 10	<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
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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Company Name: GHD Pty Ltd SA
Address: GPO Box 2052
Adelaide
SA 5001

Project Name: MFS Peterborough Further DSI
Project ID: 12647853

Order No.:
Report #: 1145986
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Oct 4, 2024 12:37 PM
Due: Oct 11, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	BH07_0-0.2	Sep 24, 2024		Soil	M24-Oc0011930		X	X	
2	BH07_0.5	Sep 24, 2024		Soil	M24-Oc0011931		X	X	
3	BH07_1.5	Sep 24, 2024		Soil	M24-Oc0011932		X	X	
4	BH08_0-0.2	Sep 24, 2024		Soil	M24-Oc0011933		X	X	
5	BH08_0.5	Sep 24, 2024		Soil	M24-Oc0011934		X	X	
6	BH08_1.5	Sep 24, 2024		Soil	M24-Oc0011935		X	X	
7	BH09_0-0.2	Sep 24, 2024		Soil	M24-Oc0011936		X	X	
8	BH09_0.5	Sep 24, 2024		Soil	M24-Oc0011937		X	X	
9	BH09_1.5	Sep 24, 2024		Soil	M24-Oc0011938		X	X	
10	MW05_0-0.2	Sep 25, 2024		Soil	M24-Oc0011939		X	X	
11	MW05_15.0	Sep 25, 2024		Soil	M24-Oc0011940		X	X	
12	MW06_0-0.2	Sep 25, 2024		Soil	M24-Oc0011941		X	X	
13	MW06_11.0	Sep 25, 2024		Soil	M24-Oc0011942		X	X	
14	MW07_0-0.2	Sep 26, 2024		Soil	M24-Oc0011943		X	X	

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SA 5001

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Project ID: 12647853

Order No.:
Report #: 1145986
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Oct 4, 2024 12:37 PM
Due: Oct 11, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
15	MW07_15.0	Sep 26, 2024		Soil	M24-Oc0011944		X	X	
16	MW04_0.4-0.5	Sep 27, 2024		Soil	M24-Oc0011945		X	X	
17	MW04_14.0	Sep 27, 2024		Soil	M24-Oc0011946		X	X	
18	BH10_0-0.2	Sep 27, 2024		Soil	M24-Oc0011947		X	X	
19	BH10_0.5	Sep 27, 2024		Soil	M24-Oc0011948		X	X	
20	BH10_1.5	Sep 27, 2024		Soil	M24-Oc0011949		X	X	
21	QC05	Sep 24, 2024		Soil	M24-Oc0011950		X	X	
22	QC12	Sep 24, 2024		Soil	M24-Oc0011951		X	X	
23	FB03	Sep 25, 2024		Water	M24-Oc0011952				X
24	RB03	Sep 25, 2024		Water	M24-Oc0011953				X
25	FB04	Sep 26, 2024		Water	M24-Oc0011954				X
26	RB04	Sep 26, 2024		Water	M24-Oc0011955				X
27	FB05	Sep 27, 2024		Water	M24-Oc0011956				X
28	RB05	Sep 27, 2024		Water	M24-Oc0011957				X
29	BH07_0.4-0.5	Sep 24, 2024		Soil	M24-Oc0011958	X			
30	BH07_1.0	Sep 24, 2024		Soil	M24-Oc0011959	X			
31	BH07_2.0	Sep 24, 2024		Soil	M24-Oc0011960	X			

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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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Adelaide
SA 5001

Project Name: MFS Peterborough Further DSI
Project ID: 12647853

Order No.:
Report #: 1145986
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Oct 4, 2024 12:37 PM
Due: Oct 11, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
32	BH08_0.4-0.5	Sep 24, 2024		Soil	M24-Oc0011961	X			
33	BH08_1.0	Sep 24, 2024		Soil	M24-Oc0011962	X			
34	BH08_2.0	Sep 24, 2024		Soil	M24-Oc0011963	X			
35	BH09_0.4-0.5	Sep 24, 2024		Soil	M24-Oc0011964	X			
36	BH09_1.0	Sep 24, 2024		Soil	M24-Oc0011965	X			
37	BH09_2.0	Sep 24, 2024		Soil	M24-Oc0011966	X			
38	MW05_0.4-0.5	Sep 25, 2024		Soil	M24-Oc0011967	X			
39	MW05_0.5	Sep 25, 2024		Soil	M24-Oc0011968	X			
40	MW05_1.0	Sep 25, 2024		Soil	M24-Oc0011969	X			
41	MW05_1.5	Sep 25, 2024		Soil	M24-Oc0011970	X			
42	MW05_2.0	Sep 25, 2024		Soil	M24-Oc0011971	X			
43	MW05_2.5	Sep 25, 2024		Soil	M24-Oc0011972	X			
44	MW05_3.0	Sep 25, 2024		Soil	M24-Oc0011973	X			
45	MW05_3.5	Sep 25, 2024		Soil	M24-Oc0011974	X			
46	MW05_4.0	Sep 25, 2024		Soil	M24-Oc0011975	X			
47	MW05_5.0	Sep 25, 2024		Soil	M24-Oc0011976	X			
48	MW05_6.0	Sep 25, 2024		Soil	M24-Oc0011977	X			

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email: EnviroSales@eurofins.com

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

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402

Company Name: GHD Pty Ltd SA
Address: GPO Box 2052
Adelaide
SA 5001

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
49	MW05_7.0	Sep 25, 2024		Soil	M24-Oc0011978	X			
50	MW05_8.0	Sep 25, 2024		Soil	M24-Oc0011979	X			
51	MW05_9.0	Sep 25, 2024		Soil	M24-Oc0011980	X			
52	MW05_10.0	Sep 25, 2024		Soil	M24-Oc0011981	X			
53	MW05_11.0	Sep 25, 2024		Soil	M24-Oc0011982	X			
54	MW05_12.0	Sep 25, 2024		Soil	M24-Oc0011983	X			
55	MW05_13.0	Sep 25, 2024		Soil	M24-Oc0011984	X			
56	MW05_14.0	Sep 25, 2024		Soil	M24-Oc0011985	X			
57	MW06_0.4-0.5	Sep 25, 2024		Soil	M24-Oc0011986	X			
58	MW06_0.5	Sep 25, 2024		Soil	M24-Oc0011987	X			
59	MW06_1.0	Sep 25, 2024		Soil	M24-Oc0011988	X			
60	MW06_1.5	Sep 25, 2024		Soil	M24-Oc0011989	X			
61	MW06_2.0	Sep 25, 2024		Soil	M24-Oc0011990	X			
62	MW06_2.5	Sep 25, 2024		Soil	M24-Oc0011991	X			
63	MW06_3.0	Sep 25, 2024		Soil	M24-Oc0011992	X			
64	MW06_3.5	Sep 25, 2024		Soil	M24-Oc0011993	X			
65	MW06_4.0	Sep 25, 2024		Soil	M24-Oc0011994	X			

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Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

Eurofins ARL Pty Ltd
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Perth
46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd
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Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402

Company Name: GHD Pty Ltd SA
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SA 5001

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Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
66	MW06_4.5	Sep 25, 2024		Soil	M24-Oc0011995	X			
67	MW06_5.0	Sep 25, 2024		Soil	M24-Oc0011996	X			
68	MW06_6.0	Sep 25, 2024		Soil	M24-Oc0011997	X			
69	MW06_7.0	Sep 25, 2024		Soil	M24-Oc0011998	X			
70	MW06_8.0	Sep 25, 2024		Soil	M24-Oc0011999	X			
71	MW06_9.0	Sep 25, 2024		Soil	M24-Oc0012000	X			
72	MW06_10.0	Sep 25, 2024		Soil	M24-Oc0012001	X			
73	MW06_12.0	Sep 25, 2024		Soil	M24-Oc0012002	X			
74	MW07_0.4-0.5	Sep 26, 2024		Soil	M24-Oc0012003	X			
75	MW07_0.5	Sep 26, 2024		Soil	M24-Oc0012004	X			
76	MW07_1.0	Sep 26, 2024		Soil	M24-Oc0012005	X			
77	MW07_1.5	Sep 26, 2024		Soil	M24-Oc0012006	X			
78	MW07_2.0	Sep 26, 2024		Soil	M24-Oc0012007	X			
79	MW07_2.5	Sep 26, 2024		Soil	M24-Oc0012008	X			
80	MW07_3.0	Sep 26, 2024		Soil	M24-Oc0012009	X			
81	MW07_3.5	Sep 26, 2024		Soil	M24-Oc0012010	X			
82	MW07_4.0	Sep 26, 2024		Soil	M24-Oc0012011	X			

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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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46-48 Banksia Road
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WA 6106
+61 8 6253 4444
NATA# 2377
Site# 2370 & 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

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
83	MW07_4.5	Sep 26, 2024		Soil	M24-Oc0012012	X			
84	MW07_5.0	Sep 26, 2024		Soil	M24-Oc0012013	X			
85	MW07_6.0	Sep 26, 2024		Soil	M24-Oc0012014	X			
86	MW07_7.0	Sep 26, 2024		Soil	M24-Oc0012015	X			
87	MW07_8.0	Sep 26, 2024		Soil	M24-Oc0012016	X			
88	MW07_9.0	Sep 26, 2024		Soil	M24-Oc0012017	X			
89	MW07_10.0	Sep 26, 2024		Soil	M24-Oc0012018	X			
90	MW07_11.0	Sep 26, 2024		Soil	M24-Oc0012019	X			
91	MW07_12.0	Sep 26, 2024		Soil	M24-Oc0012020	X			
92	MW07_13.0	Sep 26, 2024		Soil	M24-Oc0012021	X			
93	MW07_14.0	Sep 26, 2024		Soil	M24-Oc0012022	X			
94	MW04_0-0.2	Sep 27, 2024		Soil	M24-Oc0012023	X			
95	MW04_0.5	Sep 27, 2024		Soil	M24-Oc0012024	X			
96	MW04_1.0	Sep 27, 2024		Soil	M24-Oc0012025	X			
97	MW04_1.5	Sep 27, 2024		Soil	M24-Oc0012026	X			
98	MW04_2.0	Sep 27, 2024		Soil	M24-Oc0012027	X			
99	MW04_2.5	Sep 27, 2024		Soil	M24-Oc0012028	X			

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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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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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Perth
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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
100	MW04_3.0	Sep 27, 2024		Soil	M24-Oc0012029	X			
101	MW04_3.5	Sep 27, 2024		Soil	M24-Oc0012030	X			
102	MW04_4.0	Sep 27, 2024		Soil	M24-Oc0012031	X			
103	MW04_4.5	Sep 27, 2024		Soil	M24-Oc0012032	X			
104	MW04_5.0	Sep 27, 2024		Soil	M24-Oc0012033	X			
105	MW04_6.0	Sep 27, 2024		Soil	M24-Oc0012034	X			
106	MW04_7.0	Sep 27, 2024		Soil	M24-Oc0012035	X			
107	MW04_8.0	Sep 27, 2024		Soil	M24-Oc0012036	X			
108	MW04_9.0	Sep 27, 2024		Soil	M24-Oc0012037	X			
109	MW04_10.0	Sep 27, 2024		Soil	M24-Oc0012038	X			
110	MW04_11.0	Sep 27, 2024		Soil	M24-Oc0012039	X			
111	MW04_12.0	Sep 27, 2024		Soil	M24-Oc0012040	X			
112	MW04_13.0	Sep 27, 2024		Soil	M24-Oc0012041	X			
113	MW04_15.0	Sep 27, 2024		Soil	M24-Oc0012042	X			
114	BH10_0.4-0.5	Sep 27, 2024		Soil	M24-Oc0012043	X			
115	BH10_1.0	Sep 27, 2024		Soil	M24-Oc0012044	X			
116	BH10_2.0	Sep 27, 2024		Soil	M24-Oc0012045	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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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
117	QC06	Sep 25, 2024		Soil	M24-Oc0012046	X			
118	QA06	Sep 25, 2024		Soil	M24-Oc0012047	X			
119	QC07	Sep 25, 2024		Soil	M24-Oc0012048	X			
120	QA07	Sep 25, 2024		Soil	M24-Oc0012049	X			
121	QC08	Sep 25, 2024		Soil	M24-Oc0012050	X			
122	QA08	Sep 25, 2024		Soil	M24-Oc0012051	X			
123	QC09	Sep 26, 2024		Soil	M24-Oc0012052	X			
124	QA09	Sep 26, 2024		Soil	M24-Oc0012053	X			
125	QC10	Sep 26, 2024		Soil	M24-Oc0012054	X			
126	QA10	Sep 26, 2024		Soil	M24-Oc0012055	X			
127	QC11	Sep 27, 2024		Soil	M24-Oc0012056	X			
128	QA11	Sep 27, 2024		Soil	M24-Oc0012057	X			
Test Counts						100	22	22	6

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

Company	GHD	Project №	12647853	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Peterborough Further DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
Email for Invoice	accountspayableAU@ghd.com
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

Analytes — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing

Containers — Change container type & size if necessary

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

♦Surcharge will apply
☐ Overnight (reporting by 9am)♦
☐ Same day ◆ ☐ 1 day ◆
☐ 2 days ◆ ☐ 3
☑ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	BH07_0-0.2	24/9/24	S	X									1		
	BH07_0.4-0.5	24/9/24	S			X							1		
	BH07_0.5	24/9/24	S	X									1		
	BH07_1.0	24/9/24	S			X							1		
	BH07_1.5	24/9/24	S	X									1		
	BH07_2.0	24/9/24	S			X							1		
	BH08_0-0.2	24/9/24	S	X									1		
	BH08_0.4-0.5	24/9/24	S			X							1		
	BH08_0.5	24/9/24	S	X									1		
	BH08_1.0	24/9/24	S			X							1		
	BH08_1.5	24/9/24	S	X									1		
	BH08_2.0	24/9/24	S			X							1		
	BH09_0-0.2	24/9/24	S	X									1		CONCRETE
	BH09_0.4-0.5	24/9/24	S			X							1		
	Total Counts			7		7							14		

#1145986
4/10/24

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature		Date	30/09/2024	Time	8.30am

Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Temperature	
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report №	

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ **Sydney Laboratory** Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066 02 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory** Unit 1 21 Smallwood Place Murarrie QLD 4172 07 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** Unit 2 91 Leach Highway Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

Company	GHD	**Project №**	12647853	**Project Manager**	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	**Project Name**	MFS Peterborough Further DSI	**EDD Format** (Esdat, EQuIS etc)	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
Email for Invoice	accountspayableAU@ghd.com ben.petticrew
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

Analyses — Where metals are required, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing

Containers — Change container type & size if necessary

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

♦Surcharge will apply

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

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	BH09_0.5	24/9/24	S	X									1		
	BH09_1.0	24/9/24	S			X							1		
	BH09_1.5	24/9/24	S	X									1		
	BH09_2.0	24/9/24	S			X							1		
	MW05_0-0.2	25/9/24	S	X									1		
	MW05_0.4-0.5	25/9/24	S			X							1		
	MW05_0.5	25/9/24	S			X							1		
	MW05_1.0	25/9/24	S			X							1		
	MW05_1.5	25/9/24	S			X							1		
	MW05_2.0	25/9/24	S			X							1		
	MW05_2.5	25/9/24	S			X							1		
	MW05_3.0	25/9/24	S			X							1		
	MW05_3.5	25/9/24	S			X							1		
	MW05_4.0	25/9/24	S			X							1		
	Total Counts			3		11							14		

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature		Date	30/09/2024	Time	8.30am
Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Temperature	
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report №	

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ **Sydney Laboratory** Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066 02 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory** Unit 1 21 Smallwood Place Murarrie QLD 4172 07 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** Unit 2 91 Leach Highway Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

Company	GHD	Project №	12647853	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Peterborough Further DSI	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
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Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

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☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	MW05_5.0	25/9/24	S			X							1		
	MW05_6.0	25/9/24	S			X							1		
	MW05_7.0	25/9/24	S			X							1		
	MW05_8.0	25/9/24	S			X							1		
	MW05_9.0	25/9/24	S			X							1		
	MW05_10.0	25/9/24	S			X							1		
	MW05_11.0	25/9/24	S			X							1		
	MW05_12.0	25/9/24	S			X							1		
	MW05_13.0	25/9/24	S			X							1		
	MW05_14.0	25/9/24	S			X							1		
	MW05_15.0	25/9/24	S	X									1		
	MW06_0-0.2	25/9/24	S	X									1		
	MW06_0.4-0.5	25/9/24	S			X							1		
	MW06_0.5	25/9/24	S			X							1		
	Total Counts			2		12							14		

Method of Shipment	☐ Courier (#	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature		Date	30/09/2024	Time	8.30am
Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Temperature	
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report №	

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☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

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Special Directions					
Purchase Order					
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Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
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Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

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	MW06_1.0	25/9/24	S			X							1		
	MW06_1.5	25/9/24	S			X							1		
	MW06_2.0	25/9/24	S			X							1		
	MW06_2.5	25/9/24	S			X							1		
	MW06_3.0	25/9/24	S			X							1		
	MW06_3.5	25/9/24	S			X							1		
	MW06_4.0	25/9/24	S			X							1		
	MW06_4.5	25/9/24	S			X							1		
	MW06_5.0	25/9/24	S			X							1		
	MW06_6.0	25/9/24	S			X							1		
	MW06_7.0	25/9/24	S			X							1		
	MW06_8.0	25/9/24	S			X							1		
	MW06_9.0	25/9/24	S			X							1		
	MW06_10.0	25/9/24	S			X							1		
	Total Counts					14							14		

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature		Date	30/09/2024	Time	8.30am

Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Temperature	
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report №	

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☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

Company	GHD	Project №	12647853	Project Manager	Terrance Wilson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Peterborough Further DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
Email for Invoice	accountspayableAU@ghd.com ben.petticrew
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

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☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	MW06_11.0	25/9/24	S	X									1		
	MW06_12.0	25/9/24	S			X							1		
	MW07_0-0.2	26/9/24	S	X									1		
	MW07_0.4-0.5	26/9/24	S			X							1		
	MW07_0.5	26/9/24	S			X							1		
	MW07_1.0	26/9/24	S			X							1		
	MW07_1.5	26/9/24	S			X							1		
	MW07_2.0	26/9/24	S			X							1		
	MW07_2.5	26/9/24	S			X							1		
	MW07_3.0	26/9/24	S			X							1		
	MW07_3.5	26/9/24	S			X							1		
	MW07_4.0	26/9/24	S			X							1		
	MW07_4.5	26/9/24	S			X							1		
	MW07_5.0	26/9/24	S			X							1		
	Total Counts			2		12							14		

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature		Date	30/09/2024	Time	8.30am

Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Temperature	
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report №	

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☐ **Perth Laboratory** Unit 2 91 Leach Highway Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

Company	GHD	Project №	12647853	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Peterborough Further DSI	EDD Format (ESdat, EDaIS etc)	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
Email for Invoice	accountspayableAU@ghd.com ben.petticrew
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

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☐ Same day ♦ ☐ 1 day ♦
☐ 2 days ♦ ☐ 3
☑ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	MW07_6.0	26/9/24	S			X							1		
	MW07_7.0	26/9/24	S			X							1		
	MW07_8.0	26/9/24	S			X							1		
	MW07_9.0	26/9/24	S			X							1		
	MW07_10.0	26/9/24	S			X							1		
	MW07_11.0	26/9/24	S			X							1		
	MW07_12.0	26/9/24	S			X							1		
	MW07_13.0	26/9/24	S			X							1		
	MW07_14.0	26/9/24	S			X							1		
	MW07_15.0	26/9/24	S	X									1		
	MW04_0-0.2	27/9/24	S			X							1		CONCRETE
	MW04_0.4-0.5	27/9/24	S	X									1		
	MW04_0.5	27/9/24	S			X							1		
	MW04_1.0	27/9/24	S			X							1		
	Total Counts			2		12							14		

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature	Date 30/09/2024	Time	8.30am

Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time	Temperature	
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time	Report №	

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☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

Company	GHD	**Project №**	12647853	**Project Manager**	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	**Project Name**	MFS Peterborough Further DSI	**EDD Format** (ESdat, EQuIS etc)	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
Email for Invoice	accountspayableAU@ghd.com ben.petticrew
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

Analytes — Where metals are required, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

Containers — Change container type & size if necessary

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

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☐ Same day ◆ ☐ 1 day ◆
☐ 2 days ◆ ☐ 3
☑ 5 days (Standard)
☐ Other(

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	MW04_1.5	27/9/24	S			X							1		
	MW04_2.0	27/9/24	S			X							1		
	MW04_2.5	27/9/24	S			X							1		
	MW04_3.0	27/9/24	S			X							1		
	MW04_3.5	27/9/24	S			X							1		
	MW04_4.0	27/9/24	S			X							1		
	MW04_4.5	27/9/24	S			X							1		
	MW04_5.0	27/9/24	S			X							1		
	MW04_6.0	27/9/24	S			X							1		
	MW04_7.0	27/9/24	S			X							1		
	MW04_8.0	27/9/24	S			X							1		
	MW04_9.0	27/9/24	S			X							1		
	MW04_10.0	27/9/24	S			X							1		
	MW04_11.0	27/9/24	S			X							1		
	Total Counts					14							14		

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature		Date	30/09/2024	Time	8.30am

Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Temperature	
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Contact Name	Terrence Wilson				
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Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
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	MW04_12.0	27/9/24	S			X							1		
	MW04_13.0	27/9/24	S			X							1		
	MW04_14.0	27/9/24	S	X									1		
	MW04_15.0	27/9/24	S			X							1		
	BH10_0-0.2	27/9/24	S	X									1		CONCRETE
	BH10_0.4-0.5	27/9/24	S			X							1		
	BH10_0.5	27/9/24	S	X									1		
	BH10_1.0	27/9/24	S			X							1		
	BH10_1.5	27/9/24	S	X									1		
	BH10_2.0	27/9/24	S			X							1		
	QC05	24/9/24	S	X											
	QA05	24/9/24	S	X											Please forward to ALS
	QC06	25/9/24	S			X									
	QA06	25/9/24	S			X									
	Total Counts			6		8							10		

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature	Date	30/09/2024	Time	8.30am

Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Temperature	
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report №	

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Company	GHD	Project №	12547853	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Peterborough Further DSI	EDD Format ESdat, EQuIS etc	Esdat
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Handed over by	Louise Wright
Email for Invoice	accountspayableAU@ghd.com ben.petticrew
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

Containers — Change container type & size if necessary.

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

♦Surcharge will apply

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

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	QC07	25/9/24	S			X			1						
	QA07	25/9/24	S			X			1						
	QC08	25/9/24	S			X			1						
	QA08	25/9/24	S			X			1						
	QC09	26/9/24	S			X			1						CONCRETE
	QA09	26/9/24	S			X			1						
	QC10	26/9/24	S			X			1						
	QA10	26/9/24	S			X			1						
	QC11	27/9/24	S			X			1						
	QA11	27/9/24	S			X			1						
	QC12	24/9/24	S	X					1						
	QA12	24/9/24	S	X					1						Please forward to ALS
	FB03	25/9/24	W		X							1			
	RB03	25/9/24	W		X							1			
	Total Counts			2	2	10			12			2			

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature	Date	30/09/2024	Time	8.30am
Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time		Temperature	
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time		Report №	

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Approved by G Jackson Approved on 8 August 2018

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing, ABN 50 005 085 521

☐ **Sydney Laboratory** Unit F3 Bld,F 16 Mars Road Lane Cove West NSW 2066 02 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory** Unit 1 21 Smallwood Place Murarrie QLD 4172 07 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** Unit 2 91 Leach Highway Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

Company	GHD	Project №	12647853	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Peterborough Further DSI	EDD Format ESdat, EQuIS etc	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
Email for Invoice	accountspayableAU@ghd.com ben.petticrew
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	Containers: 500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	FB04	26/9/24	W		X							1			
	RB04	26/9/24	W		X							1			
	FB05	27/9/24	W		X							1			
	RB05	27/9/24	W		X							1			
	Total Counts				4							4			

Containers — Change container type & size if necessary.

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

♦ Surcharge will apply

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

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature	Date 30/09/2024 Time 8.30am
Laboratory Use Only	Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW		Signature		Date	Time Temperature
	Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW		Signature		Date	Time Report №

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Jessica Sheppard

From: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Sent: Friday, 4 October 2024 12:42 PM
To: #AU_CAU001_EnviroSampleVic
Cc: Terrence Wilson; Parimal Acharya
Subject: Fw: GHD: 12647853_COC_Soil Samples (PFAS)
Attachments: 12647853-Eurofins COC_Soil Samples_24-27.09.2024.xlsx

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.

Thanks for sending this through Terrence.

@EnviroSampleVic - **Please see attached COC for samples in Melbourne.**

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

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: Terrence Wilson <Terrence.Wilson@ghd.com>
Sent: Friday, October 4, 2024 12:37 PM
To: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Cc: Parimal Acharya <ParimalAcharya@eurofins.com>
Subject: GHD: 12647853_COC_Soil Samples (PFAS)

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,

Please find attached CoC for soil samples relinquished on Monday (30 Sep). As per CoC, please forward the following QA/QC samples to ALS for analysis:

- QA05
- QA12

If you have any questions, please let me know.

eurofins | Environment Testing

PROJECT INFORMATION

Date Received: 30/09/'24

Company: GHD.

Contact person: Lachlan. C / Terrence W.

Contact Number:

Contact E-mail:

Project Name/site:

Project Number: 12647853.

COC: **Attached** ☐ No ice.
E-mailed ☑
Not received ☐

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

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☐ **Brisbane Laboratory** Unit 1 21 Smallwood Place Murarrie QLD 4172 07 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** Unit 2 91 Leach Highway Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

COPY

14

M4

Company	GHD	Project №	12647853	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Peterborough Further DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
Email for Invoice	accountspayableAU@ghd.com ben.petticrew
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to allocate SUITE pricing

Containers — Change container type & size if necessary

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

♦Surcharge will apply

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

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	MW04_12.0	27/9/24	S			X							1		
	MW04_13.0	27/9/24	S			X							1		
	MW04_14.0	27/9/24	S	X									1		
	MW04_15.0	27/9/24	S			X							1		
	BH10_0-0.2	27/9/24	S	X									1		CONCRETE
	BH10_0.4-0.5	27/9/24	S			X							1		
	BH10_0.5	27/9/24	S	X									1		
	BH10_1.0	27/9/24	S			X							1		
	BH10_1.5	27/9/24	S	X									1		
	BH10_2.0	27/9/24	S			X							1		
	QC05	24/9/24	S	X											
	QA05	24/9/24	S	X											Please forward to ALS
	QC06	25/9/24	S			X									
	QA06	25/9/24	S			X									
	Total Counts			6		8							10		

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature	Date	30/09/2024	Time	8.30am
Laboratory Use Only	Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW		Signature		Date	Time		Temperature	
	Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW		Signature		Date	Time		Report №	

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CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521 ACN

☐ **Sydney Laboratory** Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066 02 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory** Unit 1 21 Smallwood Place Murarrie QLD 4172 07 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** Unit 2 91 Leach Highway Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

COPY

(14)

Company	GHD	Project №	12647853	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Peterborough Further DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Terrence Wilson				
Phone №	0467 034 756				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Louise Wright (LW), Sam Marsh (SM)
Handed over by	Louise Wright
Email for Invoice	accountspayableAU@ghd.com ben.petticrew
Email for Results	louise.wright@ghd.com terrence.wilson@ghd.com ben.petticrew@ghd.com

Analyses (Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing)

Containers (Change container type & size if necessary)

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

♦Surcharge will apply

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

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Extended Suite - 30 PFAS (Standard LOR)	PFAS Short Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	QC07	25/9/24	S			X			1						
	QA07	25/9/24	S			X			1						
	QC08	25/9/24	S			X			1						
	QA08	25/9/24	S			X			1						
	QC09	26/9/24	S			X			1						CONCRETE
	QA09	26/9/24	S			X			1						
	QC10	26/9/24	S			X			1						
	QA10	26/9/24	S			X			1						
	QC11	27/9/24	S			X			1						
	QA11	27/9/24	S			X			1						
	QC12	24/9/24	S	X					1						
	QA12	24/9/24	S	X					1						Please forward to ALS
	FB03	25/9/24	W		X							1			
	RB03	25/9/24	W		X							1			
	Total Counts			2	2	10			12			2			

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Louise Wright	Signature		Date	30/09/2024	Time	8.30am
Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature			Date		Time		Temperature
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature			Date		Time		Report №

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Appendix F

Tabulated Analytical Reports

					Misc.	PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids										
					Moisture	Perfluorobutane sulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorononane sulfonate (PFNS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluoropropanesulfonic acid (PFPrS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	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)
					%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					1	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
PFAS NEMP 2.0 2020 Ecological direct exposure										1										10				
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites										0.14[#1]														
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)										2			2							20				
SA MFS Site Specific Criteria - Regional (Retained)																				50				
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**																				
BH07	24 Sep 2024	BH07_0-0.2	0 - 0.2	1145986	3.8	<0.005	0.0050	<0.005	0.0052	1.2[#2]	<0.005	0.0062[#2]	0.11[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0082[#2]	<0.005	<0.005	<0.005	<0.005
BH07	24 Sep 2024	BH07_0.5	0.5 - 0.6	1145986	11	<0.005	<0.005	<0.005	<0.005	0.085[#2]	<0.005	<0.005	<0.005[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH07	24 Sep 2024	BH07_1.5	1.5 - 1.6	1145986	14	<0.005	<0.005	<0.005	<0.005	0.012[#2]	<0.005	<0.005	<0.005[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH08	24 Sep 2024	BH08_0-0.2	0 - 0.2	1145986	3.8	<0.005	<0.005	<0.005	<0.005	0.36[#2]	<0.005	<0.005	0.02[#2]	<0.005	<0.005	<0.005	<0.005	0.0052	<0.005	<0.005[#2]	<0.005	<0.005	<0.005	<0.005
BH08	24 Sep 2024	BH08_0.5	0.5 - 0.6	1145986	6.3	<0.005	<0.005	<0.005	<0.005	0.73[#2]	<0.005	<0.005	0.014[#2]	<0.005	<0.005	<0.005	<0.005	0.0074	<0.005	<0.005[#2]	<0.005	<0.005	<0.005	<0.005
BH08	24 Sep 2024	BH08_1.5	1.5 - 1.6	1145986	9.9	0.42	<0.005	<0.005	0.12	0.62[#2]	0.22	0.43	2.3[#2]	0.15	<0.005	<0.005	0.15[#2]	0.84	<0.005	0.18[#2]	0.28	<0.005	<0.005	<0.005
BH09	24 Sep 2024	BH09_0-0.2	0 - 0.2	1145986	4.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH09	24 Sep 2024	BH09_0.5	0.5 - 0.6	1145986	17	<0.005	<0.005	<0.005	<0.005	0.038[#2]	<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
BH09	24 Sep 2024	BH09_1.5	1.5 - 1.6	1145986	11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH10	27 Sep 2024	BH10_0-0.2	0 - 0.2	1145986	3.4	<0.005	<0.005	<0.005	<0.005	0.0097[#2]	<0.005	<0.005	0.0084[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH10	27 Sep 2024	BH10_0.5	0.5 - 0.6	1145986	20	<0.005	<0.005	<0.005	<0.005	0.3[#2]	<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
BH10	27 Sep 2024	BH10_1.5	1.5 - 1.6	1145986	14	<0.005	<0.005	<0.005	<0.005	0.18[#2]	<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
MW04	27 Sep 2024	MW04_0.4-0.5	0.4 - 0.5	1145986	10	<0.005	<0.005	<0.005	<0.005	0.053[#2]	<0.005	<0.005	0.012[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW04	27 Sep 2024	MW04_14.0	14 - 14.1	1145986	22	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW05	25 Sep 2024	MW05_0-0.2	0 - 0.2	1145986	6.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW05	25 Sep 2024	MW05_15.0	14.9 - 15	1145986	25	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW06	25 Sep 2024	MW06_0-0.2	0 - 0.2	1145986	4.1	<0.005	<0.005	<0.005	<0.005	0.012[#2]	<0.005	<0.005	<0.005[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW06	25 Sep 2024	MW06_11.0	11 - 11.1	1145986	27	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW07	26 Sep 2024	MW07_0-0.2	0 - 0.2	1145986	3.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW07	26 Sep 2024	MW07_15.0	14.9 - 15	1145986	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	<0.005	<0.005	<0.005	<0.005	<0.005
Historica results																								
BH01	24 Sep 2023	BH01_0.5	0.5	1029914	11	<0.005	<0.005	<0.005	<0.005	0.23[#2]	<0.005	<0.005	0.0069[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH01	24 Sep 2023	BH01_2.0	2	1029914	13	<0.005	<0.005	<0.005	<0.005	0.12[#2]	<0.005	<0.005	0.0051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH03	24 Sep 2023	BH03_0.1	0.1	1029914	5.1	<0.005	0.0067[#2]	0.0074[#2]	<0.005	0.15[#2]	<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
BH03	24 Sep 2023	BH03_1.5	1.5	1029914	6.0	0.0090[#2]	<0.005	<0.005	<0.005	0.085[#2]	<0.005	0.0070[#2]	0.071[#2]	<0.005	<0.005	<0.005	<0.005	0.019	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH04	24 Sep 2023	BH04_0.5	0.5	1029914	12	<0.005	<0.005	0.012[#2]	<0.005	0.4[#2]	<0.005	<0.005	0.013[#2]	<0.005	<0.005	<0.005	<0.005	0.0057	<0.005	<0.005	0.0056	<0.005	<0.005	<0.005
BH04	24 Sep 2023	BH04_2.5	2.5	1029914	6.2	<0.005	<0.005	<0.005	<0.005	0.28[#2]	<0.005	<0.005	0.055[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH05	22 Sep 2023	BH05_0.5	0.5	1029914	9.0	<0.005	<0.005	0.034[#2]	<0.005	0.81[#2]	<0.005	<0.005	0.019[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH05	22 Sep 2023	BH05_2.5	2.5	1029914	10	<0.005	<0.005	<0.005	<0.005	0.58[#2]	<0.005	<0.005	0.0071[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH06	22 Sep 2023	BH06_0.5	0.5	1029914	12	<0.005	<0.005	0.0096[#2]	<0.005	0.51[#2]	<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
BH06	22 Sep 2023	BH06_3.5	3.5	1029914	15	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.042[#2]	<0.005	<0.005	<0.005	<0.005	0.0051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW01	23 Sep 2023	MW01_0.5	0.5	1029914	9.2	<0.005	0.0077[#2]	0.02[#2]	<0.005	0.81[#2]	<0.005	<0.005	0.021[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW01	23 Sep 2023	MW01_4.5	4.5	1029914	7.5	<0.005	<0.005	<0.005	<0.005	0.065[#2]	<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
MW02	22 Sep 2023	MW02_5.5	5.5	1029914	8.9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0100[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW02	22 Sep 2023	MW02_0.5	0.5	1029914	15	<0.005	<0.005	<0.005	<0.005	1.1[#2]	<0.005	<0.005	0.022[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW03	23 Sep 2023	MW03_0.5	0.5	1029914	8.2	<0.005	<0.005	<0.005	<0.005	0.39[#2]	<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
MW03	23 Sep 2023	MW03_3.0	3	1029914	6.7	0.0056[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	0.0060[#2]	0.038[#2]	<0.005	<0.005	<0.005	<0.005	0.0071	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS01	23 Sep 2023	SS01	0	1029914	6.7	<0.005	<0.005	<0.005	<0.005	0.1[#2]	<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
SS02	23 Sep 2023	SS02	0	1029914	4.0	<0.005	0.017[#2]	0.016[#2]	<0.005	0.33[#2]	<0.005	<0.005	0.022[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS03	23 Sep 2023	SS03	0	1029914	5.9	<0.005	0.01[#2]	0.0075[#2]	<0.005	0.18[#2]	<0.005	<0.005	0.0070[#2]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS04	23 Sep 2023	SS04	0	1029914	4.3	<0.005	<0.005	<0.005	<0.005	0.059[#2]	<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

Comments

#1 If the concentration of PFHxS > PFOS this guideline value needs to be adjusted accordingly. Please refer to Section 8.5.2.1 of the PFAS NEMP 2.0 guideline for further information

#2 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.

Environmental Standards

HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
28/06/2023, SA MFS Site Specific Criteria - Regional (Retained)

					PFAS - Perfluoroalkyl Sulfonamide							PFAS - Fluorotelomer Sulfonic Acids				PFAS - Sums				
					N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	Perfluorooctane sulfonamide (FOSA)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)[*]	Sum of PFHxS and PFOS	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)[*]
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.005	0.01	0.005	0.005	0.01	0.005	0.005	0.005	0.005	0.01	0.005	0.05	0.01	0.005	0.005	0.005
PFAS NEMP 2.0 2020 Ecological direct exposure																				
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites																				
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)																			2[#1]	
SA MFS Site Specific Criteria - Regional (Retained)																			40	
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**																
BH07	24 Sep 2024	BH07_0-0.2	0 - 0.2	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	1.3346	1.3182	1.2082	1.31	1.3182
BH07	24 Sep 2024	BH07_0.5	0.5 - 0.6	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.085	0.085	0.085	0.085	0.085
BH07	24 Sep 2024	BH07_1.5	1.5 - 1.6	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.012	0.012	0.012	0.012
BH08	24 Sep 2024	BH08_0-0.2	0 - 0.2	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0062[#2]	<0.005	<0.005	<0.01	<0.005	0.3914	0.3852	0.36	0.38	0.38
BH08	24 Sep 2024	BH08_0.5	0.5 - 0.6	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.7514	0.7514	0.73	0.744	0.744
BH08	24 Sep 2024	BH08_1.5	1.5 - 1.6	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.088	<0.005	5.798	5.028	0.8	2.92	3.1
BH09	24 Sep 2024	BH09_0-0.2	0 - 0.2	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH09	24 Sep 2024	BH09_0.5	0.5 - 0.6	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.038	0.038	0.038	0.038
BH09	24 Sep 2024	BH09_1.5	1.5 - 1.6	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH10	27 Sep 2024	BH10_0-0.2	0 - 0.2	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.0181	0.0097	0.0181	0.0181
BH10	27 Sep 2024	BH10_0.5	0.5 - 0.6	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.3	0.3	0.3	0.3	0.3
BH10	27 Sep 2024	BH10_1.5	1.5 - 1.6	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.18	0.18	0.18	0.18	0.18
MW04	27 Sep 2024	MW04_0.4-0.5	0.4 - 0.5	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.065	0.065	0.053	0.065	0.065
MW04	27 Sep 2024	MW04_14.0	14 - 14.1	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
MW05	25 Sep 2024	MW05_0-0.2	0 - 0.2	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
MW05	25 Sep 2024	MW05_15.0	14.9 - 15	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
MW06	25 Sep 2024	MW06_0-0.2	0 - 0.2	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.012	0.012	0.012	0.012
MW06	25 Sep 2024	MW06_11.0	11 - 11.1	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
MW07	26 Sep 2024	MW07_0-0.2	0 - 0.2	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
MW07	26 Sep 2024	MW07_15.0	14.9 - 15	1145986	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
Historica results																				
BH01	24 Sep 2023	BH01_0.5	0.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.2369	0.2369	0.23	0.2369	0.2369
BH01	24 Sep 2023	BH01_2.0	2	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.1251	0.1251	0.12	0.1251	0.1251
BH03	24 Sep 2023	BH03_0.1	0.1	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.1641	0.15	0.15	0.15	0.15
BH03	24 Sep 2023	BH03_1.5	1.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.191	0.184	0.085	0.156	0.156
BH04	24 Sep 2023	BH04_0.5	0.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.062	<0.005	0.4983	0.4863	0.4	0.413	0.413
BH04	24 Sep 2023	BH04_2.5	2.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.335	0.335	0.28	0.335	0.335
BH05	22 Sep 2023	BH05_0.5	0.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.863	0.829	0.81	0.829	0.829
BH05	22 Sep 2023	BH05_2.5	2.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.5871	0.5871	0.58	0.5871	0.5871
BH06	22 Sep 2023	BH06_0.5	0.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.5196	0.51	0.51	0.51	0.51
BH06	22 Sep 2023	BH06_3.5	3.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.0471	<0.005	0.042	0.042
MW01	23 Sep 2023	MW01_0.5	0.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0061	<0.005	<0.005	<0.01	<0.005	0.8648	0.831	0.81	0.831	0.831
MW01	23 Sep 2023	MW01_4.5	4.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.065	0.065	0.065	0.065	0.065
MW02	22 Sep 2023	MW02_5.5	5.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.01	<0.005	0.01	0.01
MW02	22 Sep 2023	MW02_0.5	0.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	1.122	1.122	1.1	1.122	1.122
MW03	23 Sep 2023	MW03_0.5	0.5	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.39	0.39	0.39	0.39	0.39
MW03	23 Sep 2023	MW03_3.0	3	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.0567	0.0507	<0.005	0.038	0.038
SS01	23 Sep 2023	SS01	0	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.1	0.1	0.1	0.1	0.1
SS02	23 Sep 2023	SS02	0	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.385	0.352	0.33	0.352	0.352
SS03	23 Sep 2023	SS03	0	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.2045	0.187	0.18	0.187	0.187
SS04	23 Sep 2023	SS04	0	1029914	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.059	0.059	0.059	0.059	0.059

Comments

#1 If the concentration of PFHxS > PFOS this guideline value needs to be adjusted accordingly. Please refer to Section 8.5.2.1 of the PFAS NEMP 2.0 guideline for further information

#2 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.

Environmental Standards

HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
28/06/2023, SA MFS Site Specific Criteria - Regional (Retained)

				Acidity & Alkalinity				Major Ions									Nutrients			
				Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)	Chloride	Sulfate (filtered)	Cations Total	Anions Total	Ionic Balance	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L
EQL				1	1	1	1	1	1	1	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems																				
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																				
PFAS NEMP 2.0 2020 Health Drinking Water																				
PFAS NEMP 2.0 2020 Recreational Water																				
Location Code	**Date**	**Field ID**	**Lab Report Number**																	
MW01	08 Oct 2024	MW01	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02	08 Oct 2024	MW02	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03	08 Oct 2024	MW03	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW04	09 Oct 2024	MW04	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW05	09 Oct 2024	MW05	EM2417599	<1	291	<1	291	138	163	24	757	1,460	213	53.8	51.4	2.29	0.03	10.4	0.01	10.4
MW06	09 Oct 2024	MW06	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW07	09 Oct 2024	MW07	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Historical results																				
MW01	27 Sep 2023	MW01	1031206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01	27 Sep 2023	MW01 (12616806)	1033582_03	<10	1,200	-	-	34	57	20	410	270	120		-		0.15	1.7	-	-
MW02	27 Sep 2023	MW02	1031206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03	27 Sep 2023	MW03	1031206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics (excluding historical)																				
Number of Results				4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Number of Detects				0	4	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Minimum Concentration				<1	56	<1	56	15	11	4	80	105	47	5.24	5.06	1.72	0.03	0.27	0.01	0.29
Minimum Detect				ND	56	ND	56	15	11	4	80	105	47	5.24	5.06	1.72	0.03	0.27	0.01	0.29
Maximum Concentration				<1	291	<1	291	138	163	24	757	1,460	213	53.8	51.4	2.94	0.7	10.4	0.03	10.4
Maximum Detect				ND	291	ND	291	138	163	24	757	1,460	213	53.8	51.4	2.94	0.7	10.4	0.03	10.4
Average Concentration *				0.5	115	0.5	115	47	49	9.5	250	445	89	17	17	2.4	0.5	2.8	0.02	2.8
Geometric Average *				0.5	85	0.5	85	28	22	7	142	206	69	9.6	9.1	2.4	0.31	0.72	0.019	0.76
Median Concentration *				0.5	56	0.5	56	17	11	5	82.5	108	48	5.47	5.165	2.545	0.645	0.31	0.02	0.335
Standard Deviation *				0	118	0	118	61	76	9.7	338	677	83	24	23	0.55	0.32	5.1	0.0082	5
Geometric Standard Deviation *				1	2.3	1	2.3	2.9	3.9	2.3	3	3.7	2.1	3.2	3.2	1.3	4.7	5.9	1.6	5.7
95% UCL (Student's-t) *				0.5	253	0.5	253	118.3	138.4	20.89	647.8	1,241	186.3	45.97	43.92	3.089	0.88	8.767	0.0296	8.771
% of Detects				0	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100
% of Non-Detects				100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Indicative purposes only
#2 For indicative purposes only
#3 Reported Analyte LOR is higher than Requested Analyte LOR
#4 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.

Environmental Standards

HEPA, Jan 2020, PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems
HEPA, January 2020, PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Health Drinking Water
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Recreational Water

					Metals															PFAS - Perfluoroalkyl Sulfonic Acids							
					Alkalinity (Carbonate as CaCO3)	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)	Lead	Lead (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Zinc	Zinc (filtered)	Perfluorobutane sulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorononane sulfonate (PFNS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluoropropanesulfonic acid (PFPrS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL					1	0.001	0.001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.0001	0.0001	0.001	0.001	0.005	0.005	0.0005	0.0005	0.001	0.0005	0.0001	0.001	0.0005	0.0005
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems																									0.13			
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																									0.00023			
PFAS NEMP 2.0 2020 Health Drinking Water																									0.07			0.07
PFAS NEMP 2.0 2020 Recreational Water																									2			2
Location Code	**Date**	**Field ID**	**Lab Report Number**																										
MW01	08 Oct 2024	MW01	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.40	<0.0005	-	1.36	1.73	-	11.6	88.7
MW02	08 Oct 2024	MW02	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.404	<0.0005	-	0.0251	0.198	-	0.404	1.40
MW03	08 Oct 2024	MW03	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.74	<0.0005	-	0.805	1.56	-	4.88	32.2
MW04	09 Oct 2024	MW04	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.672	<0.0005	-	0.113	2.16	-	0.848	3.46
MW05	09 Oct 2024	MW05	EM2417599	<1	0.004	0.001	<0.0001	<0.0001	0.006	0.001	0.010	0.005	0.001	<0.001	<0.0001	<0.0001	0.016	0.006	0.064	0.048	<0.0005	<0.0005	<0.002	0.0005	0.0151	<0.010	0.0018	0.0116
MW06	09 Oct 2024	MW06	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	-	0.0130	0.110	-	0.0020	0.0286
MW07	09 Oct 2024	MW07	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	-	<0.0005	0.0083	-	0.0008	0.0039
Historical results																												
MW01	27 Sep 2023	MW01	1031206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.1[#2]	<0.01	<0.01	0.87[#2]	1.0[#2]	1.3	5.5[#2]	48[#2]
MW01	27 Sep 2023	MW01 (12616806)	1033582_03	<10	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02	27 Sep 2023	MW02	1031206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.89	<0.01	<0.01	0.07[#2]	0.52[#2]	0.41	0.64[#2]	2.9[#2]
MW03	27 Sep 2023	MW03	1031206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.9[#2]	<0.01	<0.01	0.57[#2]	0.70[#2]	0.87	3.4[#2]	28[#2]
Statistics (excluding historical)																												
Number of Results				4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	12	12	2	12	12	2	12	12
Number of Detects				0	1	1	0	0	2	1	4	3	2	1	0	0	2	1	4	4	6	0	0	9	12	0	9	11
Minimum Concentration				<1	<0.001	0.001	<0.0001	<0.0001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.0001	<0.0001	<0.001	<0.001	0.01	0.006	<0.0005	<0.0005	<0.001	0.0005	0.0004	<0.001	<0.0005	<0.0005
Minimum Detect				ND	0.004	0.001	ND	ND	0.002	0.001	0.001	0.002	0.001	0.001	ND	ND	0.002	0.006	0.01	0.006	0.0009	ND	ND	0.0005	0.0004	ND	0.0008	0.0039
Maximum Concentration				<1	0.004	0.001	<0.0001	<0.0001	0.006	0.001	0.01	0.005	0.004	0.001	<0.0001	<0.0001	0.016	0.006	0.064	0.048	6.4	<0.001	<0.002	1.36	2.16	<0.01	11.6	88.7
Maximum Detect				ND	0.004	0.001	ND	ND	0.006	0.001	0.01	0.005	0.004	0.001	ND	ND	0.016	0.006	0.064	0.048	6.4	ND	ND	1.36	2.16	ND	11.6	88.7
Average Concentration *				0.5	0.0014	0.00062	0.00005	0.00005	0.0023	0.00062	0.004	0.0024	0.0015	0.00062	0.00005	0.00005	0.0048	0.0019	0.032	0.023	0.85	0.00027	0.00075	0.2	0.5	0.0028	1.5	11
Geometric Average *				0.5	0.00084	0.00059	0.00005	0.00005	0.0013	0.00059	0.0028	0.0018	0.001	0.00059	0.00005	0.00005	0.0017	0.00093	0.024	0.018	0.0056	0.00026	0.00071	0.0077	0.069	0.0016	0.011	0.11
Median Concentration *				0.5	0.0005	0.0005	0.00005	0.00005	0.00125	0.0005	0.0025	0.002	0.00075	0.0005	0.00005	0.00005	0.00125	0.0005	0.028	0.0195	0.000575	0.00025	0.00075	0.0074	0.0657	0.00275	0.0019	0.0221
Standard Deviation *				0	0.0018	0.00025	0	0	0.0026	0.00025	0.0041	0.0019	0.0017	0.00025	0	0	0.0075	0.0028	0.026	0.018	1.9	0.000072	0.00035	0.43	0.81	0.0032	3.5	26
Geometric Standard Deviation *				1	2.8	1.4	1	1	3.3	1.4	2.6	2.6	2.7	1.4	1	1	5.1	3.5	2.5	2.4	66	1.2	1.6	21	13	5.1	57	47
95% UCL (Student's-t) *				0.5	0.00343	0.00091917	0.00005	0.00005	0.00531	0.00091917	0.0088	0.0046	0.00348	0.00091917	0.00005	0.00005	0.0136	0.00511	0.0628	0.0447	1.845	0.00030825	0.00233	0.419	0.921	0.017	3.281	24.13
% of Detects				0	25	25	0	0	50	25	100	75	50	25	0	0	50	25	100	100	50	0	0	75	100	0	75	92
% of Non-Detects				100	75	75	100	100	50	75	0	25	50	75	100	100	50	75	0	0	50	100	100	25	0	100	25	8

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Indicative purposes only
#2 For indicative purposes only
#3 Reported Analyte LOR is higher than Requested Analyte LOR
#4 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.

Environmental Standards

HEPA, Jan 2020, PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems
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HEPA, Jan 2020, PFAS NEMP 2.0 2020 Health Drinking Water
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Recreational Water

					PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - Perfluoroalkyl Sulfonamide							PFAS - Fluorotelomer Sulfonic Acids			
				Alkalinity (Carbonate as CaCO3)	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)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorooctane sulfonamide (FOSA)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)
				mg/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				1	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.0005	0.001	0.001	0.0005	0.001	0.0005	0.001	0.001	0.001	0.001
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems											220															
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems											19															
PFAS NEMP 2.0 2020 Health Drinking Water											0.56															
PFAS NEMP 2.0 2020 Recreational Water											10															
Location Code	**Date**	**Field ID**	**Lab Report Number**																							
MW01	08 Oct 2024	MW01	EM2417599	-	0.952	<0.0005	<0.0005	1.51	9.94	0.0064	2.12	1.88	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	0.001	0.062	<0.001
MW02	08 Oct 2024	MW02	EM2417599	-	0.0652	<0.0005	<0.0005	0.0290	0.536	<0.0005	0.0238	0.111	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001
MW03	08 Oct 2024	MW03	EM2417599	-	0.370	<0.0005	<0.0005	0.407	4.14	0.0017	0.752	0.740	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.001	0.003	<0.001
MW04	09 Oct 2024	MW04	EM2417599	-	0.160	0.0006	<0.0005	0.111	1.29	0.290	0.112	0.298	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0016	<0.001	0.008	0.014	<0.001
MW05	09 Oct 2024	MW05	EM2417599	<1	<0.0020	<0.0005	<0.0005	<0.0005	0.0025	<0.0005	0.0014	0.0009	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001
MW06	09 Oct 2024	MW06	EM2417599	-	<0.0020	<0.0005	<0.0005	<0.0005	0.0050	<0.0005	0.0061	0.0013	<0.0008[#3]	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.001	0.002	<0.001
MW07	09 Oct 2024	MW07	EM2417599	-	<0.0020	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001
Historical results																										
MW01	27 Sep 2023	MW01	1031206	-	0.84	<0.01	<0.01	0.69[#2]	5.0	<0.01	0.90[#2]	0.87	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	0.13	<0.01
MW01	27 Sep 2023	MW01 (12616806)	1033582_03	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02	27 Sep 2023	MW02	1031206	-	0.16	<0.01	<0.01	0.06[#2]	1.1	<0.01	0.05[#2]	0.24	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.05	<0.01
MW03	27 Sep 2023	MW03	1031206	-	0.44	<0.01	<0.01	0.46[#2]	3.5	<0.01	0.81[#2]	0.83	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.05	<0.01
Statistics (excluding historical)																										
Number of Results				4	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects				0	5	2	0	5	11	4	11	8	0	0	0	0	0	0	0	0	0	2	0	2	7	1
Minimum Concentration				<1	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	0.001	<0.001	<0.001
Minimum Detect				ND	0.0025	0.0006	ND	0.0033	0.0006	0.0017	0.0006	0.0009	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0013	ND	0.001	0.002	0.005
Maximum Concentration				<1	0.952	0.001	<0.001	1.51	9.94	0.29	2.12	1.88	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	0.008	0.073	0.005
Maximum Detect				ND	0.952	0.001	ND	1.51	9.94	0.29	2.12	1.88	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0016	ND	0.008	0.073	0.005
Average Concentration *				0.5	0.13	0.00036	0.00027	0.17	1.3	0.025	0.26	0.25	0.0003	0.00027	0.00027	0.00067	0.00044	0.00067	0.00067	0.00044	0.00067	0.00064	0.0005	0.0012	0.014	0.00088
Geometric Average *				0.5	0.0073	0.00032	0.00026	0.0031	0.018	0.00091	0.01	0.0049	0.00029	0.00026	0.00026	0.00057	0.0003	0.00057	0.00057	0.0003	0.00057	0.00041	0.0005	0.00067	0.0031	0.00061
Median Concentration *				0.5	0.00175	0.00025	0.00025	0.000375	0.004	0.00025	0.00465	0.00095	0.00025	0.00025	0.00025	0.0005	0.00025	0.0005	0.0005	0.00025	0.0005	0.00025	0.0005	0.0005	0.00275	0.0005
Standard Deviation *				0	0.28	0.00023	0.000072	0.44	3	0.083	0.62	0.56	0.000086	0.000072	0.000072	0.00058	0.00065	0.00058	0.00058	0.00065	0.00058	0.00075	0	0.0022	0.025	0.0013
Geometric Standard Deviation *				1	15	1.6	1.2	28	44	8.6	18	32	1.3	1.2	1.2	1.6	1.9	1.6	1.6	1.9	1.6	2.4	1	2.2	5.9	1.9
95% UCL (Student's-t) *				0.5	0.276	0.00048314	0.00030825	0.399	2.865	0.0685	0.58	0.542	0.00034067	0.00030825	0.00030825	0.00096598	0.00077423	0.00096598	0.00096598	0.00077423	0.00096598	0.00103	0.0005	0.00228	0.027	0.00155
% of Detects				0	42	17	0	42	92	33	92	67	0	0	0	0	0	0	0	0	0	17	0	17	58	8
% of Non-Detects				100	58	83	100	58	8	67	8	33	100	100	100	100	100	100	100	100	100	83	100	83	42	92

* A Non Detect Multiplier of 0.5 has been applied.

Comments

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HEPA, Jan 2020, PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems
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HEPA, Jan 2020, PFAS NEMP 2.0 2020 Recreational Water

					PFAS - Sums				PFAS TOPA - Perfluoroalkyl Carboxylic Acids											PFAS TOPA - Perfluoroalkyl Sulfonic Acids					
				Alkalinity (Carbonate as CaCO3)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFHxS and PFOS	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	PFBA (TOPA)	PFPeA (TOPA)	PFHxA (TOPA)	PFHpA (TOPA)	PFOA (TOPA)	PFNA (TOPA)	PFDA (TOPA)	PFUnDA (TOPA)	PFDoDA (TOPA)	PFTrDA (TOPA)	PFTeDA (TOPA)	PFBS (TOPA)	PFPeS (TOPA)	PFHxS (TOPA)	PFHpS (TOPA)	PFOS (TOPA)	PFDS (TOPA)
				mg/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				1	0.0002	0.0002	0.001	0.0002	0.001	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.002	0.002	0.002	0.002	0.002	0.002
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems														220[#1]											0.13[#1]	
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems														19[#1]											0.00023[#1]	
PFAS NEMP 2.0 2020 Health Drinking Water								0.07						0.56[#2]									0.07[#2]		0.07[#2]	
PFAS NEMP 2.0 2020 Recreational Water								2						10[#2]									2[#2]		2[#2]	
Location Code	**Date**	**Field ID**	**Lab Report Number**																							
MW01	08 Oct 2024	MW01	EM2417599	-	129	113	-	90.4	-	4.83	6.97	26.0	1.24	1.63	0.008	<0.002	<0.002	<0.002	<0.002	<0.005	5.64	8.93	75.5	1.07	1.44	<0.002
MW02	08 Oct 2024	MW02	EM2417599	-	3.40	2.77	-	1.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03	08 Oct 2024	MW03	EM2417599	-	49.6	42.9	-	33.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW04	09 Oct 2024	MW04	EM2417599	-	9.87	8.28	-	5.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW05	09 Oct 2024	MW05	EM2417599	<1	0.0338	0.0315	-	0.0267	-	<0.01	0.004	0.013	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	0.002	0.011	<0.002	0.012	<0.002
MW06	09 Oct 2024	MW06	EM2417599	-	0.168	0.153	-	0.139	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW07	09 Oct 2024	MW07	EM2417599	-	0.0142	0.0134	-	0.0122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Historical results																										
MW01	27 Sep 2023	MW01	1031206	-	69.2	61.53	1.9	49	49.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01	27 Sep 2023	MW01 (12616806)	1033582_03	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02	27 Sep 2023	MW02	1031206	-	7.04	5.92	0.57	3.42	3.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03	27 Sep 2023	MW03	1031206	-	42.48	37.64	1.51	28.7	29.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics (excluding historical)																										
Number of Results				4	12	12	1	12	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects				0	12	12	1	12	1	1	2	2	2	2	1	0	0	0	0	0	1	2	2	1	2	0
Minimum Concentration				<1	0.0004	0.0004	0.021	0.0004	0.035	<0.01	0.004	0.013	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	0.002	0.011	<0.002	0.012	<0.002
Minimum Detect				ND	0.0004	0.0004	0.021	0.0004	0.035	4.83	0.004	0.013	0.002	0.002	0.008	ND	ND	ND	ND	ND	5.64	0.002	0.011	1.07	0.012	ND
Maximum Concentration				<1	129	113	0.021	90.4	0.035	4.83	6.97	26	1.24	1.63	0.008	<0.002	<0.002	<0.002	<0.002	<0.005	5.64	8.93	75.5	1.07	1.44	<0.002
Maximum Detect				ND	129	113	0.021	90.4	0.035	4.83	6.97	26	1.24	1.63	0.008	ND	ND	ND	ND	ND	5.64	8.93	75.5	1.07	1.44	ND
Average Concentration *				0.5	16	14		11		2.4	3.5	13	0.62	0.82	0.0045	0.001	0.001	0.001	0.001	0.0025	2.8	4.5	38	0.54	0.73	0.001
Geometric Average *				0.5	0.29	0.27	0.021	0.21	0.035	0.16	0.17	0.58	0.05	0.057	0.0028	0.001	0.001	0.001	0.001	0.0025	0.075	0.13	0.91	0.033	0.13	0.001
Median Concentration *				0.5	0.1073	0.0989	0.021	0.088	0.035	2.4175	3.487	13.0065	0.621	0.816	0.0045	0.001	0.001	0.001	0.001	0.0025	2.8205	4.466	37.7555	0.5355	0.726	0.001
Standard Deviation *				0	38	33		27		3.4	4.9	18	0.88	1.2	0.0049	0	0	0	0	0	4	6.3	53	0.76	1	0
Geometric Standard Deviation *				1	41	39		35		129	196	216	94	114	4.4	1	1	1	1	1	449	381	516	139	30	1
95% UCL (Student's-t) *				0.5	35.91	31.35		24.9		17.65	25.48	95.04	4.529	5.955	0.0266	0.001	0.001	0.001	0.001	0.0025	20.62	32.65	276.1	3.91	5.234	0.001
% of Detects				0	100	100	100	100	100	50	100	100	100	100	50	0	0	0	0	0	50	100	100	50	100	0
% of Non-Detects				100	0	0	0	0	0	50	0	0	0	0	50	100	100	100	100	100	50	0	0	50	0	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Indicative purposes only
#2 For indicative purposes only
#3 Reported Analyte LOR is higher than Requested Analyte LOR
#4 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.

Environmental Standards

HEPA, Jan 2020, PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems
HEPA, January 2020, PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Health Drinking Water
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Recreational Water

					PFAS TOPA - Perfluoroalkyl Sulfonamide							PFAS TOPA - Fluorotelomer Sulfonic Acids				PFAS TOPA - Sums			
				Alkalinity (Carbonate as CaCO3)	FOSA (TOPA)	MeFOSA (TOPA)	EtFOSA (TOPA)	MeFOSAA (TOPA)	MeFOSE (TOPA)	EtFOSE (TOPA)	EtFOSAA (TOPA)	4:2 FTS (TOPA)	6:2 FTS (TOPA)	8:2 FTS (TOPA)	10:2 FTS (TOPA)	Sum of TOP C4 - C14 as Fluorine (TOPA)	Sum of PFHxS and PFOS (TOPA)	Sum of PFAS	Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfo_
				mg/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				1	0.002	0.005	0.005	0.002	0.005	0.005	0.002	0.005	0.005	0.005	0.005	0.002	0.002	0.002	0.002
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems																			
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																			
PFAS NEMP 2.0 2020 Health Drinking Water																	0.07[#2]		
PFAS NEMP 2.0 2020 Recreational Water																	2[#2]		
Location Code	**Date**	**Field ID**	**Lab Report Number**																
MW01	08 Oct 2024	MW01	EM2417599	-	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	0.023	<0.005	<0.005	83.5	76.9	136	133
MW02	08 Oct 2024	MW02	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03	08 Oct 2024	MW03	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW04	09 Oct 2024	MW04	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW05	09 Oct 2024	MW05	EM2417599	<1	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	0.030	0.023	0.046	0.046
MW06	09 Oct 2024	MW06	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW07	09 Oct 2024	MW07	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Historical results																			
MW01	27 Sep 2023	MW01	1031206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01	27 Sep 2023	MW01 (12616806)	1033582_03	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02	27 Sep 2023	MW02	1031206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03	27 Sep 2023	MW03	1031206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics (excluding historical)																			
Number of Results				4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects				0	0	0	0	0	0	0	0	0	1	0	0	2	2	2	2
Minimum Concentration				<1	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	0.03	0.023	0.046	0.046
Minimum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	0.023	ND	ND	0.03	0.023	0.046	0.046
Maximum Concentration				<1	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	0.023	<0.005	<0.005	83.5	76.9	136	133
Maximum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	0.023	ND	ND	83.5	76.9	136	133
Average Concentration *				0.5	0.001	0.0025	0.0025	0.001	0.0025	0.0025	0.001	0.0025	0.013	0.0025	0.0025	42	38	68	67
Geometric Average *				0.5	0.001	0.0025	0.0025	0.001	0.0025	0.0025	0.001	0.0025	0.0076	0.0025	0.0025	1.6	1.3	2.5	2.5
Median Concentration *				0.5	0.001	0.0025	0.0025	0.001	0.0025	0.0025	0.001	0.0025	0.01275	0.0025	0.0025	41.765	38.4615	68.023	66.523
Standard Deviation *				0	0	0	0	0	0	0	0	0	0.014	0	0	59	54	96	94
Geometric Standard Deviation *				1	1	1	1	1	1	1	1	1	4.8	1	1	273	310	285	280
95% UCL (Student's-t) *				0.5	0.001	0.0025	0.0025	0.001	0.0025	0.0025	0.001	0.0025	0.0775	0.0025	0.0025	305.3	281.2	497.2	486.2
% of Detects				0	0	0	0	0	0	0	0	0	50	0	0	100	100	100	100
% of Non-Detects				100	100	100	100	100	100	100	100	100	50	100	100	0	0	0	0

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Indicative purposes only
#2 For indicative purposes only
#3 Reported Analyte LOR is higher than Requested Analyte LOR
#4 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.

Environmental Standards

HEPA, Jan 2020, PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems
HEPA, January 2020, PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Health Drinking Water
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Recreational Water

			Acidity & Alkalinity				Major Ions									Nutrients		
			Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)	Chloride	Sulfate (filtered)	Cations Total	Anions Total	Ionic Balance	Ammonia as N	Nitrate (as N)	Nitrite (as N)
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L
EQL			1	1	1	1	1	1	1	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems																		
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																		
PFAS NEMP 2.0 2020 Recreational Water																		
Date	**Field ID**	**Lab Report Number**																
08 Oct 2024	SW01	EM2417599	<1	56	<1	56	17	11	5	83	109	48	5.49	5.19	2.80	0.62	0.32	0.03
08 Oct 2024	SW02	EM2417599	<1	56	<1	56	15	11	4	80	105	47	5.24	5.06	1.72	0.67	0.30	0.02
08 Oct 2024	SW03	EM2417599	<1	56	<1	56	17	11	5	82	107	48	5.45	5.14	2.94	0.70	0.27	0.02
08 Oct 2024	SW_HYDRANT	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems
HEPA, January 2020, PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Recreational Water

			Nutrients	Metals														
			Nitrogen (Total Oxidised) (as N)	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)	Lead	Lead (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Zinc
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL			0.01	0.001	0.001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.0001	0.0001	0.001	0.001	0.005
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems																		
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																		
PFAS NEMP 2.0 2020 Recreational Water																		
Date	**Field ID**	**Lab Report Number**																
08 Oct 2024	SW01	EM2417599	0.35	<0.001	<0.001	<0.0001	<0.0001	<0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.0001	<0.0001	<0.001	<0.001	0.013
08 Oct 2024	SW02	EM2417599	0.32	<0.001	<0.001	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.001	<0.001	0.010
08 Oct 2024	SW03	EM2417599	0.29	<0.001	<0.001	<0.0001	<0.0001	0.002	<0.001	0.003	0.002	0.004	0.001	<0.0001	<0.0001	0.002	<0.001	0.043
08 Oct 2024	SW_HYDRANT	EM2417599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed s
HEPA, January 2020, PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value syst
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Recreational Water

			Metals	PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids						
			Zinc (filtered)	Perfluorobutane sulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorononane sulfonate (PFNS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluoropropanesulfonic acid (PFPrS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanoic acid (PFOA)
			mg/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			0.005	0.0005	0.0005	0.001	0.0005	0.0001	0.001	0.0005	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems								0.13										220
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems								0.00023										19
PFAS NEMP 2.0 2020 Recreational Water								2			2							10
Date	**Field ID**	**Lab Report Number**																
08 Oct 2024	SW01	EM2417599	0.014	0.0009	<0.0005	-	0.0235	0.196	-	0.0046	0.249	0.0025	0.0010	<0.0005	0.0033	0.0134	0.0034	0.0498
08 Oct 2024	SW02	EM2417599	0.006	<0.0005	<0.0005	-	0.0018	0.0214	-	<0.0005	0.0156	<0.0020	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	0.0032
08 Oct 2024	SW03	EM2417599	0.025	<0.0005	<0.0005	-	0.0016	0.0211	-	<0.0005	0.0125	<0.0020	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	0.0020
08 Oct 2024	SW_HYDRANT	EM2417599	-	<0.0005	<0.0005	-	<0.0005	0.0004	-	<0.0005	<0.0005	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed s
HEPA, January 2020, PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value syst
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Recreational Water

			PFAS - Perfluoroalkyl Carboxylic Acids				PFAS - Perfluoroalkyl Sulfonamide							PFAS - Fluorotelomer Sulfonic Acids				PFAS - Sums
			Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	Perfluorooctane sulfonamide (FOSA)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	PFAS (Sum of Total)
			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			0.0005	0.0005	0.0005	0.0005	0.001	0.0005	0.001	0.001	0.0005	0.001	0.0005	0.001	0.001	0.001	0.001	0.0002
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems																		
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																		
PFAS NEMP 2.0 2020 Recreational Water																		
Date	**Field ID**	**Lab Report Number**																
08 Oct 2024	SW01	EM2417599	0.0009	<0.0008[#3]	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0013	<0.001	<0.001	0.073	0.005	0.628
08 Oct 2024	SW02	EM2417599	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.001	0.004	<0.001	0.0466
08 Oct 2024	SW03	EM2417599	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.001	0.003	<0.001	0.0411
08 Oct 2024	SW_HYDRANT	EM2417599	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	0.0004

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed s
HEPA, January 2020, PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value syst
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Recreational Water

			PFAS - Sums			
			PFAS (Sum of Total)(WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFHxS and PFOS	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*
			µg/L	µg/L	µg/L	µg/L
EQL			0.0002	0.001	0.0002	0.001
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems						
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems						
PFAS NEMP 2.0 2020 Recreational Water					2	
Date	**Field ID**	**Lab Report Number**				
08 Oct 2024	SW01	EM2417599	0.594	-	0.445	-
08 Oct 2024	SW02	EM2417599	0.0448	-	0.0370	-
08 Oct 2024	SW03	EM2417599	0.0395	-	0.0336	-
08 Oct 2024	SW_HYDRANT	EM2417599	0.0004	-	0.0004	-

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed s
HEPA, January 2020, PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value syst
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Recreational Water

Appendix G

Groundwater Sampling Records

Purging and Sampling Record

Bore ID: MW01

Job Information		Sampling Information		Bore Information	
Client:	MFS	Purge Method:	Bladder Pump	SWL(mbTOC):	11.880 m
Project:	126+7853	Sample Method:	Bladder Pump	Screen: From:	15 to 12 m
Proj. No.:		WQ Meter Type:	YSI	NAPL Check:	
Sampler:	JA, LW	Flow Cell:	(Y) / N	Pump Depth:	13.5 m
Date:	08/10/24	WLevel Meter Type:	Dip / Fox / (Int.Fce) / Gge	Ref.datum:	
Round		Field Filtered? Y / N	(filter vessel, disposable filter/syringe)	Bore Depth:	15.066 m
				Logic Check:	
				Stick Up:	15.066 m
				Bore Diam.:	~~0.05~~ 50 mm
				Well Cap Secure?	Y

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m TOC)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		-	+/- 0.05 pH	+/- 3%	+/- 10%	+/- 10 mV	stable		
230	0	19.7	6.91	2397	26.8	120.5	11.880		
2.33	2	19.6	6.72	2136	29.4	114.5	12.589		
2.35	4	19.7	6.67	2071	35.8	111.9	12.731		
2.39	5	21.4	6.64	2123	34.7	108.8	12.795		
2.42	5	21.4	6.63	2132	33.1	108	12.806		
2.45	5.5	21.4	6.62	2154	33.0	106.9	12.851		
2.49	5.5	21.3	6.61	2218	32.0	105.3	12.881		slow recharge, pumped 10s recharge 80s, water level still not stabilised PSI = 40 → started at 40, reduced to 20
2.52	5.5	21.3	6.61	2232	28.8	103.2	12.922		

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: MW02

Job Information	Sampling Information	Bore Information
Client: MFS	Purge Method:	SWL(mbTOC): 12.047 m
Project: Peterborough Sgy DSI	Sample Method: Low Flow (bladder pump)	Logic Check:
Proj. No.: 12647853	WQ Meter Type: YSI	Screen: From: 14.9 to 13 m
Sampler: JA / LW	Flow Cell: Y / N	Stick Up: m
Date: 08/10/24	Pump Depth: m	NAPL Check:
Round	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Diam.: 50 mm
	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	Ref.datum:
		Well Cap Secure? Y
		Bore Depth: 14.935 m

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m TOC)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		-	*+/- 0.05 pH*	*+/- 3%*	*+/- 10%*	*+/- 10 mV*	*stable*		
4.10		24.8	7.11		89.7	145.9	12.084		
4.13	2	20.3	6.92	2858	67.9	132.7	12.109		
4.16	3	19.8	6.94	2825	63.1	118.6	12.109		
4.19	4	19.5	6.98	2808	61.2	103.7	12.109		
4.22	4.5	19.2	6.98	2794	62.5	91.5	12.109		

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: MW03

Job Information	Sampling Information	Bore Information
Client: MFS	Purge Method:	SWL(mbTOC): 12.054 m
Project: Peterborough Supp DSI	Sample Method: Bladder (Low Flow) Pump	Logic Check:
Proj. No.: 12647853	WQ Meter Type: YSI	Screen: From: 14 to 11 m
Sampler: SA / LW	Flow Cell: (Y) N	Pump Depth: 13 m
Date: 08/10/24	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Stick Up: m
Round	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	NAPL Check:
		Ref.datum:
		Bore Depth: 14.128 m
		Bore Diam.: 50 mm
		Well Cap Secure? Y

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m TOC)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		-	*+/- 0.05 pH*	*+/- 3%*	*+/- 10%*	*+/- 10 mV*	*stable*		
3:20	1	20.2	6.69	2525	6.68	153.9	12.491		
3:24	2	19.3	6.75	2485	56.5	136.5	12.185		
3:27	3	19.1	6.74	2468	53.1	128.4	12.331		
3:32	4	19.3	6.74	2482	46.7	113.7	12.433		
3:35	5	20.4	6.74	2555	46.6	124.4	12.433		
3:38	6	22.0	6.72	2626	46.7	118.7	12.433		
3:41	7	22.0	6.73	2654	44.2	112.9	12.433		

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: MW04

Job Information

Client: MFS
Project: MFS Peterborough WL
Proj. No.: 12647853
Sampler: JA, LW
Date: 09/10/24
Round

Sampling Information

Purge Method:
Sample Method: Bladder pump
WQ Meter Type: YSI
Flow Cell: (Y) / N Pump Depth: 13 m
WLevel Meter Type: Dip / Fox / (Int.Fce) / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL(mbTOC): 11.973 m Logic Check:
Screen: From: 15 to 12 m Stick Up: 15.109 m
NAPL Check: Bore Diam.: 50 mm
Ref.datum: Well Cap Secure? Y
Bore Depth: 15.109 m

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m TOC)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		-	*+/- 0.05 pH*	*+/- 3%*	*+/- 10%*	*+/- 10 mV*	*stable*		
10.08	0	19.1	6.89	3835	46.4	113.8	12.134		
10.11	1	19.0	6.9	3790	47.4	105.7	12.156		Refill increased Discharge decreased
10.14	1	18.5	6.89	3730	44.7	96.3	12.181		PSI decreased
10.17	1.5	18.0	6.9	3684	44.1	88.9	12.181		
10.20	2	17.4	6.9	3634	41.6	78.9	12.181		
10.23	2.5	17.3	6.89	3595	43.5	73.8	12.181		

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: MW05

Job Information		Sampling Information		Bore Information	
Client:	MFS	Purge Method:		SWL(mbTOC):	11.115 m
Project:	MFS Peterborough DSI	Sample Method:	Bladder Pump	Screen: From:	to: m
Proj. No.:	12647853	WQ Meter Type:	YSI	NAPL Check:	
Sampler:	JA, LW	Flow Cell: (Y) / N	Pump Depth: 13 m	Ref.datum:	
Date:	09/10/24	WLevel Meter Type:	Dip / Fox / Int.Fce / Gge	Bore Depth:	15.139 m
Round		Field Filtered? Y / N (filter vessel, disposable filter/syringe)		Logic Check:	
				Stick Up:	15.139 m
				Bore Diam.:	50 mm
				Well Cap Secure?	Y

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m TOC)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		-	+/- 0.05 pH	+/- 3%	+/- 10%	+/- 10 mV	stable		
9.12	1	18.0	6.64	4656	52.6	161.3	11.613		
9.15	1	16.8	6.65	4524	48.7	147.4	11.681		ReRH increased, discharge decreased
9.18	1	17.1	6.66	4559	50.2	137.1	11.661		
9.21	2	17.1	6.66	4557	49.4	132.0	11.661		
9.24	2	17.4	6.66	4591	48.1	124.8	11.661		
9.27	3	17.5	6.66	4607	43.7	120.1	11.661		~~EC~~

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: MW06

Job Information	Sampling Information	Bore Information
Client: MFS	Purge Method: B	SWL(mbTOC): 10.32 m Logic Check:
Project: MFS Peterborough bsl	Sample Method: Bladder Pump	Screen: From: 12 to 9 m Stick Up: 12.114 m
Proj. No.: 12647853	WQ Meter Type: YSI	NAPL Check: Bore Diam.: 50 mm
Sampler: JA, LW	Flow Cell: (Y) / N Pump Depth: 12 m	Ref.datum: Well Cap Secure? Y
Date: 09/10/24	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 12.114 m
Round	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m TOC)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):	-	+/- 0.05 pH	+/- 3%	+/- 10%	+/- 10 mV	stable			
7.59	0	13.2	7.26	3055	22.9	134.9	10.381		
8.02	0.5	13.4	6.82	3115	19.8	143.5	10.382		
8.05	0.5	12.4	6.63	3089	16.9	140.6	10.384		
8.08	0.5	13.7	6.52	3194	17.4	132.5	10.401		
8.11	1	13.5	6.48	3166	17.5	129.7	10.401		
8.14	1	13.1	6.48	3107	18.2	128.8	10.401		
8.17	1.5	13.4	6.48	3176	20.6	125.1	10.401		slow recharge

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: MW07

Job Information

Client: MFS
Project: MFS Peterborough DSI
Proj. No.: 12647853
Sampler: JA, LW
Date: 09/10/24
Round

Sampling Information

Purge Method:
Sample Method: Bladder pump
WQ Meter Type: YSI
Flow Cell: Y / N
Pump Depth: 16 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL(mbTOC): 13.489 m
Logic Check:
Screen: From: 14 to 15 m
Stick Up: 18.199 m
NAPL Check:
Bore Diam.: 50 mm
Ref.datum:
Well Cap Secure? Y
Bore Depth: 14.199 m

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m TOC)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		-	*+/- 0.05 pH*	*+/- 3%*	*+/- 10%*	*+/- 10 mV*	*stable*		
10.56	0	19.1	6.84	3625	33.3	76.1	13.769		PSI 44.0
10.59	1	19.2	6.81	3634	34.8	64.9	14.176		Refill increased, discharge decreased
11.02	2	19.0	6.8	3620	32.7	54.4	14.081		
11.05	3	18.8	6.82	3602	36.0	49.0	13.946		Refill decreased, discharge increased
11.08	4	19.0	6.80	3616	38.4	46.1	13.946		
11.11	5	19.1	6.81	3519	32.9	46.1	13.946		

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Appendix H

Calibration Certificates

Oil / Water Interface Meter 197.0 3102024A

Instrument **Geotech Interface Meter (30m)**
Serial No. **4095**

airmet
Air-Met Scientific Pty Ltd
1800 000 744

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Calibrated by: Jaspher Olanio

Calibration date: **3/10/2024**

Next calibration due: **1/04/2025**

Multi Parameter Water Meter 156.0 3102024A

Instrument **YSI Pro Plus**
Serial No. **11K100627**

Air-Met Scientific Pty Ltd
1800 000 744

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

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

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. D.O		0ppm		416791	0ppm
2. Conductivity		2760µS		424499	2760µS
3. pH7		pH 7		419529	pH 7
4. pH4		pH 4		422643	pH 4
5. Temp °C		19.1°C		MultTherm	19.1°C
6. ORP mV		235.98mV		MultTherm	235.98mV

Calibrated by: Jaspher Olanio

Calibration date: **3-Oct-24**

Next calibration due: **1-Apr-25**

Oil / Water Interface Meter

Instrument Interface Meter (50M)
Serial No. HS2-00353

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	4x >1.5V
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
Connectors	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Tested by: **Trent Chase**

Test date: **12/09/2024**

Next Test due: **11/03/2025**

Appendix I

QA/QC Report

Appendix I - Quality Assurance and Quality Control Report

1. GHD QA/QC Assessment

1.1 Laboratories and data set

All samples collected during the supplementary DSI were submitted to ALS and Eurofins, which are National Association of Testing Authorities (NATA) accredited laboratories, certified to perform the required analysis.

The selected laboratories conducted all the requested analyses in accordance with the guidelines outlined in NEPM 1999 (as amended 2013).

The laboratories used for sample analysis and report details are set out in Table 1.1.

Table 1.1 Analytical laboratories and reports

Laboratory	Primary or Secondary	NATA Certified for Analysis Requested	Report No
ALS	Primary (groundwater and surface water) Secondary (soil)	Yes	EM2417181 EM2417599
Eurofins	Primary (soil) Secondary (groundwater and surface water)	Yes	1145986 1148885

The primary results for the supplementary DSI are summarised in the Tabulated Analytical Results section of the supplementary DSI report, and the laboratory certificates of analysis are located in the appendices. The QA/QC results are outlined in the tables at the end of this QA/QC report.

The data quality assessment detailed in the following pages refers to the data provided in the laboratory reports and the results of the QA/QC analysis. Please note this QA/QC report excludes results and laboratory reports from historical sampling events.

1.2 Data quality indicators

Table 1.2 sets out the QA/QC Data Quality Indicators (DQIs) used in the sampling investigation and outcomes for each of these DQIs.

Table 1.2 Summary of QA/QC compliance for sampling

Item	Objective	Outcome	References
GHD Internal Procedures			
Comparison of field and analytical data	Agreement between visual and olfactory evidence with laboratory results	Achieved	Tabulated Analytical Results; Certificates of Analysis; Borelogs/Field Records.
Calibration of field instruments	Meet calibration specifications	Achieved	Copies of calibration certificates.
Chain of Custody documentation	Supply Chain of Custody Documentation with all samples	Achieved	Copies of Chain of Custody Documentation.
Sample analysis and extraction holding times	Comply with holding times	Achieved	ALS/Eurofins Laboratory Quality Control Reports.

Analysis of inter- and intra-laboratory duplicate samples	Analysis of duplicate samples in 10% of primary samples	Achieved	AS4482.1-2005 and US EPA NEPM 1999 (as amended 2013) and Eurofins/ALS certificates of analysis. PFAS NEMP 2.0.
RPDs of duplicate and split samples	Frequencies and RPDs within guideline and internal laboratory limits (RPD of 0-30%)	Minor non-conformances as stated in Table 2.1	AS4482.1-2005 and US EPA NEPM 1999 (as amended 2013) and Eurofins/ALS certificates of analysis. PFAS NEMP 2.0.
External Laboratory Procedures			
Analysis of laboratory method blanks	No contamination of blanks	Achieved	ALS/Eurofins Laboratory Quality Control Reports.
Analysis of laboratory spike recoveries	Recoveries within the laboratory specified recovery limits	Achieved	Eurofins/ALS Laboratory Quality Control Reports.
Analysis of laboratory internal duplicates	Frequencies and RPDs within guideline and internal laboratory limits (RPD of 0-30%)	Achieved	NEPM 1999 (as amended 2013). Eurofins/ALS Laboratory Quality Control Reports.

QA/QC assessment method

Established QA/QC procedures to assess data quality were maintained throughout the project. The QA/QC program undertaken as part of the assessment by GHD included the following:

- Use of appropriately qualified and trained staff.
- Preservation of samples under chilled conditions from the field to the laboratory.
- Transportation of samples with accompanying chain-of-custody documentation.
- Compliance with sample holding times.
- Review of results of blind duplicate samples.
- Review of results of split duplicate samples.
- Review of results of field blank samples.
- Review of internal analysis of laboratory duplicates, spikes and blanks.

The QC program employed during this investigation was in accordance with the general requirements set out in the Australian Standard AS4482.1 (2005) and the NEMP 2.0 (2020). QC samples provide information that discounts or potentially identifies errors due to possible sources of cross contamination, inconsistencies in sampling and analytical techniques used. The QC program included the collection and analysis of duplicate samples, rinsate samples and field blank samples as described below:

- **Split duplicate samples**: These are duplicate samples split in the field, with one sample being sent to a secondary laboratory for analysis. The same parameters are analysed utilising similar analytical techniques.
- **Blind duplicate samples**: These are coded duplicate samples submitted to the primary laboratory for analysis as individual samples without any indication to the laboratory that they have been duplicated.
- **Rinsate samples**: A sample of deionised water collected from equipment used during sampling to indicate whether cross contamination occurred from equipment.
- **Field blanks**: A sample of analyte-free water poured into a container in the field to assess the potential for cross-contamination from field conditions during sampling.

A quantitative measure of the duplicate sample results was made using calculated relative percentage difference (RPD) values for each chemical. The RPD values were calculated using the following equation.

$$RPD(\%) = \frac{(C_o - C_s)}{\left(\frac{C_o + C_s}{2}\right)} \times 100$$

Where C_o = reported concentration of the chemical of interest from the original parent sample

Cs = reported concentration of the chemical of interest from the duplicate sample

2. GHD QA/QC

2.1 Duplicate samples

Elevated RPD values for duplicate and split samples are summarised in Table 2.1 and presented in full at the end of the QA/QC report.

Table 2.1 Blind duplicate and split duplicate RPD exceedance summary - soil

Primary Sample	QC Sample (Duplicate or Split)	Analyte	Primary result (mg/kg)	Duplicate Result (mg/kg)	Split result (mg/kg)	Highest RPD (%)
Soil						
BH07_1.5	QC05 (D) QA05 (S)	PFOS	0.012	0.012	0.0053	77
		Sum of PFHxS and PFOS	0.012	0.012	0.0061	65
		PFAS (Sum of Total) (WA DER List)	0.012	0.012	0.0061	65
Groundwater						
MW05	FD01 (D) FS01 (S)	PFPeS	0.0018	0.0015	0.001	57
		PFPeA	0.0014	0.0011	0.001	33
		PFOA	0.0009	0.0006	0.0001	40

2.1.1 Soil blind duplicate and split duplicate

The majority of RPDs were calculated within acceptable limits, with the exception of some PFAS analytes in one split sample. The elevated RPDs can be attributed to the following:

– Low analyte concentrations close to or below the LOR.
– Heterogeneity of soils.

Given the heterogeneity of soils, the majority of results being within the same order of magnitude, and the relatively low concentrations reported in the majority of elevated RPDs, GHD considers the data set to be of acceptable quality on which to base the assessment.

2.1.2 Water blind duplicate and split duplicate samples

The majority of RPDs were calculated within acceptable limits, with the exception of some PFAS analytes in one split sample. The elevated RPDs can be attributed to the following:

– Low analyte concentrations close to or below the LOR.

2.1.3 Blind duplicate and split duplicate sample frequency

A summary of the blind and split duplicate sample frequency is presented in Table 2.2.

Table 2.2 Blind duplicate and split duplicate frequency summary

Primary Samples Count	Blind Duplicate Samples Count	Percentage of Primary Samples	Split Samples Count	Percentage of Primary Samples
Soil				
20	2	10%	2	10%
Water				
11	1	9.1%	1	9.1%

Whilst only one duplicate sample was collected for 11 primary water samples, these were submitted to the laboratory in a single batch. GHD considers the data to be of satisfactory quality on which to base the assessment.

2.2 Rinsate blank

Five rinsate blank samples were collected during the investigation and analysed for PFAS. All concentrations of PFAS analytes were reported below the laboratory LOR for analyses carried out, meeting the Data Quality Objectives of the project. The tabulated results for rinsate samples are presented at the end of this QA/QC report.

3. Laboratory QA/QC

3.1 Internal duplicates

All RPDs for laboratory internal duplicates from the ALS and Eurofins reports were within the laboratory nominated acceptable ranges.

3.2 Matrix spikes

All laboratory matrix spikes from the laboratory reports were within the nominated acceptable ranges.

3.3 Laboratory control spikes

All laboratory control spikes from the laboratory reports were within the nominated acceptable ranges.

3.4 Method blanks

All reported method blank concentrations were less than their respective laboratory LORs.

3.5 Compliance with holding times

All analytes were extracted and analysed within both ALS' and Eurofins' technical holding times, with the exception of water samples SW01, SW03, and MW05 which reported a holding time breach for nitrite (ALS EM2417599). Given nitrite is not the target analyte of concern in the investigation and all PFAS analytes were within laboratory accepted holding times, the Data Quality Objectives set for the project have been achieved.

3.6 Laboratory QA/QC summary

GHD considers the analytical data to be of satisfactory precision and accuracy on which to base the assessment.

3.7 Conclusion

Based on the QA/QC program undertaken during the sampling programs, the data obtained during the assessment is considered to be of an acceptable standard on which to base interpretations and draw conclusions regarding the environmental status of the site.

		Location Code	BH07			BH07			BH10			BH10		
		Date	24 Sep 2024	24 Sep 2024		24 Sep 2024	24 Sep 2024		27 Sep 2024	24 Sep 2024		27 Sep 2024	24 Sep 2024	
		Field ID	BH07_1.5	QC05		BH07_1.5	QA05		BH10_0.5	QC12		BH10_0.5	QA12	
		Lab Report Number	1145986	1145986		1145986	EM2417181		1145986	1145986		1145986	EM2417181	
		Matrix Type	Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
Misc.														
% Moisture_	%	1	14	12	15	14	-	-	20	14	**35**	20	-	-
Inorganics														
Moisture (%)	%	0.1	-	-	-	-	11.5	-	-	-	-	-	20.5	-
PFAS - Perfluoroalkyl Sulfonic Acids														
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluorononane sulfonate (PFNS)	mg/kg	0.005	<0.005	<0.005	0	<0.005	-	-	<0.005	<0.005	0	<0.005	-	-
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	0.0009	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002	0.012[#1]	0.012[#1]	0	0.012[#1]	0.0053	**77**	0.3[#1]	0.24[#1]	22	0.3[#1]	0.257	15
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	0.005	<0.005	<0.005	0	<0.005	-	-	<0.005	<0.005	0	<0.005	-	-
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	<0.005[#1]	<0.005	0	<0.005[#1]	0.0008	0	<0.005	<0.005	0	<0.005	0.0022	0
PFAS - Perfluoroalkyl Carboxylic Acids														
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.005	<0.005	0	<0.005	<0.001	0	<0.005	<0.005	0	<0.005	<0.001	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	0.0002	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	0.0003	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0	<0.005	<0.005	0	<0.005	<0.0005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	<0.0002	0

		Location Code	BH07			BH07			BH10			BH10		
		Date	24 Sep 2024	24 Sep 2024		24 Sep 2024	24 Sep 2024		27 Sep 2024	24 Sep 2024		27 Sep 2024	24 Sep 2024	
		Field ID	BH07_1.5	QC05		BH07_1.5	QA05		BH10_0.5	QC12		BH10_0.5	QA12	
		Lab Report Number	1145986	1145986		1145986	EM2417181		1145986	1145986		1145986	EM2417181	
		Matrix Type	Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
PFAS - Perfluoroalkyl Sulfonamide														
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0	<0.005	<0.005	0	<0.005	<0.0005	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	0.0002	<0.01	<0.01	0	<0.01	<0.0002	0	<0.01	<0.01	0	<0.01	<0.0002	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0	<0.005	<0.005	0	<0.005	<0.0005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0	<0.005	<0.005	0	<0.005	<0.0005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	0.0002	<0.01	<0.01	0	<0.01	<0.0002	0	<0.01	<0.01	0	<0.01	<0.0002	0
N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	mg/kg	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0	<0.005	<0.005	0	<0.005	<0.0005	0
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	0.0004	0
PFAS - Fluorotelomer Sulfonic Acids														
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0	<0.005	<0.005	0	<0.005	<0.0005	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0	<0.005	<0.005	0	<0.005	<0.0005	0
6:2 Fluorotelomer Sulfonate (6:2 FTS)	mg/kg	0.0005	<0.01	<0.01	0	<0.01	<0.0005	0	<0.01	<0.01	0	<0.01	<0.0005	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0	<0.005	<0.005	0	<0.005	<0.0005	0
PFAS - Sums														
PFAS (Sum of Total)	mg/kg	0.0002	<0.05	<0.05	0	<0.05	0.0061	0	0.3	0.24	22	0.3	0.261	14
PFAS (Sum of Total)(WA DER List)	mg/kg	0.0002	0.012	0.012	0	0.012	0.0061	**65**	0.3	0.24	22	0.3	0.260	14
Sum of US EPA PFAS (PFOS + PFOA)*	mg/kg	0.005	0.012	0.012	0	0.012	-	-	0.3	0.24	22	0.3	-	-
Sum of PFHxS and PFOS	mg/kg	0.0002	0.012	0.012	0	0.012	0.0061	**65**	0.3	0.24	22	0.3	0.259	15
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	mg/kg	0.005	0.012	0.012	0	0.012	-	-	0.3	0.24	22	0.3	-	-

Comments
#1 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.

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 30 (1 - 10 x EQL); 30 (10 - 30 x EQL); 30 (> 30 x EQL))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

		Location Code	MW05			MW05		
		Date	09 Oct 2024	09 Oct 2024		09 Oct 2024	09 Oct 2024	
		Field ID	MW05	FD01		MW05	FS01	
		Lab Report Number	EM2417599	EM2417599		EM2417599	1148885	
		Matrix Type	Water	Water		Water	Water	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL						
Acidity & Alkalinity								
Alkalinity (Carbonate as CaCO3)	mg/L	1	<1	-	-	<1	-	-
Alkalinity (Bicarbonate as CaCO3)	mg/L	1	291	-	-	291	-	-
Alkalinity (Hydroxide as CaCO3)	mg/L	1	<1	-	-	<1	-	-
Alkalinity (total as CaCO3)	mg/L	1	291	-	-	291	-	-
Major Ions								
Calcium (filtered)	mg/L	1	138	-	-	138	-	-
Magnesium (filtered)	mg/L	1	163	-	-	163	-	-
Potassium (filtered)	mg/L	1	24	-	-	24	-	-
Sodium (filtered)	mg/L	1	757	-	-	757	-	-
Chloride	mg/L	1	1,460	-	-	1,460	-	-
Sulfate (filtered)	mg/L	1	213	-	-	213	-	-
Cations Total	meq/L	0.01	53.8	-	-	53.8	-	-
Anions Total	meq/L	0.01	51.4	-	-	51.4	-	-
Ionic Balance	%	0.01	2.29	-	-	2.29	-	-
Nutrients								
Ammonia as N	mg/L	0.01	0.03	-	-	0.03	-	-
Nitrate (as N)	mg/L	0.01	10.4	-	-	10.4	-	-
Nitrite (as N)	mg/L	0.01	0.01	-	-	0.01	-	-
Nitrogen (Total Oxidised) (as N)	mg/L	0.01	10.4	-	-	10.4	-	-
Metals								
Arsenic	mg/L	0.001	0.004	-	-	0.004	-	-
Arsenic (filtered)	mg/L	0.001	0.001	-	-	0.001	-	-
Cadmium	mg/L	0.0001	<0.0001	-	-	<0.0001	-	-
Cadmium (filtered)	mg/L	0.0001	<0.0001	-	-	<0.0001	-	-
Chromium (III+VI)	mg/L	0.001	0.006	-	-	0.006	-	-
Chromium (III+VI) (filtered)	mg/L	0.001	0.001	-	-	0.001	-	-
Copper	mg/L	0.001	0.010	-	-	0.010	-	-
Copper (filtered)	mg/L	0.001	0.005	-	-	0.005	-	-
Lead	mg/L	0.001	0.001	-	-	0.001	-	-
Lead (filtered)	mg/L	0.001	<0.001	-	-	<0.001	-	-
Mercury	mg/L	0.0001	<0.0001	-	-	<0.0001	-	-
Mercury (filtered)	mg/L	0.0001	<0.0001	-	-	<0.0001	-	-
Nickel	mg/L	0.001	0.016	-	-	0.016	-	-
Nickel (filtered)	mg/L	0.001	0.006	-	-	0.006	-	-
Zinc	mg/L	0.005	0.064	-	-	0.064	-	-
Zinc (filtered)	mg/L	0.005	0.048	-	-	0.048	-	-
PFAS - Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	0.001[#1]	67
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0
Perfluorononane sulfonate (PFNS)	µg/L	0.001	<0.002	-	-	<0.002	<0.001	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.0005	0.0005	0.0006	18	0.0005	<0.001	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.0001	0.0151	0.0146	3	0.0151	0.020	28
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.001	<0.010	-	-	<0.010	<0.001	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.0005	0.0018	0.0015	18	0.0018	0.001[#1]	**57**
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.0005	0.0116	0.0106	9	0.0116	0.014[#1]	19
PFAS - Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	µg/L	0.002	<0.0020	<0.0020	0	<0.0020	<0.005	0
Perfluorodecanoic acid (PFDA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	0.0025	0.0022	13	0.0025	0.003	18
Perfluorononanoic acid (PFNA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0
Perfluorooctanoic acid (PFOA)	µg/L	0.0005	0.0014	0.0011	24	0.0014	0.001[#1]	**33**
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	0.0009	0.0006	**40**	0.0009	0.001	11
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0

		Location Code	MW05			MW05		
		Date	09 Oct 2024	09 Oct 2024		09 Oct 2024	09 Oct 2024	
		Field ID	MW05	FD01		MW05	FS01	
		Lab Report Number	EM2417599	EM2417599		EM2417599	1148885	
		Matrix Type	Water	Water		Water	Water	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL						
PFAS - Perfluoroalkyl Sulfonamide								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.005	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.005	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS - Fluorotelomer Sulfonic Acids								
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
6:2 Fluorotelomer Sulfonate (6:2 FTS)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.005	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
PFAS - Sums								
PFAS (Sum of Total)	µg/L	0.0002	0.0338	0.0312	8	0.0338	0.041	19
PFAS (Sum of Total)(WA DER List)	µg/L	0.0002	0.0315	0.0291	8	0.0315	0.04	24
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.001	-	-	-	-	0.021	-
Sum of PFHxS and PFOS	µg/L	0.0002	0.0267	0.0252	6	0.0267	0.034	24
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.001	-	-	-	-	0.035	-
PFAS TOPA - Perfluoroalkyl Carboxylic Acids								
PFBA (TOPA)	µg/L	0.01	<0.01	-	-	<0.01	-	-
PFPeA (TOPA)	µg/L	0.002	0.004	-	-	0.004	-	-
PFHxA (TOPA)	µg/L	0.002	0.013	-	-	0.013	-	-
PFHpA (TOPA)	µg/L	0.002	0.002	-	-	0.002	-	-
PFOA (TOPA)	µg/L	0.002	0.002	-	-	0.002	-	-
PFNA (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
PFDA (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
PFUnDA (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
PFDoDA (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
PFTrDA (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
PFTeDA (TOPA)	µg/L	0.005	<0.005	-	-	<0.005	-	-
PFAS TOPA - Perfluoroalkyl Sulfonic Acids								
PFBS (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
PFPeS (TOPA)	µg/L	0.002	0.002	-	-	0.002	-	-
PFHxS (TOPA)	µg/L	0.002	0.011	-	-	0.011	-	-
PFHpS (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
PFOS (TOPA)	µg/L	0.002	0.012	-	-	0.012	-	-
PFDS (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
PFAS TOPA - Perfluoroalkyl Sulfonamide								
FOSA (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
MeFOSA (TOPA)	µg/L	0.005	<0.005	-	-	<0.005	-	-
EtFOSA (TOPA)	µg/L	0.005	<0.005	-	-	<0.005	-	-
MeFOSAA (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
MeFOSE (TOPA)	µg/L	0.005	<0.005	-	-	<0.005	-	-
EtFOSE (TOPA)	µg/L	0.005	<0.005	-	-	<0.005	-	-
EtFOSAA (TOPA)	µg/L	0.002	<0.002	-	-	<0.002	-	-
PFAS TOPA - Fluorotelomer Sulfonic Acids								
4:2 FTS (TOPA)	µg/L	0.005	<0.005	-	-	<0.005	-	-
6:2 FTS (TOPA)	µg/L	0.005	<0.005	-	-	<0.005	-	-
8:2 FTS (TOPA)	µg/L	0.005	<0.005	-	-	<0.005	-	-
10:2 FTS (TOPA)	µg/L	0.005	<0.005	-	-	<0.005	-	-
PFAS TOPA - Sums								
Sum of TOP C4 - C14 as Fluorine (TOPA)	µg/L	0.002	0.030	-	-	0.030	-	-
Sum of PFHxS and PFOS (TOPA)	µg/L	0.002	0.023	-	-	0.023	-	-
Sum of PFAS	µg/L	0.002	0.046	-	-	0.046	-	-
Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfo_	µg/L	0.002	0.046	-	-	0.046	-	-

Comments
#1 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.

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 30 (1 - 10 x EQL); 30 (10 - 30 x EQL); 30 (> 30 x EQL))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

		Date	25 Sep 2024	25 Sep 2024	26 Sep 2024	26 Sep 2024	27 Sep 2024	27 Sep 2024	08 Oct 2024	08 Oct 2024	09 Oct 2024	09 Oct 2024
		Lab Report Number	1145986	1145986	1145986	1145986	1145986	1145986	EM2417599	EM2417599	EM2417599	EM2417599
		Matrix Type	Field Blank-Water	Rinsate Blank-Water	Field Blank-Water	Rinsate Blank-Water	Field Blank-Water	Rinsate Blank-Water	Field Blank-Water	Rinsate Blank-Water	Field Blank-Water	Rinsate Blank-Water
	Unit	EQL										
PFAS - Perfluoroalkyl Sulfonic Acids												
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.0005	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.0002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.0005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0005	<0.0005	<0.0005	<0.0005
PFAS - Perfluoroalkyl Carboxylic Acids												
Perfluorobutanoic acid (PFBA)	µg/L	0.002	-	-	-	-	-	-	<0.0020	<0.0020	<0.0020	<0.0020
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorooctanoic acid (PFOA)	µg/L	0.0005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005
PFAS - Fluorotelomer Sulfonic Acids												
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.001	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.001	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001
6:2 Fluorotelomer Sulfonate (6:2 FTS)	µg/L	0.001	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.001	<0.001	<0.001	<0.001
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.001	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001
PFAS - Sums												
PFAS (Sum of Total)(WA DER List)	µg/L	0.0002	-	-	-	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
Sum of PFHxS and PFOS	µg/L	0.0002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0002	<0.0002	<0.0002	<0.0002
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-

Appendix J

MFS Contractors Information Sheet

MFS Contractors Information

What is PFAS?

PFAS stands for per- and poly-fluoroalkyl substances. PFAS are a large family of manufactured chemicals that have been used worldwide in various commercial applications and household products. Firefighting foams containing PFAS were once used extensively across Australia.

The release of PFAS into the environment has become a concern because PFAS are persistent in the environment (i.e. do not biodegrade), can build up in organisms over time (i.e., bioaccumulate) and increase within food chains (i.e. biomagnify).

When was PFAS used by MFS?

Historically, the South Australian Metropolitan Fire Service (MFS) used firefighting foams containing PFAS at Fire Stations around the state. PFAS foam has not been used by the MFS since 2016.

What has the MFS done?

In collaboration with the Environment Protection Authority (EPA), MFS has also initiated a program of PFAS investigations on fire stations statewide. The purpose of these investigations is to delineate the nature and extent of PFAS on the fire station sites and assess whether PFAS represents a risk to human health.

What are the remaining sources of PFAS at MFS sites?

Australian health and environmental regulators have published health investigation levels for PFAS in soil at commercial/industrial sites. These values are designed to be well below the concentrations at which adverse health effects could occur.

The investigation program identified residual PFAS in soil at some fire stations, particularly in areas where PFAS foam has historically been discharged. However, the PFAS concentrations measured in soil have been well below the health investigation levels for commercial/industrial sites.

PFAS is also present in the groundwater underlying some Fire Stations and within the stormwater infrastructure.

How can I reduce my exposure to PFAS?

The primary way people working at MFS Fire Stations may be exposed to PFAS is through incidental soil ingestion. For example, this may occur during eating or due to touching the mouth with dusty hands.

Dust inhalation is typically a minor route of PFAS exposure, and PFAS is not readily absorbed through the skin.

Given the relatively low PFAS concentrations measured in the soil during the investigation program, PFAS represents a minimal risk to workers during normal activities on MFS Fire Stations. Contractors may, however, consider the following to reduce their PFAS exposure further:

- Washing hands after working outdoors.
- Washing hands before eating.
- Minimizing contact with the soil and stormwater.
- Minimizing contact with vessels that have historically been used to store PFAS foam.

Management of PFAS-contaminated materials

Due to the potential presence of residual PFAS contamination at fire stations, it is recommended that any maintenance or construction activities that generate wastes or involve disturbance of lands and infrastructure include the development and application of a Health Safety and Environment Plan (HSEP) and Construction Environmental Management Plan (CEMP) to effectively manage any potential exposure using applicable Occupational Health and Safety regulations and that any generated waste materials (soil, water, concrete etc.) are classified, transported and disposed of in compliance with the South Australian Environmental Protection Authority's requirements.

Where can I get more information?

For any further inquiries, please contact:
Manager - Building Services
Metropolitan Fire Service (MFS)
Phone: 08 8204 3613

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