MFS Christie Downs Station

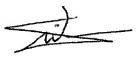
Supplementary Detailed Site Investigation

South Australian Metropolitan Fire Service

January 20, 2025

→ The Power of Commitment



Project name		MFS Christie Downs Supp DSI					
Document title		MFS Christie Downs Station | Supplementary Detailed Site Investigation					
Project number		12639293					
File name		12639293_REP_ChristieDownsSuppDSI.docx					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S3	A	E. Garcia	J. Miller	* *J. Miller*	B. Petticrew	* *B. Petticrew*	06/12/24
S3	B	E. Garcia	B. Petticrew	* *B. Petticrew*	B. Petticrew	* *B. Petticrew*	16/01/25
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Executive Summary

GHD Pty Ltd (GHD) was engaged by the South Australian (SA) Metropolitan Fire Service (MFS) to undertake a supplementary investigation related to the historical use of per- and poly-fluoroalkyl substances (PFAS) at the Christie Downs Fire Station, located at Lot 121 Holman Road, Christie Downs, South Australia 5164 (the site).

GHD has previously completed a Preliminary Site Investigation (PSI) (GHD 2023a), Sampling and Analysis Quality Plan (SAQP) (GHD 2023b), and Detailed Site Investigation (DSI) (GHD 2023c) for the site, assessing the nature and extent of PFAS contamination and establishing the dynamics of exposure pathways.

Following the review of the above-mentioned reports by the SA Environment Protection Authority (EPA), a letter was issued requesting MFS to undertake further investigations to address data gaps on the nature and extent of PFAS contamination identified on the northern portion of the site and assess the ecological risk on the potential fate and transport of PFAS migrating from the site via surface water and rainwater runoff, which subsequently enter the stormwater system and ultimately discharge into Christie Creek. Thus, a supplementary DSI was undertaken to address identified data gaps concerning the spatial extent and degree of PFAS impacts resulting from the prior operation activities and to comply with requirements outlined by the SA EPA in a letter dated 15 February 2024. The results of these supplementary investigations were integrated into developing a Remediation Options Assessment (ROA) to ensure that the remediation strategies are tailored to mitigate risks effectively and support safe and sustainable site divestment.

Objectives

The objectives of the supplementary DSI were to:

– Address the recommendations made by the SA EPA in letter GENI 62629, dated 15 February 2024.
– Delineate the nature and spatial extent of the contamination off-site and determine its potential risk to identified receptors.
– Provide a preliminary assessment of potential risks to human health and the environment attributable to the identified PFAS impacts in the context of the site's future divestment with respect to the various land uses applicable to the site's zoning (residential, commercial, etc.).
– Provide pertinent information required to develop an ROA and HHERA for the site.

Scope of Works

The scope of work for the supplementary DSI was as follows:

– The collection of soil samples was obtained from the advancement of 36 boreholes (BH13-BH49) and nine surface soil samples (SS07-SS14), targeting the rear yard and greater northeastern portion of the site and adjacent off-site.
– Collection of seven sets of co-located surface water (SW01-SW07) and sediment (SED01-SED07) samples from Christie Creek.
– Ten surface water samples (SW08-SW14, STMWTR_01 - STMWTR_03) were collected from stormwater drainage and Christie Creek.
– Logging of the soil bore to assess the underlying geology as per AS1726: 2017 – Geotechnical Site Investigations.
– Laboratory analysis of 72 primary soil samples for PFAS (extended suite) at the standard, including QA/QC samples (duplicate pair, field blank and rinsate blank).
– Laboratory analysis of 7 sediment samples for PFAS (ultra trace) at the standard, metals and nutrients, including QA/QC samples (duplicate pair, field blank and rinsate blank).

– Laboratory analysis of 17 surface water samples for PFAS (ultra trace) at the standard, metals and nutrients, including QA/QC samples (duplicate pair, field blank and rinsate blank).
– Preparation of this report.
– Preparation of an ROA.

Conclusions

Based on the results of this investigation, the following conclusions have been made:

– Encountered lithologies prevailing on the site were characterised by clayey sand fill materials underlain by generally classified in-situ clayey sand, silty clay and clay. The distribution and thickness of these lithologies vary, coinciding with the heterogeneity of the subsurface lithology.
– Identified PFAS-impacted soils can be attributed to the historical use of AFFF containing PFAS at the station, likely due to the overspray during training/flushing activities.
– Soil analytical results:
    - On-site
        – Soil analysis results reported no exceedances of the adopted human health assessment criteria (HIL D/SSHIL – Metropolitan) for on-site soil samples.
        – Given that the site is due for divestment, HIL A and HIL B criteria were also considered to determine the site's potential exposure risk in a more sensitive land use setting. Exceedances of the HIL A assessment criteria were identified in 19 samples, and among these, one also exceeded the HIL B assessment criteria.
        – Elevated concentrations of 3.829 mg/kg and 1.6 mg/kg (sum of PFHxS and PFOS) were found in samples collected near the former training area in the unsealed garden beds that bound the apron.
        – Most exceedances were found at surface and near-surface depths, ranging from 0.0 - 0.5 m bgl.
        – Statistical analysis using ProUCL 5.2 was performed on the soil results. A 0.632 mg/kg UCL was calculated at a 95% confidence coefficient. This calculated UCL value suggests that the human and ecological health risk from PFAS contamination at the site is generally within the HIL B assessment criteria threshold.
        – The presence of soils exceeding both adopted ecological criteria is representative of a potentially complete Source Pathway Receptor (SPR) linkage.
    - Off-site
        – Exceedances of the adopted HIL C assessment criteria were found in 13 soil samples collected within the adjacent unsealed reserve east of Holman Road and beneath the sealed road. Exceeding concentrations, ranging from 1.021 - 11.16 mg/kg, were reported in samples taken from surface and near-surface depths.
        – PFAS exceedances reported in the unsealed east of Holman Road are likely attributed to overspray or runoff from historical firefighting training activities or equipment flushing activities.
        – Migration of PFAS from the site through impacted surface water and runoff has been confirmed and quantified, consequentially contributing to PFAS concentrations in Christie Creek. Future development works that reduce areas of exposed contaminated soil at the site would reduce the migration of PFAS via stormwater runoff.

Recommendations

The following recommendations have been made:

– Undertake additional soil investigations following building demolition to assess contamination in currently inaccessible areas within Zone 1 to support remediation planning.

– Develop a soil management plan for the impacted immediate surrounding to ensure PFAS-impacted soils are appropriately handled and contained during remediation works to prevent further migration into surrounding environments.
– Continue surface water monitoring along Christie Creek, particularly near stormwater outlets, to determine seasonal variations in PFAS concentrations.
– Implement stakeholder engagement initiatives to engage with landowners (council) in areas with off-site contamination to address public concerns (if needed) about PFAS levels in publicly accessible areas, ensuring transparency and proactive communication regarding ongoing remediation efforts.

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
DQIs	Data Quality Indicators
DQOs	Data Quality Objectives
GAR	South Australian *Guidelines for the Assessment and Remediation of Site Contamination 2019*
GHD	GHD Pty Ltd
HEPA	Heads of Environment Protection Authorities Australia
HDPE	High-Density Polyethylene
HHERA	Human Health and Ecological Risk Assessment
HIL	Human Health Investigation Level
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
PCSM	Preliminary Conceptual Site Model
PFAS	Per- and Poly-Fluoroalkyl Substances
PFHxS	Perfluorohexane Sulfonate
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
PFPeA	Perfluoropentanoic acid
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance and Quality Control
ROA	Remediation Options Assessment
RPD	Relative Percentage Difference
SA EPA	South Australian Environment Protection Authority

Abbreviation	Full Form
SAQP	Sampling and Analysis Quality Plan
SOP	Standard Operating Procedure
SPR	Source-Pathway-Receptor
VSCAP	Voluntary Site Contamination Assessment Proposal
WQEPP	South Australian *Environmental Protection (Water Quality) Policy* 2015

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1. Introduction

GHD Pty Ltd (GHD) was engaged by the South Australian Metropolitan Fire Service (MFS) to conduct a supplementary investigation into the historical use of per- and poly-fluoroalkyl substances (PFAS) at the Christie Downs Fire Station located at Lot 121 Holman Road, Christie Downs, South Australia 5164 (the site).

This supplementary investigation addresses data gaps concerning the magnitude and extent of identified PFAS contamination associated with the site's historical use of aqueous film-forming foams (AFFF). The investigation is being conducted in accordance with the requirements outlined by the SA Environment Protection Authority (EPA) in their letter dated 15 February 2024 (Appendix A).

The results of this supplementary investigation will also serve as a baseline for both the Remediation Options Assessment (ROA) and the Human Health and Ecological Risk Assessment (HHERA). The investigation findings will direct the development of targeted remediation strategies, ensuring that risks are mitigated effectively and enabling the safe and sustainable divestment of the site as it is prepared for sale to Renewal SA.

1.1 Background

The Christie Downs Fire Station began operating on 17 March 1978 until its closure in December 2022. The fire station was staffed by full-time firefighters who provided 24-hour emergency response during its operation.

Historically, MFS used AFFF containing PFAS at the site during training activities. MFS commenced phasing out the use of firefighting foams 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 in 2016 with a "fluorine-free" labelled product. During 2017/2018, MFS removed all fire extinguishers containing PFAS from their sites.

In 2022, GHD undertook a site history review of 17 MFS sites (GHD 2022) and inspections of eight metropolitan sites to support environmental risk profiling using a multi-criteria analysis approach. The work was required to address the potential risks associated with the former use of AFFF containing PFAS. The sites were prioritised to assist with implementing appropriate assessment and management measures to address the potential PFAS risks. The former Christie Downs station was included in the scope of works and identified as a high priority due to a history of AFFF use, identified soil impacts, and proposed divestment. The GHD 2022 report was provided to the SA EPA, which subsequently issued a letter dated 1 February 2023 (EPA GENI 62917) requiring "a plan of proposed works and associated timelines to address the highest risk sites".

Subsequently, GHD completed a Preliminary Site Investigation (PSI) (GHD 2023a), Sampling and Analysis Quality Plan (SAQP) (GHD 2023b), and Detailed Site Investigation (DSI) (GHD 2023c) for the site, assessing the nature and extent of PFAS contamination and establishing the dynamics of exposure pathways.

Following the SA EPA's review of the reports mentioned above, a letter was issued requesting MFS to undertake further investigations to address data gaps regarding the nature and extent of PFAS contamination identified on the northern portion of the site and assess the ecological risk on the potential fate and transport of PFAS migrating from the site via surface water and rainwater runoff, which enter the stormwater system and ultimately discharge into Christie Creek.

1.2 Objectives

The objectives of the supplementary DSI were to:

– Address the recommendations made by the SA EPA in letter GENI 62629, dated 15 February 2024.
– Delineate the nature and spatial extent of the contamination off-site and determine its potential risk to identified receptors.
– Identify and assess the potential risks to human health and the environment attributable to the identified PFAS impacts in the context of the site's future divestment and various potential land uses.
– Provide pertinent information required to develop an ROA and HHERA for the site.

1.3 Scope of Works

The scope of work for the supplementary DSI was as follows:

– Collecting soil samples from 36 boreholes (BH13 - BH49) and nine surface soil samples (SS07 - SS14) targeting the site's rear yard, more significant north-eastern portion, and adjacent off-site.
– Collection of seven sets of co-located surface water (SW01 - SW07) and sediment (SED01 - SED07) samples from Christie Creek.
– Ten surface water samples (SW08 - SW14, STMWTR_01 - STMWTR_03) were collected from stormwater drainage and Christie Creek.
– Logging of the soil bore to assess the underlying geology as per AS1726: 2017 – Geotechnical Site Investigations.
– Laboratory analysis of 72 primary soil samples for PFAS (extended suite).
– Laboratory analysis of 7 sediment samples for PFAS (ultra trace), metals, and nutrients.
– Laboratory analysis of 17 surface water samples for PFAS (ultra trace), metals, and nutrients.
– Collection of relevant QA/QC samples (duplicate pairs for primary samples, and one field blank and rinsate blank per day).
– Preparation of an ROA.

1.4 Person Requesting Works

The investigation was requested by Deputy Chief Officer Cameron Devey, Metropolitan Operations – Central and Special Operations, 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 1.3 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.

GHD has considered and/or tested for only those chemicals specifically referred to in this report and makes no statement or representation as to the existence (or otherwise) of any other chemicals. Site conditions (including any the presence of hazardous substances and/or site contamination) may change after the date of this report. GHD expressly disclaims responsibility:

- *arising from, or in connection with, any change to the site conditions; and*
- *to update this report if the site conditions change.*

Subsurface conditions can vary across a particular site and cannot be exhaustively defined by the investigations carried out prior to this report. As a result, it is unlikely that the results and estimations expressed or used to compile this report will represent conditions at any location other than the specific points of sampling. A site that appears to be unaffected by contamination at the time of the report may later, due to natural causes or human intervention, become contaminated.

Except as otherwise expressly stated in this Report, GHD makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.

GHD has prepared this report on the basis of information provided by South Australian Metropolitan Fire Service and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

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.

These Disclaimers should be read in conjunction with the entire report and no excerpts are taken to be representative of the findings of this report.

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.

2. Site information

2.1 Site Identification

A summary of general site information is provided in Table 2.1.

Table 2.1 Summary of General Site Identification Information

Item	Detail
Site Address	Lot 121 Holman Road, Christie Downs, South Australia
Certificate of Title	CT 5534/85 and CT 5534/90
Legal Description	Allotments 120 and 121 in Deposited Plan 10165 in the area named Christie Downs, Hundred of Noarlunga
Local Government Authority	City of Onkaparinga
Current Zoning	Housing Diversity Neighbourhood
Property Owner	South Australian Metropolitan Fire Service
Current Site Use	Non-operational fire station
Area	2,255 m^2
Site Elevation	64-70 m Australian Height Datum (AHD)

2.2 Surrounding Land Use

A summary of the uses of the land surrounding the site is provided in Table 2.2. Surrounding land use and zoning are shown in Figure 1.

Table 2.2 Summary of Surrounding Land Use

Orientation	Description of Land Use	Zoning (Municipal Council)
North	Osmund Crescent with residential properties beyond.	Housing Diversity Neighbourhood
East	Holman Road and car park, a small reserve, and Flaxmill shopping centre beyond. The shopping centre includes a pharmacy, supermarket, and takeaway shops.	Suburban Activity Centre, Housing Diversity Neighbourhood
South	Lonsdale Telstra Depot, Flaxmill Road, Niipu-niipu Wama (Morton Park) skate park, Christie Downs Community House. Residential properties southeast. Christie Downs train station and Southern Districts Baseball Club/Peregrine Park south-west.	Housing Diversity Neighbourhood
West	Residential properties, Seaford railway line, more residential properties beyond.	Housing Diversity Neighbourhood

3. Environmental Setting

3.1 Topography

The general topography of the area is relatively flat and forms part of the Adelaide Plains, between the Gulf of St Vincent to the west and the Mount Lofty Ranges to the east. The site slopes gradually upwards to the northern boundary, at 64 m AHD at its lowest and 70 m AHD at its highest. Most of the property is sealed with narrow garden beds running along the northern and southern boundaries and a garden bed and grassed area in the northeast corner of the site.

3.2 Site Drainage

Most of the site comprises sealed surfaces (buildings, concrete hardstand, bitumen, etc.), with stormwater discharging to the underground stormwater network via on-site and off-site drains.

Stormwater from the site is captured on-site in drains east of the site, in the former engine bay, and along the southern boundary. The surface water runoff from Holman Road, adjacent to the station, discharges south of the site and into the public stormwater system on Flaxmill Road. On-site stormwater drainage infrastructure has not been reconfigured since it was initially constructed in 1978, and stormwater has not been harvested.

Anecdotal information from MFS staff reported that appliances would be flushed and residual AFFF deposited into the drain or flushed down Holman Road onto Flaxmill Road following training exercises or incidents (GHD 2023a).

3.3 Surface Water

The nearest natural surface waterbody is Christie Creek, located approximately 530 m upgradient of the site to the northwest. The creek flows westerly and discharges into the Gulf of St Vincent at Christies Beach, approximately 2.5 km west of the site. The Onkaparinga River is approximately 3.0 km south of the site. Stormwater runoff from the site discharges into Christie Creek.

3.4 Geology

The PSI (GHD 2023a) report indicated the site contains numerous underlying geological features, including Hindmarsh Clay, Carisbrooke Sand, Ochre Cove Formation, and Seaford Formation. The soil type on-site is calcareous loam on clay. Historical soil samples collected during the GHD 2019 MFS statewide investigation reported shallow soil profiles comprising dark brown, stiff, sandy clay. The soil within a 100 m radius of the site is classified as Chromosol by the Atlas of Australian Soils (CSIRO 2013 referenced in Lotsearch 2023). Chromosol soils are generally associated with cracking clays and sandy, alkaline, yellow-mottled soils.

Boreholes advanced on the site during the DSI indicate that the geology is inconsistent with the regional Hindmarsh Clay, with the bore logs describing sandy clays, clayey sand and siltstone. The encountered lithologies are more consistent with the Wilmington Formation, which comprises interbedded sandstone, limestone, and siltstone with red and grey colouring. The shallower descriptions of sandy clays and clayey sands are likely weathered bedrock from the siltstone and sandstone.

3.5 Hydrogeology

According to the Department of Water, Land and Biodiversity Conservation (DWLBC) Report (Gerges 2006), the site lies within 'hydrogeological zone 1', which covers the basement rocks of the Adelaide Hills and contains a fractured rock aquifer. The expected groundwater aquifer underlain the site comprises sedimentary rocks, including limestone (cavernous), sandstone, sand shale, and clay material. A second aquifer unit was identified 484 m northwest of the site. It was described as fractured rocks – Cambrian and Precambrian– quartzite, sandstone, limestone, dolomite, slate, marble, siltstone, phyllite, schist and gneiss (Gerges 2006).

A search of the South Australian Resources Information Gateway (SARIG) database reported the site is within an area of shallow groundwater with standing water levels (SWL) of 10-20 m AHD, producing yields of 0.5-2.5 L per second. Groundwater salinity ranged from 3,000-7,000 mg/L total dissolved solids (TDS), indicating brackish water.

TDS data was available for 18 wells within the 2 km radius of the site and ranged between 80 mg/L and 10,939 mg/L. The 80 mg/L data point is likely an error when considering the wider regional aquifer properties. Therefore, the TDS data indicates the likely regional presence of brackish groundwater.

On-site drilling confirmed no groundwater to a depth of 20 m bgl. MW01 was drilled to a depth of 20 m bgl and backfilled for installation at 10.8 m bgl, where a slightly moist sandstone unit was encountered. The well still did not have water at the time of writing.

3.6 Local Groundwater Users (WaterConnect Database)

A search of groundwater wells within a 2.0 km radius was conducted using the SA WaterConnect Database (Appendix B) on 02 July 2024. The results of the search located 121 wells. Of these wells, only one remains operational; 11 were listed as either backfilled, dry, abandoned or not in use, and the remaining with unknown status. 81 wells were utilised for investigation monitoring and environmental purposes, and two wells were listed for irrigation purposes.

4. Previous Investigations

Previous PFAS investigations at the Christie Downs station were carried out by GHD in 2019, 2022 and 2023, as documented in the following reports:

– GHD (2019) *MFS Statewide Appliance and Station Sampling*, Report prepared for the South Australian Metropolitan Fire Service by GHD Pty Ltd, May 2019.
– GHD (2022) *MFS 17 Fire Stations PFAS Risk Profiling*, Report prepared for the South Australian Metropolitan Fire Service by GHD Pty Ltd, October 2022.
– GHD (2023a) *MFS Christie Downs Fire Station Preliminary Site Investigation (PSI)*, Report for the South Australian Metropolitan Fire Service, April 2023.
– GHD (2023b) *MFS Christie Downs Fire Station Sampling Analysis and Quality Plan (SAQP)*, Report for the South Australian Metropolitan Fire Service, June 2023.
– GHD (2023c) *MFS Christie Downs Fire Station Detailed Site Investigation (DSI)*, Report for the South Australian Metropolitan Fire Service, November 2023.

4.1 GHD (2019) MFS Statewide Appliance and Station Sampling

The site was one of 35 fire stations across SA included in a preliminary environmental investigation to assess the presence of PFAS concentrations that may remain in firefighting appliances, accessible soils, and any biota (fruit, vegetables, herbs and poultry) if present. Firefighters advised that AFFF training had occurred in the car park in front of the site.

During the investigation, the following samples were collected and tested for PFAS:

– One surface soil sample (CHRISTIE_1) was collected from the garden bed in the site's southeast corner (next to the letterbox/sign). One surface soil sample (CHRISTIE_2) was collected from a garden bed in the northeast corner, and neither produced results exceeding the 2018 PFAS NEMP guidelines adopted.
– Two biota samples (CHRISTIE_LIME and CHRISTIE_APRICOT) were collected, and no exceedances in the adopted guidelines were reported. These samples were taken as there were multiple fruit trees located along the site's southern boundary, and the fruit had historically been consumed by station staff.

It is noted that the report used the 2018 PFAS NEMP guidelines, which were superseded by the 2020 PFAS NEMP 2.0. However, it has been determined that this has no practical impact on the purpose of this report, as the guideline values for soil at commercial/industrial properties are the same in both versions of the PFAS NEMP. In the 2020 PFAS NEMP 2.0, environmental guidelines values that refer to the sum of PFOS and perfluorohexane sulfonate (PFHxS) now explicitly apply not only to the sum of the two but also to PFOS only and to PFHxS only, which was only inferred in the 2018 PFAS NEMP 1.0.

4.2 GHD (2022) MFS 17 Fire Stations PFAS Risk Profiling

GHD was engaged to undertake a desktop assessment and multi-criteria analysis (MCA) for MFS to support the appropriate risk management approaches associated with PFAS contamination at 17 fire stations across SA (eight metropolitan and nine rural). The former Christie Downs Fire Station was included and identified for prioritisation by the SA EPA in the letter GENI 62485 dated 21 October 2021.

The methodology and findings of the PFAS risk profiling for the 17 MFS fire stations reported PFAS-impacted soils, with the desktop review focused on identifying historical activities that may represent a source of PFAS contamination and potentially sensitive human or ecological receptors in the vicinity of the sites, as well as understanding potential source- pathway-receptor linkages that may be present.

Based on the potential to cause harm to the environment and human health, the sites were prioritised within the report for further assessment, with the former Christie Downs MFS fire station being classified as high-risk with high priority for further investigation of PFAS contamination with the former use of PFAS containing AFFF.

4.3 GHD (2023a) Preliminary Site Investigation

A preliminary site investigation (PSI) was undertaken to review historical site activities that may have contributed to PFAS contamination at and potentially off-site.

The potential risks to human health and the environment outlined in the preliminary conceptual site model (CSM) were as follows:

– Consumption of contaminated groundwater extracted off-site for domestic/drinking purposes.
– Consumption of edible vegetation grown off-site where plants were irrigated with contaminated groundwater or where plant roots accessed shallow contaminated groundwater. It should be noted that no fruits or vegetables are present at the site.
– Incidental ingestion of contaminated groundwater extracted off-site for recreational purposes such as filling of swimming pools. Additionally, groundwater discharge to surface water bodies (Christie Creek) may impact recreational users.
– Exposure of future site users, visitors, maintenance and construction workers to PFAS via direct dermal contact with contaminated soil, incidental ingestion of contaminated soil or inhalation of contaminated soil/dust from disturbed soils.
– Exposure of terrestrial fauna and flora to PFAS via direct contact with contaminated soil, ingestion of contaminated soil or bioaccumulation through indirect contact.
– Leaching of PFAS from contaminated soils or concrete/bitumen surfaces followed by migration through porous media into groundwater.

The outcomes of these works are incorporated in the applicable sections of this report.

4.4 GHD (2023b) Sampling and Analysis Quality Program

Following the finalisation of the PSI, a Sampling and Analysis Quality Plan (SAQP) was prepared to undertake intrusive investigations to delineate the lateral and vertical extent of PFAS contamination on- and off-site. The purpose of the SAQP was to present the scope of work, methodologies, and sampling rationale to be utilised during subsequent intrusive works to meet investigation objectives.

Based on the preliminary CSM provided in the PSI, the following data gaps were identified:

– The lateral and vertical extent of PFAS contamination in soil had not been delineated.
– The lateral and vertical extent of PFAS contamination in groundwater had not been determined.
– The degree of PFAS contamination in on-site concrete and bitumen surfaces and the associated PFAS flux from these materials had not been assessed.
– The potential for PFAS to leach from contaminated soil into groundwater had not been tested.
– The degree of PFAS contamination in on-site concrete and bitumen surfaces and the associated PFAS flux from these materials had not been assessed.
– The potential for PFAS to leach from contaminated soil into groundwater has not been tested yet.

4.5 GHD (2023c) Detailed Site Investigation

A detailed site investigation (DSI) and related sampling activities were undertaken in general accordance with the methodology set out in the SAQP. The outcomes are summarised as follows:

– PFAS impacts identified in the soil at the site are most likely related to historical firefighting activities, including training and storage of PFAS-containing AFFF.
– Regarding reported soil results:

- The highest reported concentrations of PFAS in soils were identified in the northwestern corner of the site in a patch of unsealed ground just north of the former training area.
- Exceedances of the Tier 1 HIL A residential with gardens/accessible soil investigation criteria were reported at 13 investigation locations. One exceedance of the Tier 1 HIL B residential with minimal soil accessibility criteria was reported in sample BH02_0.35-0.45. Further work would be required to confirm the site's suitability for a more sensitive land use.
- In its condition at the time of reporting, the site was considered suitable for ongoing commercial use due to the absence of criteria exceedances for HIL D.
- Four exceedances of the Tier 1 ecological indirect exposure were reported. All exceedances were reported in unsealed areas. The presence of ecological exposure risks required further assessment work to close out potential impacts to both potential on-site and off-site receptors.
- PFAS soil impacts were delineated vertically to a depth of approximately 2.8 m bgl across the site.
- PFAS soil impacts were delineated laterally for the current land use (commercial). If more sensitive land use is realised in the future, further assessment will be required.

– While groundwater was not encountered during the investigation, it was considered likely that the risk to groundwater from historical firefighting activities undertaken at the site is low. Should potential receptors or groundwater users be identified in the future, further assessment may be required to assess the risk.

The following recommendations were made:

– Further assessment is required if the site use changes to a more sensitive land use scenario.
– Further sampling to delineate the PFAS impacts observed at SS03 in the northern portion of the site.
– If developments or soil works are to be undertaken in the future, additional sampling would be required if any soil is disposed of off-site or reused on-site.
– A soil management plan (or similar) should be developed that details specific risks and associated mitigation measures to minimise potential exposure to PFAS-impacted soils to construction and maintenance workers, it should involve exposure scenarios (soil disturbance, dust inhalation, and incidental ingestion).

5. Assessment criteria

PFAS is the key contaminant of concern addressed in this environmental investigation. The Tier 1 screening assessment process involves the comparison of the measured PFAS concentrations with the conservative human health and ecological screening levels provided by national or international guidelines. The Tier 1 assessment criteria adopted for the investigation were obtained 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 3.8, National Water Quality Management Strategy, National Health and Medical Research Council and Natural Resources Management Ministerial Council, Commonwealth of Australia, updated September 2022.
- NHMRC 2019, Guidance on Per and Polyfluoroalkyl substances (PFAS) in Recreational Water, National Health and Medical Research Council, 2019.
- GHD 2023, Derivation of Site-specific Health Investigation Levels for Urban and Regional Fire Stations
- South Australian Metropolitan Fire Service, June 2023.

5.1 Soil

In accordance with the PFAS NEMP (2020), the assessment criteria listed in Table 5.1 have been adopted for the assessment of soil samples.

Table 5.1 Adopted PFAS Assessment Criteria - Soil

Exposure Scenario	PFHxS [1]	PFOS [2]	Sum of PFOS and PFHxS	PFOA [3]	Principal Reference Document
On-site:					
Human Health Investigation Levels (HIL)					
HIL-A residential with garden/accessible soil	0.01 mg/kg	0.01 mg/kg	0.01 mg/kg	0.1 mg/kg	PFAS NEMP (HEPA 2020)
HIL-B residential with limited soil contact	2 mg/kg	2 mg/kg	2 mg/kg	20 mg/kg	
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)	20 mg/kg	20 mg/kg	20 mg/kg	50 mg/kg	
Site-specific HILs[4] for the screening of PFAS contaminated soils at MFS sites (Metropolitan, Staffed)	-	-	14 mg/kg	50 mg/kg	GHD
Ecological Screening Levels					
Ecological indirect exposure[5]	-	0.01 mg/kg	-	-	PFAS NEMP (HEPA 2020)
Ecological direct exposure	-	1 mg/kg	-	10 mg/kg	
Off-site:					
Human Health Investigation Levels (HIL)					
HIL-C public open space	1 mg/kg	1 mg/kg	1 mg/kg	10 mg/kg	PFAS NEMP (HEPA 2020)
Ecological Screening Levels					
Ecological indirect exposure[5]	-	0.01 mg/kg	-	-	PFAS NEMP (HEPA 2020)
Ecological direct exposure	-	1 mg/kg	-	10 mg/kg	

Notes:
[1] PFHxS – perfluorohexane sulfonate
[2] PFOS – perfluorooctane sulfonate
[3] PFOA – perfluorooctanoic acid
[4] Discussed further in section 5.1.1
[5] Discussed further in sections 5.1.3 & 10.1.2

5.1.1 Human health investigation levels

The typical usage patterns at MFS fire stations most closely align with the exposure assumptions that underpin HIL D (commercial/industrial) values. The following inconsistencies are, however, noted:

– PSIs undertaken at MFS sites across SA identified that some fire stations have a higher proportion of unsealed ground (up to approximately 75% of the total site area) than has been assumed in the derivation of the HIL D values (up to approximately 20% of the total site area). As a result, there may be greater opportunities for direct access to soil at MFS fire stations, including ingesting soil and soil-derived dust.

– The shifts worked by MFS firefighters do not align with the assumption of a standard working week that underpins the HIL D values.

Given these factors, Site-specific Health Investigation Levels (SSHILs) have been derived using exposure assumptions that reflect the typical usage pattern of the MFS fire stations to allow for tailored assessment of the potential exposure risks that may be associated with the presence of PFAS in shallow soils (GHD 2023c). Further discussion regarding the development of the SSHILs is provided in Section 5.1.2.

GHD has referred to the HIL A and HIL B criteria presented within the PFAS NEMP (2020) to enable the assessment of contamination exposure risks concerning potential future sensitive land use scenarios (such as residential), given the site's proposed divestment by MFS. Further, HIL C criteria were also adopted to assess the contamination extending to the reserve area adjacent to the site.

GHD has referred to the ecological direct exposure and indirect exposure scenario criteria within the PFAS NEMP (2020) to assess potential ecological exposure risks. These generic criteria apply to all land use scenarios. Further discussion regarding these criteria is provided in Section 5.1.3.

5.1.2 Site-specific human health investigation levels

GHD letter report *Derivation of site-specific Health Investigation Levels (HILs) for urban and regional fire stations* (GHD, July 2023) outlines SSHILs for the two types of MFS fire stations:

– Urban/metropolitan (also referred to as "staffed").

– Regional (also referred to as "retained").

The methodology and associated exposure assessment processes are outlined in Appendix D. The SSHILs will be used in place of the generic HIL D (commercial/industrial) guidelines from the PFAS NEMP 2.0 for preliminary screening of potential human health exposure risks for MFS sites.

5.1.3 Ecological soil guideline values

The PFAS NEMP (HEPA, 2020) ecological screening levels have been adopted as follows:

– Ecological direct exposure – The criterion (1 mg/kg) is based on the health-based HIL C, not ecotoxicity based information, as the PFAS NEMP did not identify sufficient ecotoxicological data to derive a risk-based criterion specific to ecological receptors.

– Ecological indirect exposure – The criterion for PFOS (0.01 mg/kg) is based on the exposure of secondary consumers via the food chain.

The current PFAS NEMP (HEPA, 2020) does not provide an indirect exposure ecological criterion for PFOA in soil. However, the draft PFAS NEMP 3.0 (HEPA, 2022) recommends the following:

– An indirect exposure ecological criterion of 0.005 mg/kg.

– An interim screening value of 0.005 mg/kg for PFOA where reptiles may be exposed directly to soil.

These guidelines have been adopted for completeness.

Australian regulators have not endorsed screening levels for the Tier 1 assessment of PFAS in concrete or similar material. Since paved areas do not provide habitats for ecological receptors, ecological criteria are irrelevant and have not been considered.

5.2 Surface Water and Sediment

Results from surface water and sediment samples collected during the supplementary investigation have been assessed against the following guidelines, protecting human health and reducing ecological exposure risks in the receiving environment (Christie Creek).

Table 5.2 Adopted PFAS Assessment Criteria - Soil Adopted PFAS Assessment Criteria – Surface Water

Exposure Scenario	PFHxS (µg/L)	PFOS (µg/L)	Sum of PFHxS and PFOS (µg/L)	PFOA (µg/L)	Location	Reference Document
PFAS NEMP 2.0 2020 Freshwater - 95% - slightly to moderately disturbed systems	-	0.13	-	220	Off-site	PFAS NEMP (HEPA 2020)
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems	-	0.00023	-	19	Off-site	
PFAS NEMP 2.0 2020 Recreational Water	2	2	2	10	Off-site	

Table 5.3 Adopted PFAS Assessment Criteria – Sediment

Exposure Scenario	PFHxS (mg/kg)	PFOS (mg/kg)	Sum of PFHxS and PFOS (mg/kg)	PFOA (mg/kg)	Location	Reference Document
Human Health – Incidental ingestion during recreational use	1	1	1	10	Off-site	PFAS NEMP (HEPA 2020) Recreational (HIL C)

5.3 Concrete and Bitumen

There are no criteria specific to the assessment of concrete and bitumen regarding potential human health or ecological risk. Sampling of these media has been conducted to assess their potential to act as an ongoing source of PFAS impact to the environment via leaching.

6. Assessment Methodology

6.1 Framework

Assessment works and reporting were undertaken per the Environment Protection Act, the Environment Protection Regulations 2009, relevant SA Environment Protection Policies (EPPs) and the following guidelines/ standards:

– NEPC (1999) National Environment (Assessment of Site Contamination) Protection Measure, as amended 2013, National Environment Protection Council, 2013 (ASC NEPM).
– HEPA (2020) PFAS National Environmental Management Plan, version 2.0 (PFAS NEMP).
– ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water.
– Australian/New Zealand Standard AS/NZS 5667.1:1998 Water Quality – Sampling, Part 1: Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples.
– Australian/New Zealand Standard AS/NZS 5667.6.1998 Water Quality – Sampling, Part 6: Guidance on Sampling of Rivers and Streams.
– SA EPA (2019) Guidelines for the Assessment and Remediation of Site Contamination (GAR).

6.2 Field Investigation

The methodology for the various aspects of the field investigation is summarised in Table 6.1; sampling locations for soil, sediment, and surface water are shown in the attached figures at the end of this report, which are presented in Figure 3 and Figure 4.

Table 6.1 Field Investigation Methodology

Task	Method
General	Design and implement a site- and task-specific Job Safety and Environmental Assessment (JSEA) for each field mobilisation. These include identifying site-specific hazards. Obtain the Before You Dig (BYD) plans, relevant DEW well permits, and access requirements from MFS and other parties.
Intrusive soil investigation	– Liaison and coordination of fieldwork with MFS and engaged subcontractors. – Clearance of each soil bore location by an accredited service locator. – Soil bores were advanced via hand auger and direct-push drilling methodologies. – Where the direct push drilling methodology was employed, high-density polyethylene (HDPE) core liners were used to minimise PFAS cross-contamination risk. – Discrete soil samples were collected from each soil bore and monitoring well core at the surface (0.0 – 0.2 m bgl), near-surface (0.4 – 0.5 m bgl) and at 0.5 m intervals thereafter, or where lithological changes are observed. A clean pair of nitrile gloves was used for each sample collection. – Collection of QA/QC samples, including intra-laboratory duplicate (blind) samples, inter-laboratory duplicate (split) samples, and field and rinsate blanks. – Each soil bore was logged to assess the underlying geology and contaminant indicators per AS 1726:2017 – Geotechnical Site Investigations. – Soil samples were placed in laboratory-supplied jars in a cooler and transported to NATA-accredited analytical laboratories under chain-of-custody documentation and chilled conditions. – Drilling spoil was placed in drums, sealed, and stored at an on-site location agreed upon with MFS until off-site disposal at a suitably licenced facility.
Surface water and sediment sampling	– Surface water and sediment samples are collected at co-located sampling stations within the channel of Christie Creek. – Sediment samples were collected between 0 – 0.1 m bgl using a trowel rinsed between sampling locations. – Surface water samples were taken directly from the creek channel as a grab sample. – Water quality parameters (pH, dissolved oxygen, electrical conductivity, reduction/oxidation (redox) potential and temperature) were measured using a multi-parameter water meter and recorded using sample record sheets. The surface water was visually assessed for turbidity and any evidence of contamination. – All surface samples were collected in laboratory-supplied containers appropriate for PFAS analysis or for other analytes as required. – All surface samples were stored on ice in an insulated cooler immediately after sampling and kept chilled before and during laboratory delivery. – All surface samples were placed in laboratory-supplied jars in a cooler and transported to NATA-accredited analytical laboratories under chain-of-custody documentation and chilled conditions.
Decontamination	**General guidance** Samples can be cross-contaminated with PFAS from a range of products, including new clothing, footwear, PPE, treated fabrics, stain and water- resistant products, sunscreen, moisturisers, cosmetics, fast food wrappers, polytetrafluoroethylene (PTFE) materials (such as Teflon©), sampling containers with PTFE-lined lids, foil, glazed ceramics, stickers and labels, inks, sticky notes, waterproof papers, drilling fluids, decontamination solutions and reusable freezer blocks. These should not come into contact with samples at any stage of sampling (at the site, during transport, etc.). If information confirms that field consumables and decontamination detergents are not PFAS-free, the consumable should not be used until the supplier can ensure it is PFAS-free. If this information is unavailable, the product should be tested for PFAS and only used where it has been demonstrated to be PFAS-free.

Task	Method
	Where possible, field sampling should commence in areas where low concentrations of PFAS are likely, progressing towards regions of higher concentrations to reduce the risk of cross-contamination. **Handling** – Sampling personnel should wash their hands with plain soap and rinse thoroughly with tap water. – Sampling containers should only be handled when wearing clean nitrile gloves. – Use laboratory-supplied sample containers suitable for requested analysis and LOR requirements, typically polypropylene or HDPE. – Avoid using sampling and monitoring equipment containing PTFE (PTFE-based compositions include Teflon®). – Ensure that Teflon®-coated materials and aluminium foil do not come into contact with the sample. – Chemical or gel-based coolant products for sample preservation should not be used. – Recommended equipment for groundwater sampling includes the use of HDPE-based consumables. – Consumable sampling equipment should not be reused.

6.2.1 Sample Locations and Rationale

6.2.1.1 Soil

An intrusive soil investigation was conducted between 10-12 April 2024 under the supervision of an experienced GHD environmental professional. Seventeen bores (BH12 - BH29) were drilled as part of the soil investigation. The soil bore locations are shown in Figure 3. A summary of the rationale behind each location is provided in Table 6.2 below.

Table 6.2 Soil Bore Location Rationale

Soil sampling location	Location Rationale
BH12	Unsealed area along the northeastern boundary of the site where PFAS exceedances were previously reported (on-site).
BH13	Unsealed area to the north-east of the site where PFAS exceedances were previously reported (off-site).
BH14	Unsealed reserve north-east of the site where overspray and runoff of PFAS-containing AFFF are probable (off-site).
BH15	Unsealed area to the north-east of the site where PFAS exceedances were previously reported (on-site).
BH16	
BH17	Unsealed area to the north-east of the site where PFAS exceedances were previously reported (off-site).
BH18	Unsealed reserve east of Holman Road where overspray and runoff of PFAS from historical training activities is probable (off-site).
BH19	
BH20	Unsealed area in the northern portion of the site (on-site).
BH21	
BH22	Sealed area in the northwestern portion of the site (on-site).
BH23 – BH25	Sealed area in the rear yard (on-site).
BH26	Unsealed garden bed east of the main station building (on-site).
BH27	Unsealed verge in the southeast corner of the site (on-site).
BH28	Holman Road, near the car park area east of the former training area (off-site).
BH29	At the junction between Holman Road and a roadway to Midhurst Avenue (off-site).
BH30 – BH45	An unsealed reserve east of the former training area. The area where the highest PFAS concentration was reported on the first sampling round (off-site).

Soil sampling location	Location Rationale
BH46 – BH49	An unsealed reserve southeast of the former training area, to delineate the lateral extent of PFAS contamination (off-site).

Table 6.3 Surface Soil Sample Location Rationale

Surface Soil sampling location	Location Rationale
SS07	Unsealed reserve east of Holman Road where overspray and runoff of PFAS from historical training activities is probable (off-site).
SS08	
SS09	
SS10	
SS11	
SS12	
SS13	
SS14	An unsealed garden bed along the southern boundary (on-site).
SS15	An unsealed garden bed along the western boundary (on-site).

The number of soil sampling locations meets NSW Sampling Design Guidelines requirements for the minimum number of sampling locations for a targeted sampling design at a site with an area of 2,255 m^2.

6.2.1.2 Surface Water and Sediment

The selection of surface water and sediment sampling locations was based on the pathways previously identified for PFAS migration. The site's proximity to Christie Creek and its position within the runoff pathway underscores the likelihood of PFAS contamination reaching the creek through stormwater discharge and subsequently to the vast Gulf of St Vincent at Christies Beach. The co-location of the surface water and sediment samples is shown in Figure 4. A summary of the rationale behind each location is provided in Table 6.4.

Table 6.4 Surface Water and Sediment Location Rationale

Soil sampling location	Location Rationale
SW01/ SED01	Downstream of the discharge point, where the stormwater system connects to Christie Creek.
SW02/ SED02	
SW03/ SED03	At the discharge point, where the stormwater system connects to Christie Creek.
SW04/ SED04	Upstream of the discharge point but downstream of the Lonsdale industrial complex stormwater discharge point into Christie Creek.
SW05/ SED05	
SW06/ SED06	
SW07/ SED07	Upstream of the Lonsdale industrial complex to assess ambient concentrations of PFAS.
SW08	Collocated with SW05
SW09	Collocated with SW04
SW10	Collocated with SW02
SW11	Collocated with SW01
SW12 – SW14	Downstream towards Christies Beach
STMWTR_01 – STMWTR_02	Stormwater drainage line connected to the site and discharges to Christie Creek.

6.3 Laboratory Analysis

The laboratory analytical schedule of analysis for samples collected during the supplementary investigation is summarised in Table 6.5.

Table 6.5 Sample Analysis Specifications

Sampling locations	Primary samples analysed	Analysis schedule
Soil		
BH13- BH49	72	PFAS – extended suite, standard LOR.
	1	Nutrients
	1	Metals
SS07- SS15	9	PFAS – extended suite, standard LOR.
Surface Water and Sediment		
SW01-14	17	PFAS –ultra-trace PFOS LOR.
	17	Nutrients
	17	Metals
SED01 – SED07	7	PFAS – extended suite, standard LOR.
Quality control samples	QA/QC samples analysed	Analysis schedule
Intra-laboratory duplicates	7 soil/sediment	PFAS – extended suite, standard LOR.
	1 surface water	PFAS – ultra-trace PFOS LOR.
Inter-laboratory duplicates	5 soil/sediment	PFAS – extended suite, standard LOR.
	1 surface water	PFAS – ultra-trace PFOS LOR.
Field blanks	2 (soil sampling program)	PFAS – short suite, standard LOR.
	1 (surface water and sediment sampling program)	PFAS – short suite, standard LOR.
Rinsate blanks	5 (soil sampling program)	PFAS – short suite, standard LOR.
	2 (surface water and sediment sampling program)	PFAS – short suite, standard LOR.

7. Results

7.1 Soil

7.1.1 Subsurface conditions

Subsurface conditions encountered during the soil investigation were as follows:

– Fill material generally identified as clayey sand was encountered at all locations. This fill material is characterised by a clayey, poorly graded, fine to medium sand matrix with minor fine to medium gravel clasts embedded. The fill material has an apparent brown colour with traces of organic debris. The depth to which this fill material is observed ranges from 0.02 to 0.6 m bgl, depending on the thickness of the overlying ground coverings.
– In-situ soil underlying the fill materials is generally classified into clayey sand and silty clay. The upper clayey sand is distinguishable by its tan-grey grading to tan-brown colour and low to medium plasticity. The clayey sand is also characterised by a poorly graded fine to medium sand matrix with minor embeds of fine to medium gravel clasts. The lower silty sand is characterised by a grey to brown colour, which is altered to lighter or darker shades. Red-brown silty clay prevails in the north-eastern portion of the site, while tan-grey silty clay prevails in the south-western portion. Interlayering of the soils was observed in some of the bore logs. Respectively, these in-situ soils were most encountered at depths of 0.6-1.1 m bgl and 1.1-2.0 m bgl in most soil bores.
– Medium to high plasticity clay is observed in the north-western portion of the site, underlying the silty sands. The clay appears brown to grey-brown with traces of fine to medium gravel. This was encountered on BH20 to BH22.
– Bedrock was encountered in BH29 from 1.9 m bgl.
– No evidence of staining or any distinguishable olfactory odours was noted during the investigation.

Additional details of the lithological layers observed during the soil sampling program can be found in Table 7.1 and the soil bore logs in Appendix E.

Table 7.1 Summary of Lithologies Encountered

Lithology	Depths observed (m bgl)	Description
Fill	0.01 – 0.6	Clayey SAND: poorly graded fine to medium brown sand with low to no plasticity clays, minor fine to medium gravel clasts and traces of organic debris, dry and hard consistency.
Natural soils (weathered bedrock)	0.0 – 1.1	Clayey SAND: Poorly graded fine to medium brown to grey sand with low to no plasticity clays, minor fine to medium gravel clasts, dry and hard consistency.
	1.1 – 2.0	Silty CLAY: Medium plasticity red-brown to tan- grey clay with a trace of fine to medium gravel.
	1.1– 2.0	CLAY: Medium to high plasticity grey-brown clay with traces of fine to medium sand.
Bedrock	1.9- 2.0	SILTSTONE: Pale white to brown, dry, hard to very hard.

7.1.2 Analytical Results

Of the 72 soil samples analysed, 58 were identified to have PFAS concentrations exceeding the adopted assessment criteria for human health investigation levels and ecological soil guidelines. These samples exhibited elevated concentrations of PFHxS and PFOS chemicals that exceeded the screening values of the adopted criteria. Results are summarised in Table 7.2. The comprehensive set of analytical results in Appendix F. Historic and current soil analytical results are tabulated in Appendix G, with laboratory reports in Appendix H.

Table 7.2 Soil Exceedances of Adopted Criteria

Sample ID	PFHxS (mg/kg)	PFOS (mg/kg)	PFOA (mg/kg)	Sum of PFHxS and PFOS (mg/kg)
On-site:				
Human Health Criteria				
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)	0.01	0.01	0.01	0.01
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)	2	2	2	2
BH12_0.0-0.1	<0.005	0.029	<0.005	0.029
BH15_0.4-0.5	0.22	<0.005	0.022	0.22
QC02	0.31	<0.005	0.028	0.31
QC02a	0.256	0.0016	0.0201	0.258
BH16_0.4-0.5	0.058	0.081	0.027	0.139
BH16_1.0-1.1	0.0074	0.081	<0.005	0.0884
BH21_0.4-0.5	0.0069	0.057	0.0057	0.0639
BH22_0.4-0.5	0.016	<0.005	<0.005	0.016
BH23_0.4-0.5	<0.005	0.015	<0.005	0.015
QC07 (BH24_0.4-0.5)	<0.005	0.017	<0.005	0.017
BH24_1.5-1.6	0.012	0.71	<0.005	0.722
BH26_0.0-0.1	0.0067	0.13	<0.005	0.1367
BH26_0.4-0.5	0.025	1.6	0.012	1.625
BH26_1.0-1.1	0.024	0.4	0.015	0.424
BH27_0.0-0.1	0.011	0.56	0.0083	0.571
BH27_0.4-0.5	0.029	3.8	0.018	3.829
BH27_1.0-1.1	0.1	0.8	0.0079	0.9
SS14	<0.005	0.022	<0.005	0.022
SS15	0.066	0.74	<0.005	0.806
Ecological Criteria				
PFAS NEMP 2.0 2020 Ecological direct exposure		1		
PFAS NEMP 2.0 2020 Ecological indirect exposure		0.01		
BH12_0.0-0.1	<0.005	0.029	<0.005	0.029
BH16_0.4-0.5	0.058	0.081	0.027	0.139
BH16_1.0-1.1	0.0074	0.081	<0.005	0.0884
BH21_0.4-0.5	0.0069	0.057	0.0057	0.0639
BH23_0.4-0.5	<0.005	0.015	<0.005	0.015
BH24_1.5-1.6	0.012	0.71	<0.005	0.722
BH26_0.0-0.1	0.0067	0.13	<0.005	0.1367
BH26_0.4-0.5	0.025	1.6	0.012	1.625
BH26_1.0-1.1	0.024	0.4	0.015	0.424

Sample ID	PFHxS (mg/kg)	PFOS (mg/kg)	PFOA (mg/kg)	Sum of PFHxS and PFOS (mg/kg)
BH27_0.0-0.1	0.011	0.56	0.0083	0.571
BH27_0.4-0.5	0.029	3.8	0.018	3.829
BH27_1.0-1.1	0.1	0.8	0.0079	0.9
SS14	<0.005	0.022	<0.005	0.022
SS15	0.066	0.74	<0.005	0.806
Off-site:				
Human Health Criteria				
PFAS NEMP 2.0 2020 Public open space (HIL C)	1	1	10	1
BH19_0.4-0.5	0.091	6.6	0.019	6.691
BH29_0.4-0.5	0.081	0.94	0.0074	1.021
BH33_0.0-0.1	0.01	1.3	<0.005	1.31
BH33_0.4-0.5	0.025	1.7	0.0058	1.725
BH33_0.9-1.0	0.76	0.64	0.095	1.4
BH34_0.0-0.1	0.014	1.4	<0.005	1.414
BH34_0.4-0.5	0.083	2.4	0.014	2.483
BH34_0.9-1.0	1.4	0.28	0.1	1.68
BH35_0.0-0.1	0.083	7.6	0.028	7.683
BH35_0.4-0.5	1.1	8.8	0.16	9.9
SS10/BH42_0.4-0.5	0.44	0.73	0.082	1.17
SS10	0.16	11	0.037	11.16
SS11	0.15	11	0.035	11.15
Ecological Criteria				
PFAS NEMP 2.0 2020 Ecological direct exposure		1		
PFAS NEMP 2.0 2020 Ecological indirect exposure		0.01		
BH13_0.4-0.5	<0.005	0.011	<0.005	0.011
BH14_0.0-0.1	<0.005	0.036	<0.005	0.036
BH14_0.4-0.5	<0.005	0.03	<0.005	0.03
BH17_1.0-1.1	0.0069	0.18	<0.005	0.1869
BH17_1.5-1.6	0.01	0.11	<0.005	0.12
QC03	0.012	0.13	0.0054	0.142
QC03a	0.0100	0.101	0.0036	0.111
BH18_0.4-0.5	0.016	0.85	<0.005	0.866
BH19_0.0-0.1	0.022	0.97	0.0060	0.992
BH19_0.4-0.5	0.091	6.6	0.019	6.691
BH19_1.0-1.1	0.23	0.092	0.047	0.322
BH28_0.4-0.5	0.1	0.83	0.012	0.93
BH29_0.4-0.5	0.081	0.94	0.0074	1.021

Sample ID	PFHxS (mg/kg)	PFOS (mg/kg)	PFOA (mg/kg)	Sum of PFHxS and PFOS (mg/kg)
BH29_1.0-1.1	0.038	0.43	<0.005	0.468
BH30_0.0-0.1	<0.005	0.34	<0.005	0.34
QC1	<0.005	0.27	<0.005	0.27
QC1A	0.0014	0.287	0.0005	0.288
BH31_0.0-0.1	<0.005	0.025	<0.005	0.025
BH32_0.0-0.1	<0.005	0.12	<0.005	0.12
BH33_0.0-0.1	0.01	1.3	<0.005	1.31
BH33_0.4-0.5	0.025	1.7	0.0058	1.725
BH33_0.9-1.0	0.76	0.64	0.095	1.4
BH34_0.0-0.1	0.014	1.4	<0.005	1.414
BH34_0.4-0.5	0.083	2.4	0.014	2.483
BH34_0.9-1.0	1.4	0.28	0.1	1.68
BH35_0.0-0.1	0.083	7.6	0.028	7.683
BH35_0.4-0.5	1.1	8.8	0.16	9.9
BH36_0.0-0.1	0.011	0.32	0.0058	0.331
BH37_0.0-0.1	<0.005	0.1	<0.005	0.1
BH38_0.0-0.1	<0.005	0.061	<0.005	0.061
BH39_0.0-0.1	<0.005	0.23	0.0091	0.23
BH40_0.0-0.1	<0.005	0.09	<0.005	0.09
SS10/BH41_0.4-0.5	0.14	0.19	0.039	0.33
SS10/BH42_0.4-0.5	0.44	0.73	0.082	1.17
BH44_0.0-0.1	<0.005	0.01	<0.005	0.01
BH45_0.0-0.1	<0.005	0.023	<0.005	0.023
BH47_0.0-0.1	<0.005	0.11	<0.005	0.11
BH49_0.0-0.1	<0.005	0.063	<0.005	0.063
QC3	<0.005	0.063	<0.005	0.063
QC3A	0.0014	0.0571	0.0004	0.0585
SS07	<0.005	0.14	<0.005	0.14
SS08	0.014	0.42	<0.005	0.434
SS09	0.0091	0.31	<0.005	0.3191
SS10	0.16	11	0.037	11.16
SS11	0.15	11	0.035	11.15
SS12	<0.005	0.036	<0.005	0.036
SS13	<0.005	0.095	<0.005	0.095

7.2 Surface water and sediment

7.2.1 Analytical Results

For bio-accumulative contaminants, which include many PFAS, the Water Quality Guideline (ANZG 2018) framework specifies that the 99% species protection default guideline values should be used for:

– Assessing toxicity and bioaccumulation in high conservation value ecosystems.
– Assessing bioaccumulation in slightly to moderately disturbed ecosystems.

Exceedances of the 99% high conservation value systems species protection criteria were reported in all surface water samples analysed. Furthermore, one sample also yielded a concentration that exceeded the adopted PFAS NEMP health drinking water assessment criteria. Table 7.3 provides a summary of the surface water exceedances. Surface water sampling records are contained in Appendix F.

Table 7.3 Surface Water Exceedances of Adopted Criteria

Sample ID	PFHxS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Sum of PFHxS and PFOS (µg/L)
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems	**-**	**0.00023**	**19**	**-**
STMWTR_01	0.029	0.051	0.003	0.08
STMWTR_02	<0.001	0.0022	0.002	0.0022
STMWTR_03	0.002	0.0040	0.001	0.006
SW01	0.014	0.015	0.009	0.029
SW02	0.014	0.018	0.009	0.032
SW03	0.016	0.017	0.006	0.035
SW04	0.004	0.0042	0.009	0.0082
SW05	0.004	0.0041	0.006	0.0081
SW06	0.004	0.0052	0.007	0.0092
SW07	0.005	0.0042	0.004	0.0092
SW08	<0.001	0.0025	0.001	0.0025
SW09	<0.001	0.0026	0.001	0.0026
SW10	0.001	0.0030	0.001	0.004
SW11	0.001	0.0034	0.001	0.0044
SW12	0.001	0.0040	0.001	0.005
SW13	0.001	0.0040	0.001	0.005
SW14	0.001	0.0040	0.001	0.005

Analysis of sediment samples collected from the channel of Christie Creek yielded results below the laboratories' standard LOR.

8. Quality assurance and quality control

A detailed Quality Assurance and Quality Control (QA/QC) assessment was completed for all analytical sample data to determine whether it is of suitable quality on which to base the site assessment. This included collecting and reviewing inter- and intra-laboratory duplicates, field blank samples, and rinsate blank samples.

The QA/QC assessment found that the majority of GHD QA/QC Data Quality Indicators (DQIs) were within the specified requirements with exceptions to the Relative Percentage Difference (RPD) exceedances of some PFAS analytes, the frequency of duplicates for soil samples, and the matrix spikes. Therefore, the results are considered to be valid and of sufficient quality for the purpose and objectives of this assessment. A copy of the detailed QA/QC report is provided in Appendix J.

9. Revised Conceptual Site Model

Fundamental to any contamination investigation is the development of a 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 without 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.

A tabular CSM can be found below in Table 9.1, with visual representations depicted in Figures 7 & 8.

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	Current: Site users, visitors, maintenance, and construction workers	Direct dermal contact with contaminated soil	Unlikely Considering the site's current inactive and unoccupied status and the results of soil analysis reporting no exceedances on the adopted HIL D and MFS site-specific criteria. The potential risk of PFAS exposure through direct contact with PFAS-contaminated soil is considered low and acceptable.
		Incidental ingestion of contaminated soil	
		Inhalation of contaminated soil or dust from disturbed soils	
	Future: Site residents, visitors, maintenance and construction workers (i.e., sensitive use),	Direct dermal contact with contaminated soil	Likely Assuming that the divestment plan for the site inclines towards a more sensitive land use, such as a residential setting, the potential risk of PFAS exposure through direct contact with contaminated soil is considered confirmed and likely. The soil analysis results identified exceedances of HIL A and HIL B assessment criteria. 19 out of the 33 on-site soil samples have exceeded the HIL A assessment criteria, while only one sample collected in location BH27 exceeded the HIL B assessment criteria. Generally, higher PFAS concentrations are found on the surface and near-surface depths, ranging from 0.0 to 0.5 meters below ground level (m bgl). However, if the divestment plan will retain its current land use and have limited access to the impacted soils, the potential risk of PFAS exposure through direct contact is likely low and acceptable.
		Incidental ingestion of contaminated soil	
		Ingestion of produce grown in contaminated soils	
		Inhalation of contaminated soil or dust from disturbed soils	
	The ecosystem at and immediately surrounding the site	Direct contact with contaminated soil	Possible Seven soil samples noted elevated PFOS concentrations exceeding the adopted ecological exposure assessment criteria. Exceedances of the indirect ecological exposure for developed sites were noted in the five soil samples collected on the garden soils accessible to flora and fauna. Exceedances of the direct ecological exposure criteria were reported in the near-surface samples collected in locations BH26 and BH27, situated adjacent to the former training area. In addition, laboratory surface water analysis results have also reported exceedances of the adopted ecological criteria protective of the freshwater high conservation value systems. Samples collected from the nearest stormwater drain connected to the site yielded the highest concentrations. Further work in the form of ecological risk assessment may be required to assess potential impacts to identified receptors via the identified pathways.
		Ingestion of contaminated soil	
		Bioaccumulation through indirect contact	
		Rainwater/surface runoff leaching impacted soils into stormwater systems, which discharge to surface water bodies.	

Source	Potential Receptors	Exposure Pathways	Risk from exposure through SPR Linkages
	Groundwater beneath the site	Vertical migration of PFAS compounds from impacted soil	Unlikely As the previous DSI report referred, elevated PFAS concentrations were not detected below a depth of 2.8 m bgl. No groundwater was encountered during drilling to a depth of 20 m bgl. The potential risk of site-derived PFAS contamination impacting groundwater is considered low.
Off-site PFAS-impacted soils	Off-site users of the area, inclusive of the general public, maintenance and subsurface construction workers	Direct dermal contact with contaminated soil	Possible Exceedances of the HIL C assessment criteria were reported in soil samples collected on the adjacent unsealed reserve area east of the site. The reserve area is, however, not considered likely to be used regularly due to an absence of facilities (playgrounds, etc) and is expected only to be used by foot traffic. The risk to human health of the public using this area is low and acceptable.
		Incidental ingestion of contaminated soil	
		Inhalation of contaminated soil or dust from disturbed soils	
	The ecosystem at and immediately surrounding the site	Direct contact with contaminated soil	Possible Exceedances of the ecological indirect assessment criteria for PFOS concentrations were reported in several soil samples taken off-site. The depth at which these elevated concentrations were detected ranges from 0.0-1.6 m bgl. In addition, the surface water samples collected from the stormwater drains connected to the site and on the channels of Christie Creek have yielded PFOS concentrations above the adopted ecological criteria that are protective of freshwater high conservation value systems. Relatively higher concentrations were reported on the surface water samples taken from the stormwater drains and collected downstream of the stormwater outlet at Christie Creek.
		Ingestion of contaminated soil	
		Bioaccumulation through indirect contact	
		Rainwater/surface runoff leaching impacted soils into stormwater systems, which discharge to surface water bodies.	
	Groundwater beneath the site	Vertical migration of PFAS compounds from impacted soil	Unlikely As the previous DSI report referred, elevated PFAS concentrations were not detected below a depth of 2.8 m bgl. No groundwater was encountered during drilling to a depth of 20 m bgl. The potential risk of site-derived PFAS contamination impacting groundwater is considered low.
PFAS impacted concrete and bitumen surfaces	Future and current: Site users, visitors, maintenance, and construction workers	Direct dermal contact with contaminated concrete or bitumen	Likely Concrete and bitumen surfaces that have historically been exposed to PFAS containing AFFF during training and the washdown of appliances have been sampled, and the presence of PFAS compounds has been confirmed. The likelihood that site users, visitors, maintenance, or construction workers would be exposed to PFAS in quantities detrimental to their health via this exposure pathway is considered low and acceptable.
		Inhalation of contaminated dust	
		Historical soaking of washdown wastewater into the ground	
	Surface water bodies connected to stormwater (Christie Creek)	Rainwater/surface runoff leaching impacted concrete/bitumen into stormwater systems, which discharge to surface water bodies	Possible The laboratory surface water analysis results have reported PFOS concentrations in all samples exceeding the adopted ecological criteria protective of the freshwater high conservation value systems. These

Source	Potential Receptors	Exposure Pathways	Risk from exposure through SPR Linkages
			samples were collected on the stormwater drain connected to the site and several upstream and downstream portions of Christie Creek. Migration of PFAS from the site through impacted rainwater/surface water was confirmed as the highest PFOS concentrations were reported on the stormwater drain nearest to the site.

10. Discussion

10.1 Soil

10.1.1 Human health

The PFAS NEMP 2.0 (2020) HIL D investigation level assumes 8 hours spent indoors and 1 hour outdoors at sites such as shops, offices, factories, or industrial sites. The guideline also notes that if typical exposure for a site is predominantly outdoors with significant earthen areas, recalculating a site-specific value is recommended. The SSHILs for screening PFAS-contaminated soils at MFS sites (Metropolitan, Staffed) have been adopted.

The PFAS NEMP (2020) HIL A and HIL B human health-based investigation levels for soil are used to assess potential human exposure to PFAS-contaminated soils, aligned with soil accessibility. The HIL A investigation level assumes accessible soil where edible vegetation is grown, with up to 10% of the diet comprising such produce. The HIL B investigation level assumes no use of soil for consumption of home-grown produce, such as in dwellings with fully paved yard spaces. Therefore, HIL A and HIL B criteria are selected to assess potential PFAS exposure risks for future sensitive site uses.

The PFAS NEMP (2020) HIL C investigation level assesses potential human health risks from PFAS exposure in public open spaces, specifically in scenarios like parks, playgrounds, and recreational areas, involving less frequent and shorter-duration exposures compared to residential settings.

Comparing the results to the adopted assessment criteria, the following observations are made with respect to both on-site and off-site areas:

On-site:

Results of the soil analysis showed no identified exceedances of the applicable human health assessment criteria (HIL D/MFS Site-Specific Criteria – Metropolitan) in the on-site soil samples. However, given that the site may be divested, HIL A and HIL B criteria were also considered to determine the site's potential exposure risk in a more sensitive land-use setting. Comparing the soil analysis results to these more sensitive HILs, exceedances of the HIL A assessment criteria were identified in 19 samples, and among these, one also exceeded the HIL B assessment criteria.

PFAS concentrations of 3.82 mg/kg and 1.6 mg/kg (sum of PFHxS and PFOS) were identified in samples collected near the former training area, specifically in the unsealed garden beds that bound the apron. Most of the exceedances were found at surface to near-surface depths, ranging from 0.0 to 0.5 m bgl. However, for samples collected near the former training area (BH16, BH24, BH26, and BH27), elevated concentrations were still detected in deeper samples, around 1.6 m bgl, suggesting a higher level of contamination in these unsealed areas. These areas likely fell within the zone affected by overspray during previous training or washdown activities.

Statistical analysis using ProUCL 5.2 was performed on the soil data to determine the level of PFAS contamination within the site comprehensively. The analysis utilised historical and current soil data to calculate the upper confidence limit (UCL) of PFOS concentrations. Only surface and near-surface samples, with depths ranging from 0.0 to 0.5 m bgl, were used for the calculations. A 95% confidence coefficient calculated a UCL of 0.632 mg/kg for the dataset. This calculated UCL value suggests that the human and ecological health risk from PFAS contamination at the site is generally within the threshold of the HIL B assessment criteria, given that the calculated UCL is below the 2 mg/kg screening value of HIL B.

The extent of contamination has been delineated, and sampling locations BH26 and BH27 were considered hotspot areas within the site, as the highest concentrations of PFAS were detected on the surface, and near-surface samples were collected at these locations. The utmost vertical extent of the contamination lies between 1.6-1.9 m bgl, based on the historical and current soil analysis results. Exceeding PFAS concentrations were not detected in soil samples collected from 1.9 m bgl onwards.

GHD notes that the site is proposed to be divested in its current state, with the potential existence of site contamination depending on the site's proposed future use. Based on the identified contamination, the sale of the property must be in accordance with the SA EPA site contamination transfer of liability. Refer to Appendix K for the SA EPA information sheet on transfer of liability. A remediation options assessment for a potential HIL A resue scenario is provided in Appendix L.

Off-site:

Exceedances of the adopted HIL C assessment criteria were identified in 13 soil samples. These elevated concentrations were identified in surface soil samples, and soil bore samples collected within the adjacent unsealed reserve area east of the site and beneath the asphalt-covered Holman Road. Samples collected from surface and near-surface depths identified concentrations ranging from 1.02-11.16 mg/kg. PFAS contamination in these areas is likely attributed to overspray or runoff from PFAS-containing aqueous film-forming foam (AFFF) used during historical firefighting training exercises or equipment flushing activities. The reserve area is, however, not considered likely to be used regularly due to an absence of facilities (playgrounds, etc) and is expected only to be used by foot traffic. The risk to human health of the public using this area is low and acceptable.

10.1.2 Ecological

The PFAS NEMP 2.0 (2020) direct and indirect ecological exposure risk values for PFOS and PFOA are designed to protect organisms in direct contact with soil (e.g., plants, worms) and secondary consumers (e.g., birds, small mammals, reptiles), respectively.

The PFAS NEMP (2020) indirect ecological exposure value of 0.01 mg/kg is a default derived for all land-use scenarios. However, site-specific characteristics may justify a higher value (0.14 mg/kg), such as in extensively built-up urban settings. The default value of 0.01 mg/kg may not apply depending on the site's future land use. The site may have limited accessible soils and would not provide a high-quality foraging habitat for higher trophic-level organisms.

Within the site, exceedances of the ecological indirect exposure criteria for developed sites were identified in seven samples collected near the former training area, specifically in the unsealed garden beds surrounding the apron. Among these samples, two also exceeded the ecological direct exposure assessment criteria. The presence of soils exceeding both adopted ecological criteria represents a potentially complete Source-Pathway-Receptor (SPR) linkage. Beyond the site, exceedances of the adopted ecological indirect exposure criteria were identified in 47 samples collected within the impacted off-site area east of the site. Nine of these samples also exceeded the ecological direct exposure criteria. PFOS concentrations ranged from 0.023-11 mg/kg at depths of 0.0-1.1 m bgl. The reported concentrations in these samples and their relative locations likely delineate the extent of PFAS contamination off-site.

10.2 Surface Water and Sediment

Two surface water sampling events were conducted at the site and the receiving environment (Christie Creek). The initial samples were collected during the onset of autumn, while the second round was conducted during the winter peak. Results showed that during dry conditions, PFAS concentrations in surface water downstream of the MFS site discharge point were an order of magnitude higher than those measured upstream; however, they returned to similar concentrations further down the river before exiting to the ocean. It is noted that stormwater flow is the primary mechanism via which PFAS migrates from the site into Christie Creek, and short-term increases in the flux of PFAS through the investigation area may occur under certain conditions.

Considering the conservative default guideline value prescribed for high conservation value freshwater systems (aiming for 99% species protection), the results from the two sampling rounds indicate that all surface samples analysed have exceeded the PFOS assessment criterion. The highest concentration was reported in the surface sample taken from the stormwater outlet nearest to the site.

Exceedances observed in samples SW05 (0.0041 µg/L), SW06 (0.0052 µg/L), and SW07 (0.0042 µg/L), collected upstream of Christie Creek, represent background concentrations of PFAS, indicating its pervasive presence in the

environment. Other contributing sources upstream, including those from Lonsdale Industrial Complex, are likely considered contributory to the presence of PFAS in the surface water of Christie Creek.

PFAS was not detected in any sediment samples collected within the surface water drainage lines and Christie Creek near where surface water samples were obtained.

11. Conclusions and recommendations

Based on the results of this investigation the following conclusions have been made:

- Encountered lithologies prevailing on the site were characterised clayey sand fill materials underlain by in-situ clayey sand, silty clay, and clay. Distribution and thickness of these lithologies varies coinciding to the heterogeneity of the subsurface lithology.
- Identified PFAS-impacted soils can be attributed to the historical use of AFFF containing PFAS at the station, likely due to the overspray during training/flushingactivities.
- Regarding the result of the soil analysis:
  - On-site:
    - Soil analysis results reported no exceedances of the adopted human health assessment criteria (HIL D/SSHIL – Metropolitan) for on-site soil samples.
    - Given that the site is due for divestment, HIL A and HIL B criteria were also considered to determine the site's potential exposure risk in a more sensitive land use setting. Exceedances of the HIL A assessment criteria were identified in 19 samples, and among these, one also exceeded the HIL B assessment criteria.
    - Significant concentrations of 3.829 mg/kg and 1.6 mg/kg (sum of PFHxS and PFOS) were found in samples collected near the former training area in unsealed garden beds.
    - Most of the exceedances were found at surface and near-surface depths, ranging from 0.0-0.5 m bgl.
    - Statistical analysis using ProUCL 5.2 was performed on the soil results. A UCL of 0.632 mg/kg was calculated at 95% confidence coefficient. This calculated UCL value suggests that the human and ecological health risk from PFAS contamination at the site is generally within the threshold of the HIL B assessment criteria.
    - The presence of soils exceeding both adopted ecological criteria is representative of a potentially complete Source Pathway Receptor (SPR) linkage.
  - Off-site:
    - Exceedances of the adopted HIL C assessment criteria were found in 13 soil samples collected within the adjacent unsealed reserve east of Holman Road and beneath the sealed road. Exceeding concentrations ranging from 1.021-11.16 mg/kg, were reported in samples taken from surface and near surface depths
    - PFAS exceedences reported in the unsealed east of Holman Road are likely attributed to overspray or runoff from historical firefighting training activities or equipment flushing activities.
    - Migration of PFAS from the site through impacted surface water and runoff has been confirmed and quantified, consequentially contributing PFAS concentrations in Christie Creek. Future development works that reduce areas of exposed contaminated soil at the site would reduce the migration of PFAS via stormwater runoff.

Based on the above findings, the following recommendations have been made:

- Undertake additional soil investigations following building demolition to assess contamination in currently inaccessible areas within Zone 1 to support remediation planning.
- Develop a soil management plan for the impacted immediate surrounding to ensure PFAS-impacted soils are appropriately handled and contained during remediation works to prevent further migration into surrounding environments.
- Continue surface water monitoring along Christie Creek, particularly near stormwater outlets, to determine seasonal variations in PFAS concentrations.

– Implement stakeholder engagement initiatives to engage with landowners (council) in areas with off-site contamination to address public concerns (if needed) about PFAS levels in publicly accessible areas, ensuring transparency and proactive communication regarding ongoing remediation efforts.

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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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South Australian Metropolitan Fire Service
Christie Downs Supplementary
Detailed Site Investigation

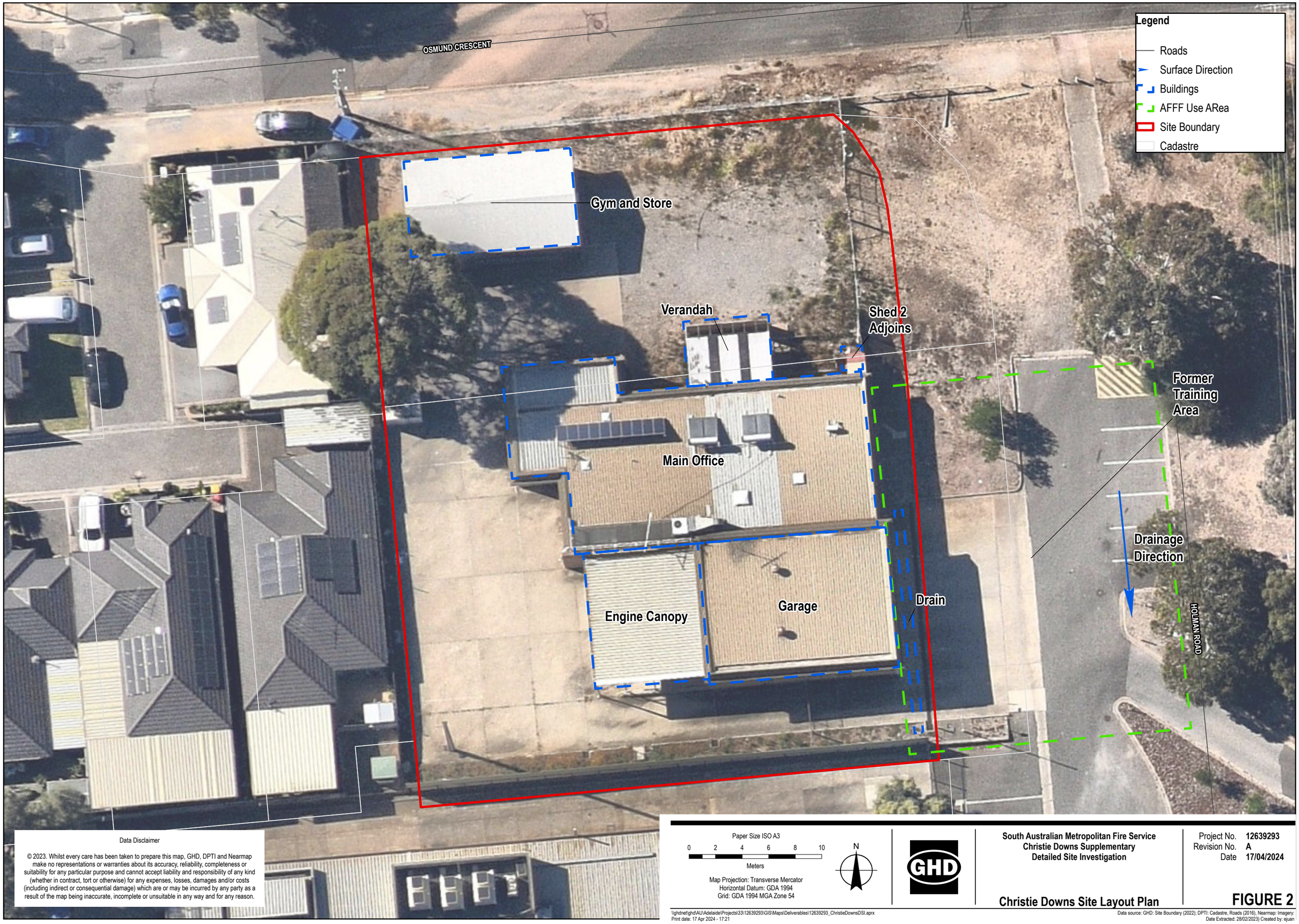
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Revision No. **A**
Date **17/04/2024**

Christie Downs Site Location Plan

FIGURE 1

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Data source: GHD: Site Boundary (2022); DPTI: Cadastre, Roads (2016), Nearmap: Imagery: Date Extracted: 28/02/2023) Created by: ejuan



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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
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Project No. 12639293
Revision No. A
Date 17/04/2024

Christie Downs Site Layout Plan

FIGURE 2

\\ghdnet\ghd\AU\Adelaide\Projects\33\12639293\GIS\Maps\Deliverables\12639293_ChristieDownsDSI.aprx
Print date: 17 Apr 2024 - 17:21

Data source: GHD: Site Boundary (2022); DPTI: Cadastre, Roads (2016), Nearmap: Imagery: Date Extracted: 28/02/2023) Created by: ejuan



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Paper Size ISO A3

0 3 6 9 12

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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GHD

South Australian Metropolitan Fire Service
Christie Downs Supplementary
Detailed Site Investigation

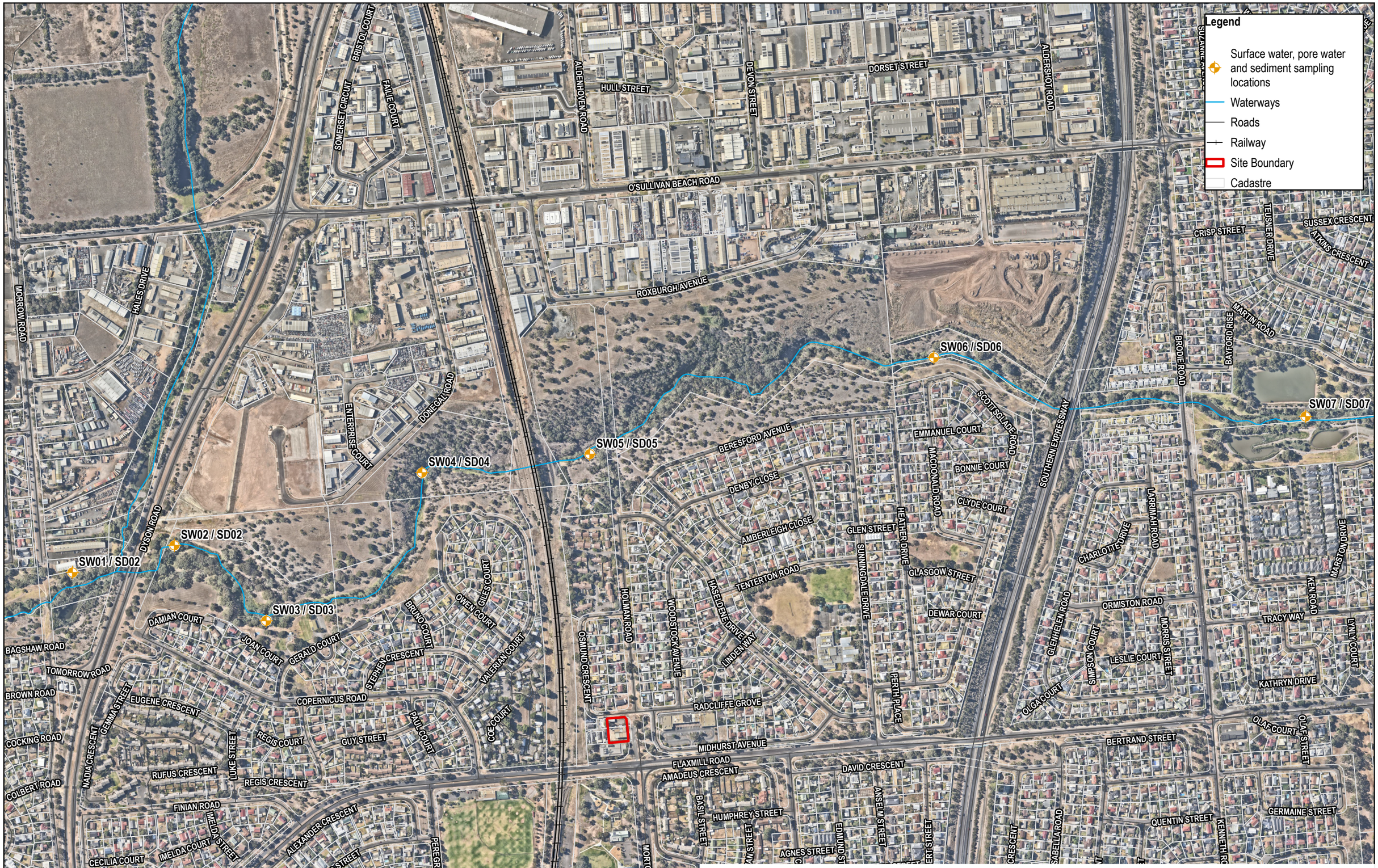
Project No. **12639293**
Revision No. **C**
Date **29/08/2024**

Christie Downs Soil Sampling Locations

FIGURE 3

\\ghdnet\ghd\AU\Adelaide\Projects\33\12639293\GIS\Maps\Deliverables\12639293_ChristieDownsDSI.aprx
Print date: 29 Aug 2024 - 11:32

Data source: GHD: Site Boundary (2022); DPTI: Cadastre, Roads (2016), Nearmap: Imagery: Date Extracted: 28/02/2023) Created by: ejuan



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Paper Size ISO A3

0 50 100 150 200 250

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

N

GHD

South Australian Metropolitan Fire Service
Christie Downs Supplementary Detailed Site Investigation

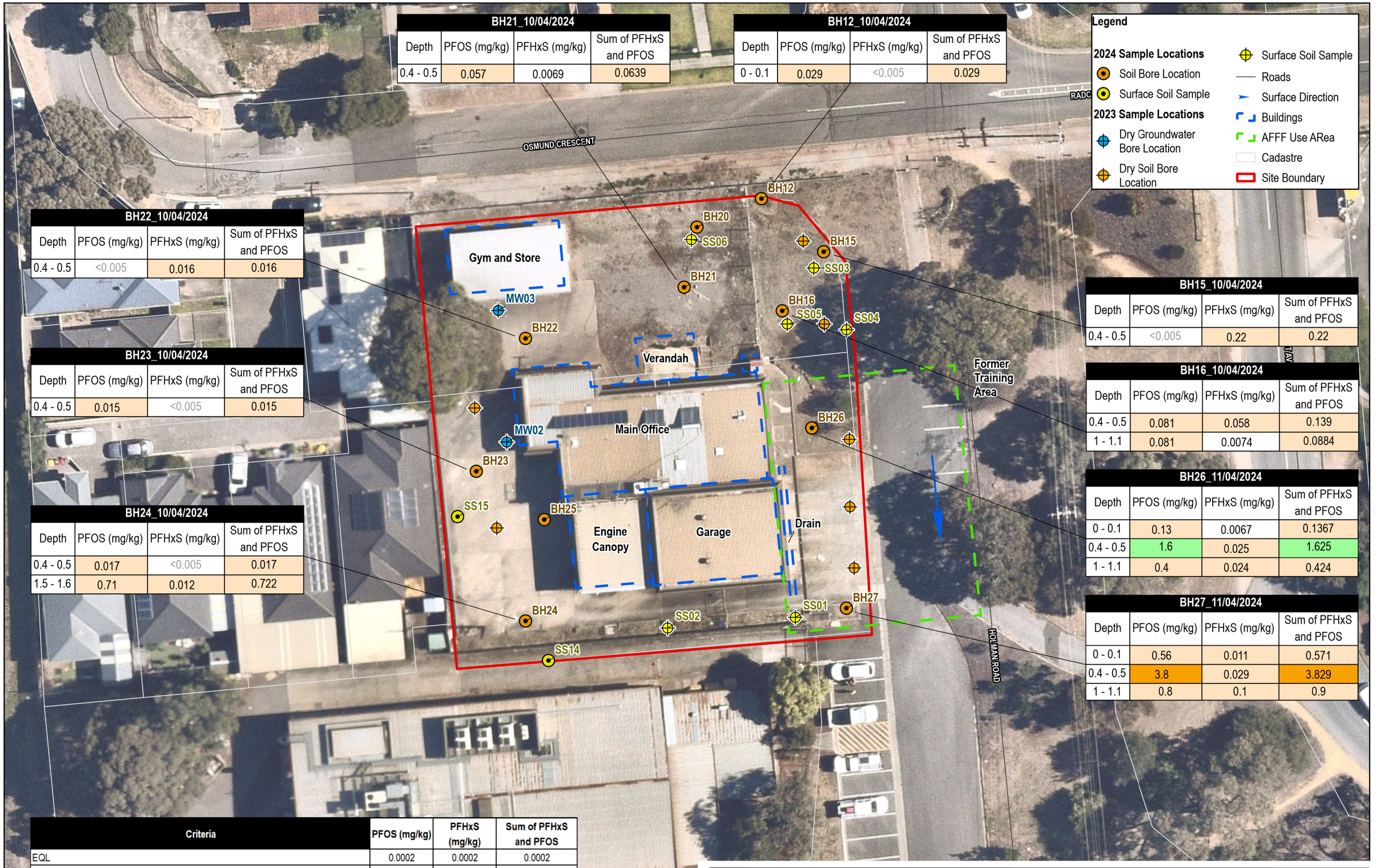
Christie Downs Surface Water and Sediment Sampling Locations

Project No. **12639293**
Revision No. **A**
Date **18/04/2024**

FIGURE 4

\\ghdnet\ghd\AU\Adelaide\Projects\33\12639293\GIS\Maps\Deliverables\12639293_ChristieDownsDSI.aprx
Print date: 18 Apr 2024 - 10:04

Data source: GHD: Site Boundary (2022); DPTI: Cadastre, Roads (2016), Nearmap: Imagery: Date Extracted: 28/02/2023) Created by: ejuan



BH21_10/04/2024

Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	0.057	0.0069	0.0639

BH12_10/04/2024

Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.029	<0.005	0.029

BH22_10/04/2024

Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	<0.005	0.016	0.016

BH23_10/04/2024

Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	0.015	<0.005	0.015

BH24_10/04/2024

Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	0.017	<0.005	0.017
1.5 - 1.6	0.71	0.012	0.722

Legend

2024 Sample Locations
- Soil Bore Location
- Surface Soil Sample

2023 Sample Locations
- Dry Groundwater Bore Location
- Dry Soil Bore Location
- Surface Soil Sample
- Roads
- Surface Direction
- Buildings
- AFFF Use ARea
- Cadastre
- Site Boundary

BH15_10/04/2024

Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	<0.005	0.22	0.22

BH16_10/04/2024

Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	0.081	0.058	0.139
1 - 1.1	0.081	0.0074	0.0884

BH26_11/04/2024

Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.13	0.0067	0.1367
0.4 - 0.5	1.6	0.025	1.625
1 - 1.1	0.4	0.024	0.424

BH27_11/04/2024

Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.56	0.011	0.571
0.4 - 0.5	3.8	0.029	3.829
1 - 1.1	0.8	0.1	0.9

Criteria	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
EQL	0.0002	0.0002	0.0002
PFAS NEMP 2.0 2020 Industrialcommercial (HIL D)	20	20	20
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)	2	2	2
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)	0.01	0.01	0.01
PFAS NEMP 2.0 2020 NEMP 2.0 2020 Public open space (HIL C)	1	1	1
SA MFS Site Specific Criteria - Metropolitan (Staffed)			14

Paper Size ISO A3

0 3 6 9 12 15

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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South Australian Metropolitan Fire Service
Christie Downs Supplementary
Detailed Site Investigation

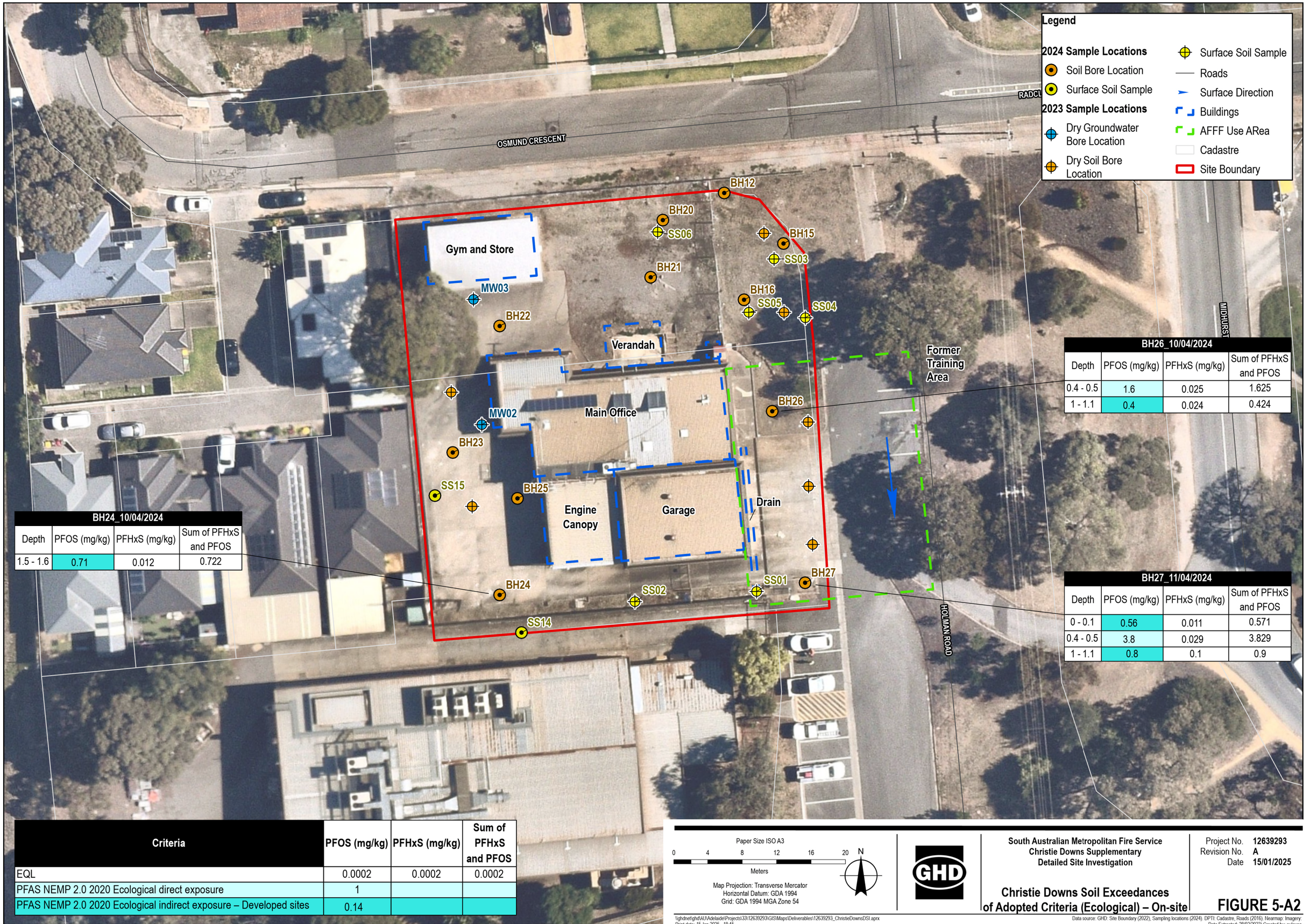
Christie Downs Soil Exceedances of Adopted Criteria (HIL) – On-site

Project No. **12639293**
Revision No. **A**
Date **15/01/2025**

FIGURE 5-A1

\\ghdnet\ghd\AU\Adelaide\Projects\33\12639293\GIS\Maps\Deliverables\12639293_ChristieDownsDSI.aprx
Print date: 15 Jan 2025 - 18:56

Data source: GHD: Site Boundary (2022), Sample Locations (2024). DPTI: Cadastre, Roads (2016). Nearmap: Imagery Date Extracted: 28/02/2023) Created by: aulayao



BH26_10/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	1.6	0.025	1.625
1 - 1.1	0.4	0.024	0.424

BH24_10/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
1.5 - 1.6	0.71	0.012	0.722

BH27_11/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.56	0.011	0.571
0.4 - 0.5	3.8	0.029	3.829
1 - 1.1	0.8	0.1	0.9

Criteria	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
EQL	0.0002	0.0002	0.0002
PFAS NEMP 2.0 2020 Ecological direct exposure	1		
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites	0.14		

Note: Refer to 5.1.3 & 10.1.2 for discussion on assessment criteria

Paper Size ISO A3

0 4 8 12 16 20 N

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

\\ghdnet\ghd\AU\Adelaide\Projects\33\12639293\GIS\Maps\Deliverables\12639293_ChristieDownsDSI.aprx
Print date: 15 Jan 2025 - 18:45

Data source: GHD: Site Boundary (2022), Sampling locations (2024). DPTI: Cadastre, Roads (2016). Nearmap: Imagery. Date Extracted: 28/02/2023) Created by: aulayao

South Australian Metropolitan Fire Service
Christie Downs Supplementary Detailed Site Investigation

Christie Downs Soil Exceedances of Adopted Criteria (Ecological) – On-site

Project No. **12639293**
Revision No. **A**
Date **15/01/2025**

FIGURE 5-A2

BH34_13/04/2024				
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	PFOA	Sum of PFHxS and PFOS
0 - 0.1	1.4	0.014	<0.005	1.414
0.4 - 0.5	2.4	0.083	0.014	2.483
0.9 - 1	0.28	1.4	0.1	1.68

BH33_13/04/2024				
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	PFOA	Sum of PFHxS and PFOS
0 - 0.1	1.3	0.01	<0.005	1.31
0.4 - 0.5	1.7	0.025	0.0058	1.725
0.9 - 1	0.64	0.76	0.095	1.4

Legend

2024 Sample Locations
- Soil Bore Location
- Surface Soil Sample

2023 Sample Locations
- Dry Groundwater Bore Location
- Dry Soil Bore Location
- Surface Soil Sample
- Roads
- Surface Direction
- Buildings
- AFFF Use ARea
- Cadastre
- Site Boundary

SS10_9/07/2024			
PFOS (mg/kg)	PFHxS (mg/kg)	PFOA	Sum of PFHxS and PFOS
11	0.16	0.037	11.16

SS11_9/07/2024			
PFOS (mg/kg)	PFHxS (mg/kg)	PFOA	Sum of PFHxS and PFOS
11	0.15	0.035	11.15

BH35_13/04/2024				
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	PFOA	Sum of PFHxS and PFOS
0 - 0.1	7.6	0.083	0.028	7.683
0.4 - 0.5	8.8	1.1	0.16	9.9

BH42_13/04/2024				
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	PFOA	Sum of PFHxS and PFOS
0.4 - 0.5	0.73	0.44	0.082	1.17

BH29_11/04/2024				
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	PFOA	Sum of PFHxS and PFOS
0.4 - 0.5	0.94	0.081	0.0074	1.021

BH19_10/04/2024				
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	PFOA	Sum of PFHxS and PFOS
0.4 - 0.5	6.6	0.091	0.019	6.691

Criteria	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
PFAS NEMP 2.0 2020 NEMP 2.0 2020 Public open space (HIL C)	1	1	1

OSMUND CRESCENT
RADCLIFFE
MIDHURST AVENUE
HOLMAN ROAD
Gym and Store
Former Training Area
Verandah
Main Office
Engine Canopy
Garage
Drain
BH13
BH14
SS07
BH32
BH31
SS10
BH43
BH33
BH17
MW01
BH34
SS08
BH30
SS10/BH41
BH03
BH19
SS11
BH40
BH44
BH28
BH35
BH39
SS11/BH42
BH07
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BH18
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BH37
SS12
BH08
SS13
BH47
BH46
BH49
BH48

Paper Size ISO A3
0 4 8 12 16 20
Meters
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

N

GHD

South Australian Metropolitan Fire Service
Christie Downs Supplementary
Detailed Site Investigation

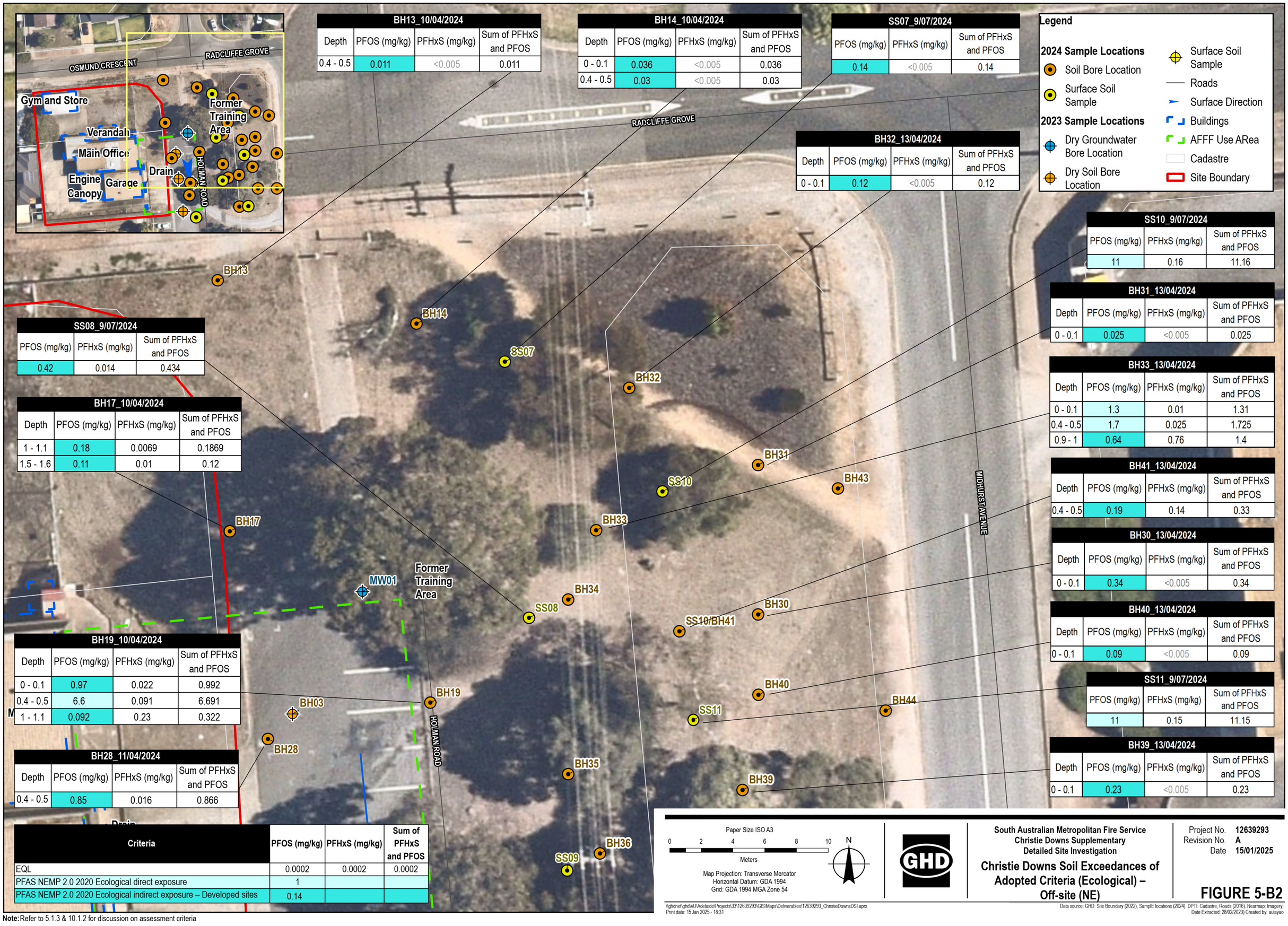
Christie Downs Soil Exceedances of Adopted Criteria (HIL) – Off-site

Project No. 12639293
Revision No. B
Date 15/01/2025

FIGURE 5-B1

\\ghdnet\ghd\AU\Adelaide\Projects\33\12639293\GIS\Maps\Deliverables\12639293_ChristieDownsDSI.aprx
Print date: 15 Jan 2025 - 16:48

Data source: GHD: Site Boundary (2022), Sample Locations (2024). DPTI: Cadastre, Roads (2016). Nearmap: Imagery: Date Extracted: 28/02/2023) Created by: aulayao



BH13_10/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	0.011	<0.005	0.011

BH14_10/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.036	<0.005	0.036
0.4 - 0.5	0.03	<0.005	0.03

SS07_9/07/2024		
PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.14	<0.005	0.14

BH32_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.12	<0.005	0.12

Legend

2024 Sample Locations
- Soil Bore Location
- Surface Soil Sample

2023 Sample Locations
- Dry Groundwater Bore Location
- Dry Soil Bore Location
- Surface Soil Sample
- Roads
- Surface Direction
- Buildings
- AFFF Use ARea
- Cadastre
- Site Boundary

SS10_9/07/2024		
PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
11	0.16	11.16

BH31_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.025	<0.005	0.025

BH33_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	1.3	0.01	1.31
0.4 - 0.5	1.7	0.025	1.725
0.9 - 1	0.64	0.76	1.4

BH41_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	0.19	0.14	0.33

BH30_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.34	<0.005	0.34

BH40_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.09	<0.005	0.09

SS11_9/07/2024		
PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
11	0.15	11.15

BH39_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.23	<0.005	0.23

SS08_9/07/2024		
PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.42	0.014	0.434

BH17_10/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
1 - 1.1	0.18	0.0069	0.1869
1.5 - 1.6	0.11	0.01	0.12

BH19_10/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.97	0.022	0.992
0.4 - 0.5	6.6	0.091	6.691
1 - 1.1	0.092	0.23	0.322

BH28_11/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	0.85	0.016	0.866

Criteria	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
EQL	0.0002	0.0002	0.0002
PFAS NEMP 2.0 2020 Ecological direct exposure	1		
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites	0.14		

Paper Size ISO A3

0 2 4 6 8 10 Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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GHD

South Australian Metropolitan Fire Service
Christie Downs Supplementary
Detailed Site Investigation

Christie Downs Soil Exceedances of Adopted Criteria (Ecological) – Off-site (NE)

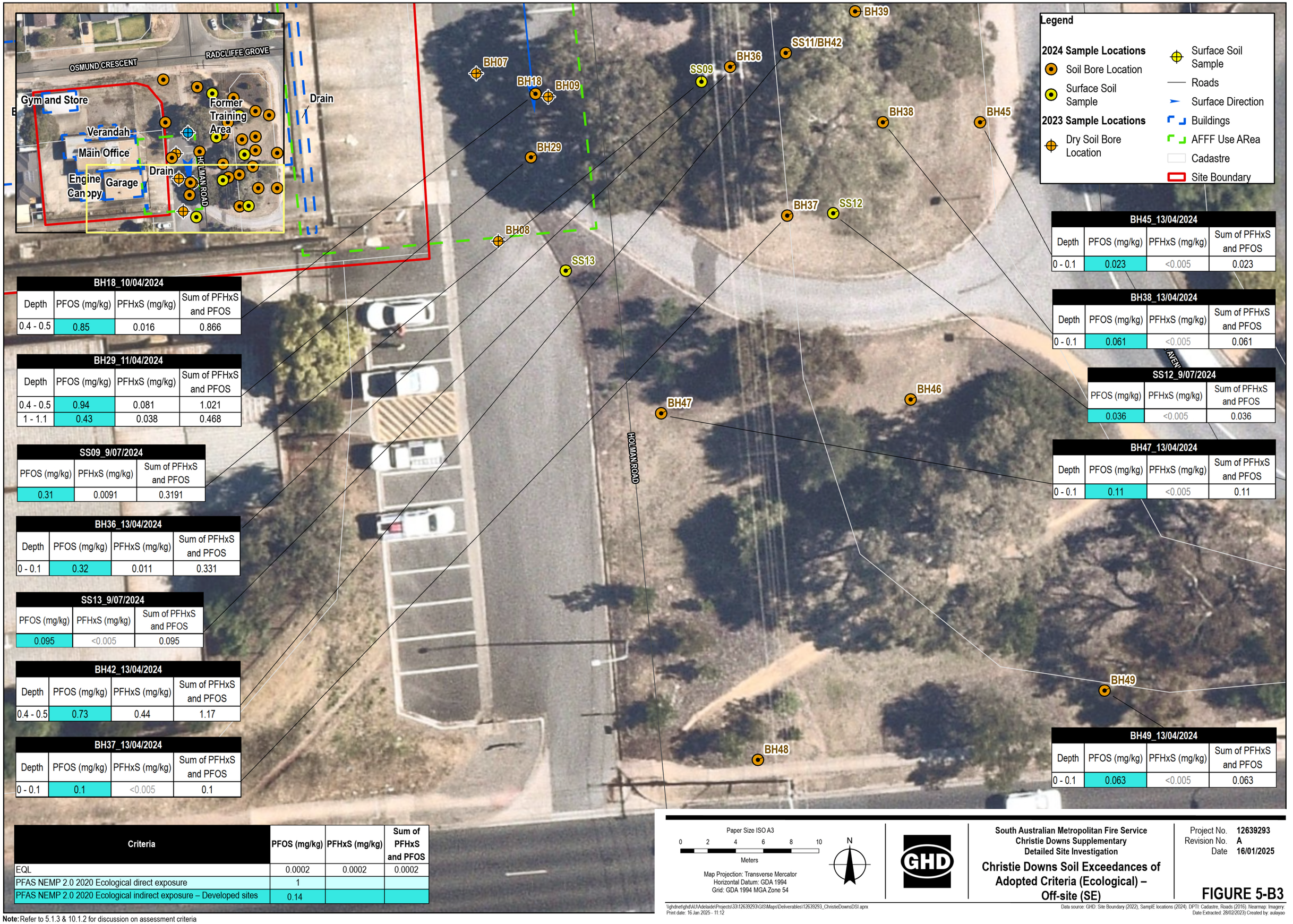
Project No. 12639293
Revision No. A
Date 15/01/2025

FIGURE 5-B2

\\ghdnet\ghd\AU\Adelaide\Projects\33\12639293\GIS\Maps\Deliverables\12639293_ChristieDownsDSI.aprx
Print date: 15 Jan 2025 - 18:31

Data source: GHD: Site Boundary (2022), SamplE locations (2024). DPTI: Cadastre, Roads (2016). Nearmap: Imagery
Date Extracted: 28/02/2023) Created by: aulayao

Note: Refer to 5.1.3 & 10.1.2 for discussion on assessment criteria



BH18_10/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	0.85	0.016	0.866

BH29_11/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	0.94	0.081	1.021
1 - 1.1	0.43	0.038	0.468

SS09_9/07/2024		
PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.31	0.0091	0.3191

BH36_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.32	0.011	0.331

SS13_9/07/2024		
PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.095	<0.005	0.095

BH42_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.4 - 0.5	0.73	0.44	1.17

BH37_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.1	<0.005	0.1

BH45_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.023	<0.005	0.023

BH38_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.061	<0.005	0.061

SS12_9/07/2024		
PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0.036	<0.005	0.036

BH47_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.11	<0.005	0.11

BH49_13/04/2024			
Depth	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
0 - 0.1	0.063	<0.005	0.063

Criteria	PFOS (mg/kg)	PFHxS (mg/kg)	Sum of PFHxS and PFOS
EQL	0.0002	0.0002	0.0002
PFAS NEMP 2.0 2020 Ecological direct exposure	1		
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites	0.14		

Note: Refer to 5.1.3 & 10.1.2 for discussion on assessment criteria

Paper Size ISO A3

0 2 4 6 8 10

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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GHD

South Australian Metropolitan Fire Service
Christie Downs Supplementary Detailed Site Investigation

Christie Downs Soil Exceedances of Adopted Criteria (Ecological) – Off-site (SE)

Project No. **12639293**
Revision No. **A**
Date **16/01/2025**

FIGURE 5-B3

\\ghdnet\ghd\AU\Adelaide\Projects\33\12639293\GIS\Maps\Deliverables\12639293_ChristieDownsDSI.aprx
Print date: 16 Jan 2025 - 11:12

Data source: GHD: Site Boundary (2022), SamplE locations (2024). DPTI: Cadastre, Roads (2016). Nearmap: Imagery: Date Extracted: 28/02/2023) Created by: aulayao

Location	Sum of PFHxS and PFOS
SW03_12/07/2024	0.035

Location	Sum of PFHxS and PFOS
SW04_12/07/2024	0.0082

Location	Sum of PFHxS and PFOS
SW05_12/07/2024	0.0081

Location	Sum of PFHxS and PFOS
SW06_12/07/2024	0.0092

Location	Sum of PFHxS and PFOS
SW02_12/07/2024	0.032

Location	Sum of PFHxS and PFOS
SW01_12/07/2024	0.029

Location	Sum of PFHxS and PFOS
SW11_11/07/2024	0.0044

Location	Sum of PFHxS and PFOS
SW12_11/07/2024	0.005

Location	Sum of PFHxS and PFOS
SW13_11/07/2024	0.005

Location	Sum of PFHxS and PFOS
SW14_11/07/2024	0.005

Location	Sum of PFHxS and PFOS
SW11_11/07/2024	0.0044

Location	Sum of PFHxS and PFOS
SW10_11/07/2024	0.004

Location	Sum of PFHxS and PFOS
SW03_12/07/2024	0.035

Location	Sum of PFHxS and PFOS
SW07_12/07/2024	0.0092

Location	Sum of PFHxS and PFOS
STMWTR_03_11/07/2024	0.006

Location	Sum of PFHxS and PFOS
STMWTR_01_11/07/2024	**0.08**

Location	Sum of PFHxS and PFOS
STMWTR_02_11/07/2024	0.0022

Criteria	Sum of PFHxS and PFOS
EQL	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	2

Legend

- Surface water and sediment sampling locations
- Stormwater sampling locations
- Inferred Drainage Pathway (based on Location SA MapViewer)
- Roads
- Railway
- Waterways
- Site Boundary

SW01 / SD02, SW02 / SD02, SW03 / SD03, SW04 / SD04, SW05 / SD05, SW06 / SD06, SW07 / SD07, SW08, SW09, SW10, SW11, SW12, SW13, SW14, STMWTR_01, STMWTR_02, STMWTR_03

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Paper Size ISO A3

0 100 200 300 400

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

N

GHD

South Australian Metropolitan Fire Service
Christie Downs Supplementary
Detailed Site Investigation

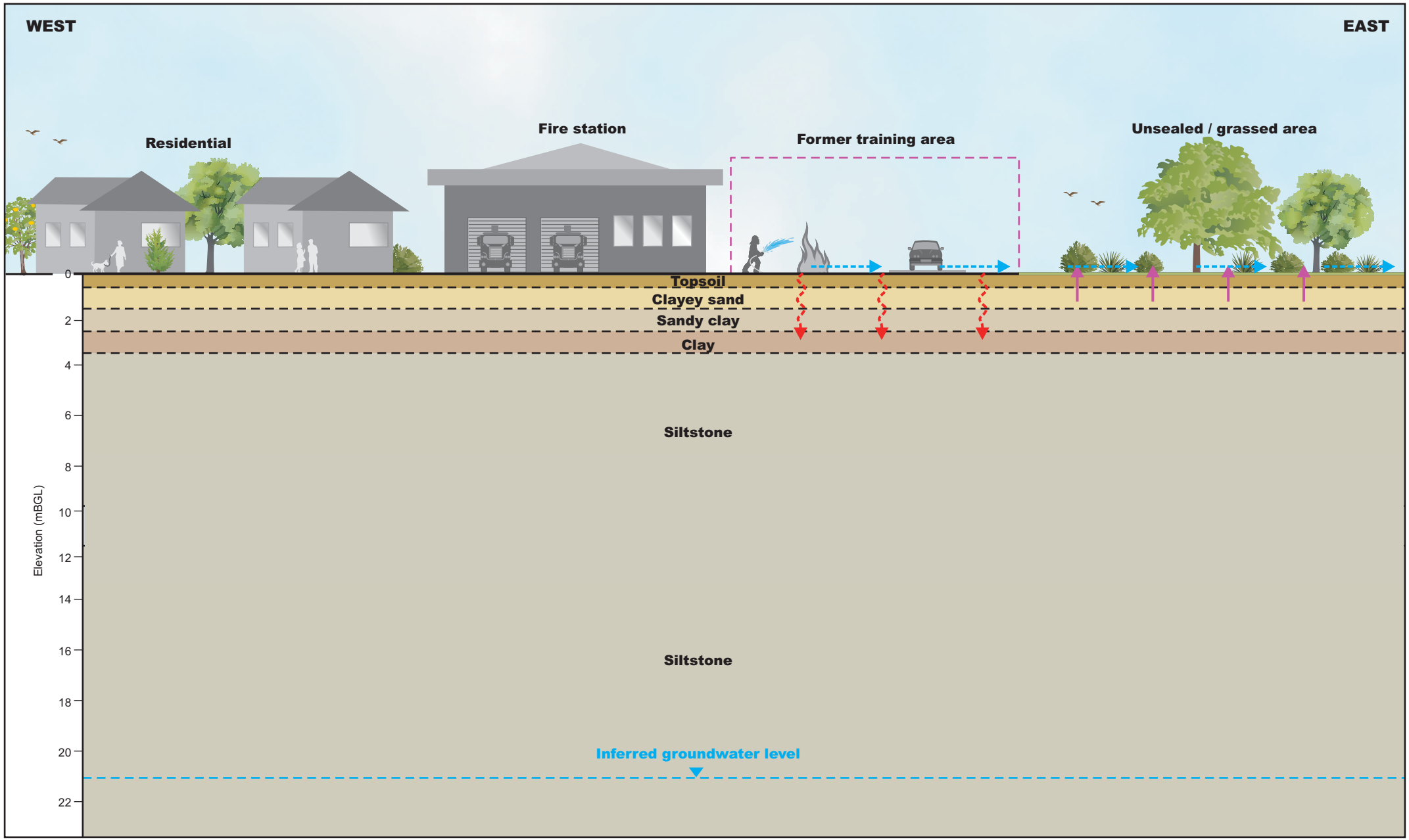
Christie Downs Surface Water Exceedances of Adopted Criteria

Project No. 12639293
Revision No. A
Date 26/07/2024

FIGURE 6

\\ghdnet\ghd\AU\Adelaide\Projects\33\12639293\GIS\Maps\Deliverables\12639293_ChristieDownsDSI.aprx
Print date: 26 Jul 2024 - 12:19

Data source: GHD: Site Boundary (2022); DPTI: Cadastre, Roads (2016), Nearmap: Imagery: Date Extracted: 28/02/2023) Created by: ejuan



LEGEND

- Surface water running to offsite stormwater system
- PFAS biotic uptake
- PFAS infiltration

NOTE

No groundwater was encountered during the drilling progam

Conceptual diagram only - scale is approximate

SA MFS
Christie Downs Supplementary DSI
Lot 121 Holman Road, Christie Downs, SA 5164

Conceptual site model

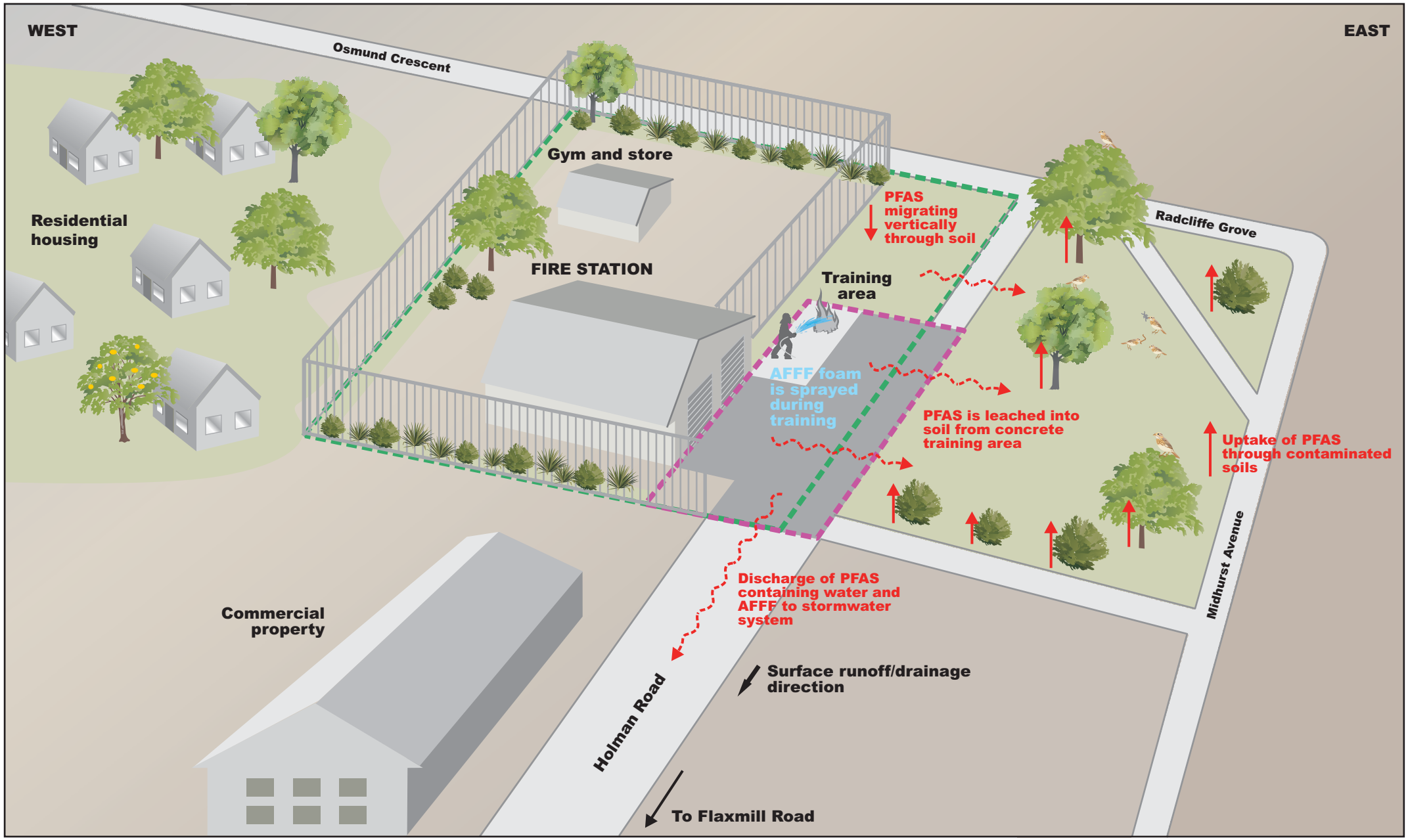
Project No. 12612725
Revision No. 0
Date 31/10/2023

FIGURE 7

AU\Launceston\Projects\Admin\Graphics\12\612725\12612725_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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LEGEND

- Site boundary
- Former training area

Conceptual diagram only - scale is approximate

SA MFS
Christie Downs Supplementary DSI
Lot 121 Holman Road, Christie Downs, SA 5164

Conceptual site model

Project No. 12612725
Revision No. 31/10/2023
Date

FIGURE 8

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 GENI 62629

Environment Protection Authority

GPO Box 2607 Adelaide SA 5001

T (08) 8204 2004

Country areas 1800 623 445

EPA 62629

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: Christie Downs MFS Station, 3 Holman Road, Christie Downs SA 5164 (CT 5534/85)

The Environment Protection Authority (EPA) received the following report, provided by GHD on behalf of the South Australian Metropolitan Fire Service (MFS):

- *MFS Christie Downs Station Detailed Site Investigation South Australian Metropolitan Fire Service,* prepared by GHD and dated 29 November 2024.

The EPA has determined that the information contained in this report constitutes information that must be placed in the EPA Public Register under the provisions of section 109(3)(h) of the *Environment Protection Act 1993*. The key outcome of this determination is that this information will be identified by the EPA when responding to enquiries under the *Land and Business (Sale & Conveyancing) Act 1994*. The detail of this information will also be available to any interested person on specific enquiry to the EPA Public Register.

Data gaps

The DSI report identifies several uncertainties and data gaps associated with source to receptor pathways, indicating a need for further assessment. The EPA supports the recommendations of the DSI report to address identified data gaps, including further sampling to delineate the PFAS impacts observed at SS03 in the northern portion of the site. The EPA also supports the proposed further assessment if the site is changed to a more sensitive use and the development of a soil management plan if works were to involve potential exposure scenarios.

Request for further assessment

The EPA recommends that further investigations to inform ecological risk are undertaken. The further investigations should determine risks to ecological receptors by considering the potential fate and transport of PFAS migrating from the site from surface water/rainwater run-off and entering the stormwater system, which ultimately discharges into Christies Creek.

The EPA requests that MFS provide a report documenting the above investigations within 9 months.

If you agree to undertake the above listed works, it is requested that you submit written acknowledgement to the EPA stating as such. If you wish to discuss potential alterations to the recommended works or report delivery date, please contact the EPA as soon as possible.

Fact sheets relating to your obligations under the *Environment Protection Act 1993* 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



Hannah Custance

PRINCIPAL ADVISER, SITE CONTAMINATION

ENVIRONMENT PROTECTION AUTHORITY

Date: 15 February 2024

cc: Ben Petticrew, GHD (by email: Ben.Petticrew@ghd.com)

cc: Tom Duncan, GHD (by email: Thomas.Duncon@ghd.com)

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

Appendix B

WaterConnect Groundwater Well Search

WaterConnect

Groundwater Data Report

Government of South Australia
Department for Environment and Water

Circle Centre -35.12684,138.497776, Radius 2km

Unit No	Date	Max Depth (m)	Latest Depth (m)	SWL (m)	SWL Date	TDS (mg/L)	TDS Date	Purpose	Status	Yield (L/sec)	Yield Date	Aquifer	Cased To (m)	Permit No
6527-829	22/09/1944	12.95	12.95	10.97	22/09/1944	951	22/09/1944	IRR	UKN					
6527-830	07/12/1972	20.7	20.7					INV	UKN					
6527-831	16/03/1972	6	6					INV	UKN					
6527-832	16/03/1972	5.5	5.5					INV	UKN					
6527-833	16/03/1972	6	6					INV	UKN					
6527-834	01/12/1972	7.7	7.7					INV	UKN					
6527-835	05/12/1972	14	14					INV	UKN					
6527-836	17/03/1972	9	9					INV	UKN					
6527-837	30/11/1972	15.6	15.6					INV	UKN					
6527-838	28/11/1972	14.1	14.1					INV	UKN					
6527-839	10/07/1936	18.9	18.9	7.62	01/06/1950	6138	12/07/1961		UKN	1.26	10/07/1936	Niw		
6527-840						3546	12/07/1961		UKN					
6527-845	19/09/1966	12.65	12.65					INV	UKN					
6527-846	20/09/1966	10.82	10.82					INV	UKN					
6527-847	21/09/1966	4.88	4.88					INV	UKN					
6527-848	23/09/1966	10.67	10.67	8.84	23/09/1966			INV	UKN				0.91	
6527-849	27/09/1966	7.92	7.92					INV	UKN				1.07	
6527-850	28/09/1966	13.41	13.41					INV	UKN					
6527-851	04/10/1966	14.02	14.02					INV	UKN				1.22	
6527-852	06/10/1966	10.82	10.82					INV	UKN					
6527-853	11/10/1966	18.29	18.29					INV	UKN					
6527-859	13/03/1972	8.5	8.5						UKN					
6527-860	13/03/1972	11.5	11.5						UKN					
6527-861	14/03/1972	12	12						UKN					
6527-862	15/03/1972	4	4						UKN					
6527-863	23/11/1972	10	10						UKN					
6527-864	09/03/1972	5.5	5.5						UKN					
6527-865	10/03/1972	8.3	8.3						UKN					
6527-866	23/11/1972	15.25	15.25						UKN					
6527-867	20/07/1960	7.62	7.62						ABD					
6527-890	15/06/1960	2.59	2.59						ABD					
6527-891	16/06/1960	9.75	9.75						ABD					
6527-892	16/06/1960	15.24	15.24						ABD					
6527-893	17/06/1960	3.05	3.05						ABD					
6527-896	08/03/1972	7.5	7.5						UKN					
6527-897	21/11/1972	8.8	8.8						UKN					
6527-898	08/12/1972	5.95	5.95	0.9	08/12/1972				UKN					

Unit No	Date	Max Depth (m)	Latest Depth (m)	SWL (m)	SWL Date	TDS (mg/L)	TDS Date	Purpose	Status	Yield (L/sec)	Yield Date	Aquifer	Cased To (m)	Permit No
6527-899	22/11/1972	4.6	4.6						UKN					
6527-1185	21/11/1978	7.7	7.7						UKN					
6527-1186	22/11/1978	5	5						UKN					
6527-1187	24/11/1978	8	8						UKN					
6527-1636	22/07/2005	11.5	0		22/07/2005			MON	BKF					108044
6527-1639	06/02/2006	22	21	16.5	06/02/2006	6344	07/02/2006	INV					15	113947
6527-1640		22	21	15.5	07/02/2006	6407	07/02/2006	INV					15	113948
6527-1641	07/02/2006	22	22	16.5	07/02/2006	10939	07/02/2006	INV					16	113949
6527-1919	09/03/2011	4.6	4.6	2	09/03/2011			INV					1.6	199678
6527-1921	22/10/2010	3.8	3.8					INV					1.5	194319
6527-1922	28/10/2010	6.8	6.8		28/10/2010			INV	DRY				3.6	194320
6527-1923	25/11/2010	43.8	43.8	36.5	25/11/2010	3303	24/05/2011	INV						194321
6527-1933	27/10/2010	7.6	7.6					INV					2	191593
6527-1960	04/04/2012	5.5	5.5		04/04/2012			INV	DRY				1.7	207395
6527-1961	20/04/2012	40.5	40.5	40.5	20/04/2012			INV					35.5	207392
6527-1988			0						BKF					202565
6527-2001	11/10/2012	38	38					INV					25	214959
6527-2002	27/09/2012	11.3	9.9					INV					8.9	
6527-2003	26/09/2012	5.6	5.6					INV					4.1	214961
6527-2010	02/10/2012	5.6	5.6					INV					4.1	214966
6527-2011	28/09/2012	8.6	8.6										8.1	212198
6527-2012	28/09/2012	1	1					INV				Niw	0.5	214962
6527-2013	27/09/2012	1.4	1.4					INV					0.9	214963
6527-2014	08/10/2012	33	33					INV					27	212197
6527-2015	04/10/2012	30	30					INV					27	214964
6527-2016	25/09/2012	10.7	10.7					INV					7.7	212205
6527-2021	09/11/2012	30	30					INV				Niw	22.5	217851
6527-2036	26/09/2012	10.7	10.7					INV					7.7	214965
6527-2123	20/10/2016	4.1	4.1					INV					1.1	273810
6527-2124	20/10/2016	4	4	2	20/10/2016			INV					1	273811
6527-2125	20/10/2016	4	4	2	20/10/2016			INV					1	273812
6527-2126	20/10/2016	4	4	2	20/10/2016			INV					1	273813
6527-2127	21/10/2016	4	4	2	21/10/2016			INV					1	273814
6527-2150	10/09/2018	6	6					INV						330826
6527-2151	20/09/2018	35	35					INV						330836
6527-2152	22/09/2018	35	35					INV						330838
6527-2153	18/09/2018	33	33					INV						330827
6527-2154	17/09/2018	31.2	31.2					INV						330829
6527-2155	11/09/2018	6	6					INV						330835
6527-2156	11/09/2018	6	6					INV						330830
6527-2157	10/09/2018	6	6					INV						330828
6527-2158	15/09/2018	6	6					INV						330837

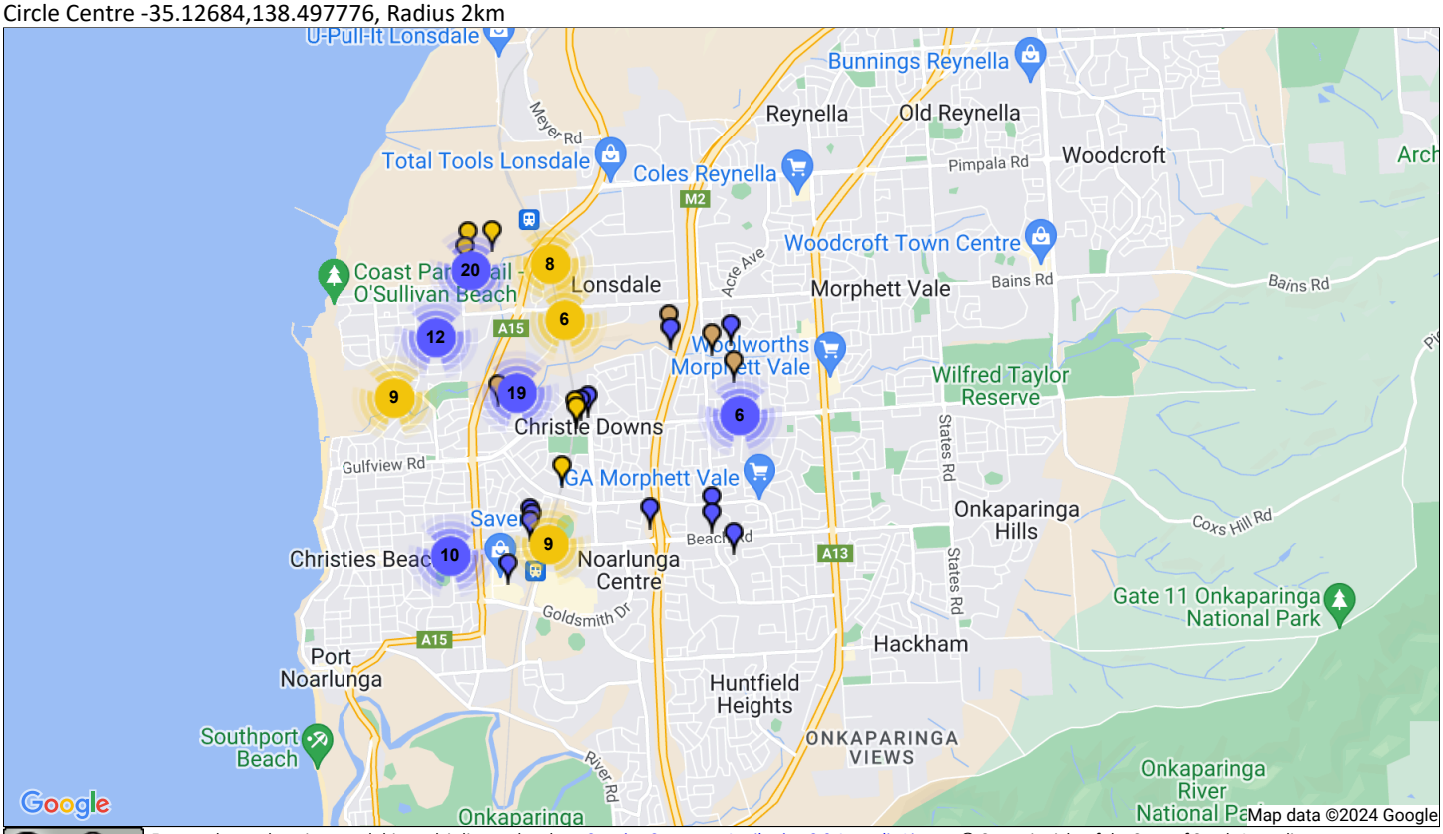
Unit No	Date	Max Depth (m)	Latest Depth (m)	SWL (m)	SWL Date	TDS (mg/L)	TDS Date	Purpose	Status	Yield (L/sec)	Yield Date	Aquifer	Cased To (m)	Permit No
6527-2160	28/09/2018	4	4					INV						331612
6527-2163	05/11/2018	4	4					INV						331612
6527-2168	26/02/2020	25	25					INV				Nee		360620
6527-2171	25/01/2020	21.3	21.3					INV				Nee		360619
6527-2204	25/11/2019	7	7					MON						350832
6527-2205	26/11/2019	6.5	6.5					MON						350834
6527-2206	26/12/2019	7	7					MON						350835
6527-2207	26/11/2019	7	7					MON						350836
6527-2208	27/11/2019	7	7					MON						350837
6527-2209	27/11/2019	7	7					MON						350839
6527-2210	28/11/2019	7	7					MON						350833
6527-2211	29/11/2019	7	7					MON						350844
6527-2212	28/11/2019	6	6					MON						350843
6527-2213	28/11/2019	7	7					MON						350842
6527-2214	28/11/2019	7	7					MON						350840
6527-2215	27/11/2019	6.8	6.8					MON						350838
6527-2216	25/11/2019	7	7					MON						350831
6527-2217	25/11/2019	7.5	7.5					MON						350830
6527-2219	28/11/2019	7	7					MON						350841
6527-2220	29/11/2019	7	7					MON						350845
6527-2228	01/06/2021	14	14		01/06/2021			ENV	DRY					395156
6527-2229	02/06/2021	14	14		02/06/2021			ENV	DRY					395157
6527-2230	31/05/2021	15.5	15.5		31/05/2021			ENV	DRY					395155
6527-2356	27/03/2023	6	6					INV						438740
6527-2357	27/03/2023	6	6					INV						438738
6527-2358	27/03/2023	6	6					INV						438739
6527-2363	04/09/2023	12	12					ENV						441219
6627-4784						9896	12/10/1952							
6627-4785						5069	12/10/1951							
6627-4786		6.4	6.4	2.13	14/12/1940	4470	14/12/1940							
6627-4801		60.35	60.35	9.14	03/09/1957	1371	03/09/1957			2.53	03/09/1957		46.94	
6627-4802		67.06	67.06	12.19	21/08/1959	1642	21/08/1959	IRR	OPR	3.79	21/08/1959			
6627-4803						5455	22/06/1943		NIU					
6627-4804						6240	22/06/1943		NIU					
6627-4822		12.19	0			2870	12/10/1951		BKF					
6627-4824	21/12/1967	64		17	21/03/1983	80	21/03/1983			1.52	01/01/1970			
6627-4833														
6627-7720	18/03/1987	112	112	43	19/03/1987	3001	19/03/1987			2.75	19/03/1987		81	18895
6627-8413	07/07/1991	7	7	0									7	24944
6627-14232		10	0						BKF					185190
6627-14771	19/04/2012	35	0		19/04/2012				BKF					211067
6627-14777	12/04/2012	60	60	8	12/04/2012	3046	24/02/2012			0.2	13/04/2013		3	211064

121 records

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Government of South Australia WaterConnect

Circle Centre -35.12684,138.497776, Radius 2km



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WaterConnect

Groundwater Data Report

Government of South Australia
Department for Environment and Water

Circle Centre -35.12684,138.497776, Radius 0.500km

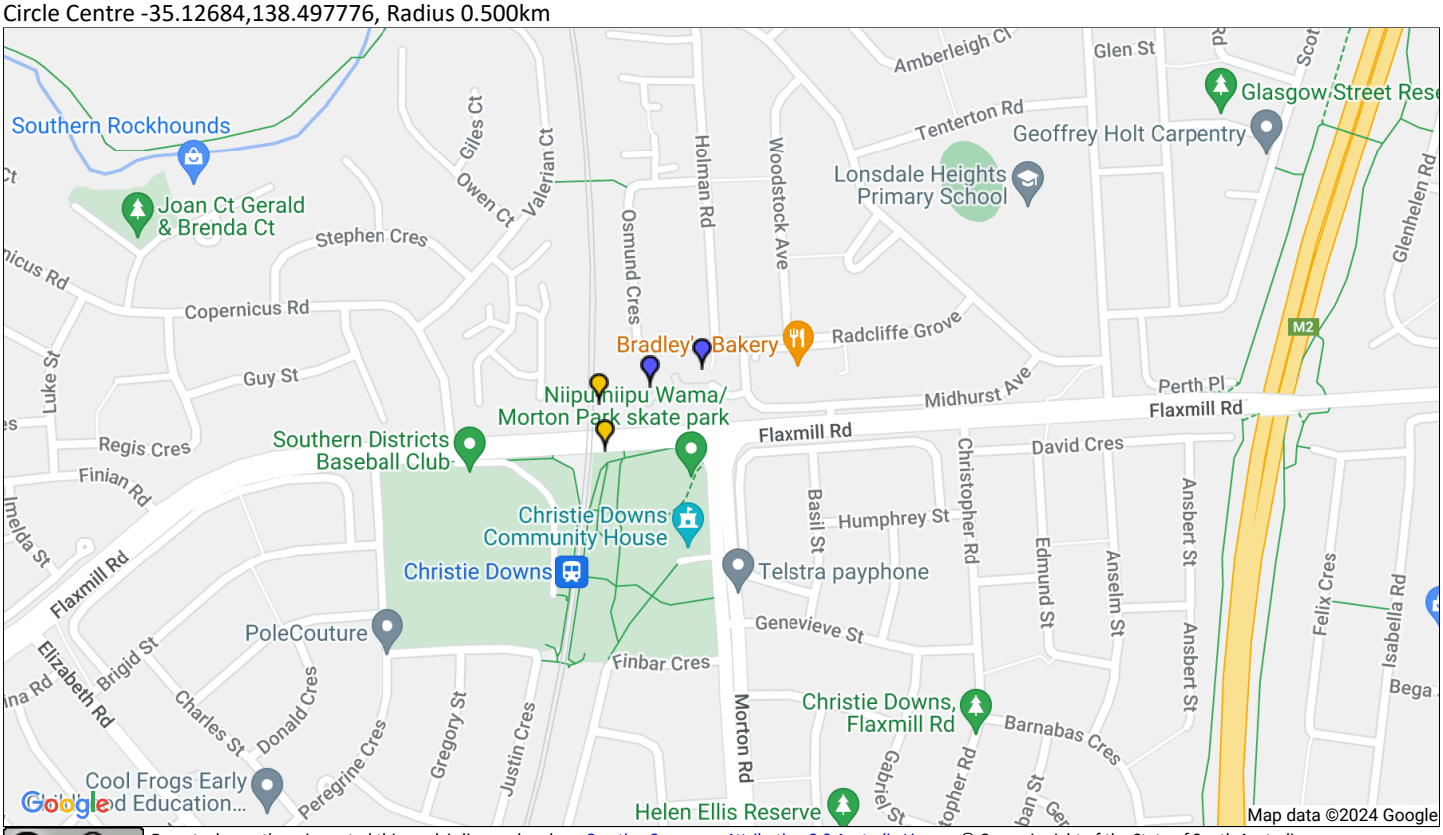
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6527-837	30/11/1972	15.6	15.6	INV	UKN		
6527-838	28/11/1972	14.1	14.1	INV	UKN		
6527-1636	22/07/2005	11.5	0	MON	BKF	22/07/2005	108044
6527-2363	04/09/2023	12	12	ENV			441219

4 records

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Government of South Australia WaterConnect

Circle Centre -35.12684,138.497776, Radius 0.500km



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Appendix C

Photolog

Appendix B – Photo Sample

Description	Photograph
Photo 1: BH12 soil core sample (on-site location).	
Photo 2: BH13 soil core sample (off-site location).	

Description	Photograph
Photo 3: BH14 soil core sample (off-site).	
Photo 4: BH15 soil core sample (on-site location).	

Description	Photograph
Photo 5: BH16 soil core sample (on-site location).	
Photo 6: BH17 soil core sample (off-site location).	

Description	Photograph
Photo 7: BH18 soil core sample (off-site location).	
Photo 8: Photo of BH19 soil core sample (off-site location).	

Description	Photograph
Photo 9: BH20 soil core sample (on-site location).	
Photo 10: BH21 soil core sample (on-site location).	

Description	Photograph
Photo 11: Photo of BH22 soil core sample (on-site location).	
Photo 12: Photo of BH23 soil core sample (on-site location).	

Description	Photograph
Photo 13: Photo of BH24 soil core sample (on-site location).	
Photo 14: Photo of BH25 soil core sample (on-site location).	

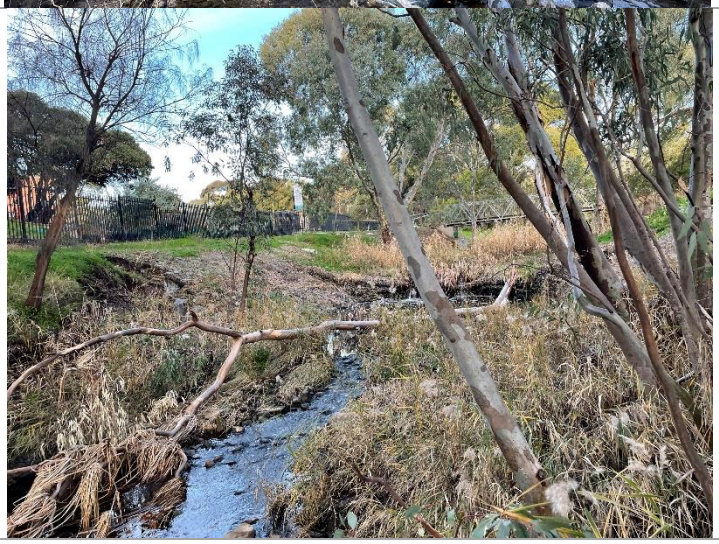
Description	Photograph
Photo 15: Photo of BH26 soil core sample (on-site location).	
Photo 16: Photo of BH27 soil core sample (on-site location).	

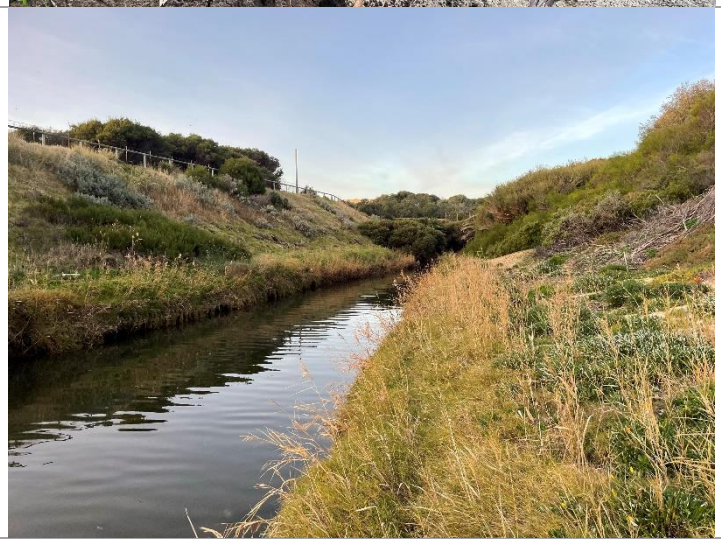
Description	Photograph
Photo 17: Photo of BH28 soil core sample (off-site location).	
Photo 18: Photo of BH29 soil core sample (off-site location).	

Description	Photograph
Photo 19: Surface water and sediment sampling location SW01/SED01.	
Photo 20: Surface water and sediment sampling location SW02/SED02.	
Photo 21: Surface water and sediment sampling location SW03/SED03.	

Description	Photograph
Photo 22: Surface water and sediment sampling location SW04/SED04.	
Photo 23: Surface water and sediment sampling location SW05/SED05.	
Photo 24: Surface water and sediment sampling location SW06/SED6.	

Description	Photograph
Photo 25: Surface water and sediment sampling location SW07/SED07.	
Photo 26: Surface water and sediment sampling location SW08.	
Photo 27: Surface water and sediment sampling location SW09.	

Description	Photograph
Photo 28: Surface water and sediment sampling location SW10.	
Photo 29: Surface water and sediment sampling location SW11.	
Photo 30: Surface water and sediment sampling location SW12.	

Description	Photograph
Photo 31: Surface water and sediment sampling location SW13.	
Photo 32: Surface water and sediment sampling location SW14.	
Photo 33: Borehole (BH30) soil core (0-0.7 m bgl).	

Description	Photograph
Photo 34: Borehole (BH31) soil core (0-0.8 m bgl).	
Photo 35: Borehole (BH32) soil core (0-0.5m bgl).	

Description	Photograph
Photo 36: Borehole (BH33) soil core (0-1.0m bgl).	
Photo 37: Borehole (BH34) soil core (0-1.0m bgl).	

Description	Photograph
Photo 38: Borehole (BH35) soil core (0-0.5m bgl).	
Photo 39: Borehole (BH36) soil core (0-1.0m bgl).	

Description	Photograph
Photo 40: Borehole (BH37) soil core (0-1.0m bgl).	
Photo 41: Borehole (BH38) soil core (0-0.8m bgl).	

Description	Photograph
Photo 42: Borehole (BH39) soil core (0-1.0m bgl).	
Photo 43: Borehole (BH40) soil core (0-1.0m bgl).	

Description	Photograph
Photo 44: Borehole (BH41) soil core (0-0.7m bgl).	
Photo 45: Borehole (BH42) soil core (0-0.7m bgl).	

Description	Photograph
Photo 46: Borehole (BH43) soil core (0-0.5m bgl).	
Photo 47: Borehole (BH44) soil core (0-0.5m bgl).	

Description	Photograph
Photo 48: Borehole (BH45) soil core (0-0.5m bgl).	
Photo 49: Borehole (BH46) soil core (0-0.5m bgl).	

Description	Photograph
Photo 50: Borehole (BH47) soil core (0-0.5m bgl).	
Photo 51: Borehole (BH48) soil core (0-0.5m bgl).	

Description	Photograph
Photo 52: Borehole (BH49) soil core (0-0.5m bgl).	

Appendix D

SSHIL Methodology

Crown Tower, Level 11, 200 Crown Street
Wollongong, New South Wales 2500
Australia
www.ghd.com

Our ref: 12602101

28 June 2023

Krystle Mitchell
Senior Scientific and Environment Officer
South Australian Metropolitan Fire Service
99 Wakefield Street
Adelaide, SA 5000

Derivation of site-specific health investigation levels for urban and regional fire stations – South Australia Metropolitan Fire Service (SA MFS)

Dear Krystle,

1. Introduction

This letter describes the derivation of site-specific health investigation levels (SSHILs) for per- and poly-fluoroalkyl substance (PFAS) contaminated soil at fire stations operated by the South Australia Metropolitan Fire Service (SA MFS). SSHILs have been derived for urban and regional settings based on the methodology provided in the following documents: .

- Heads of EPAs Australia and New Zealand (HEPA) and the Australian Government Department of the Environment and Energy (DoEE) – *PFAS National Environmental Management Plan* (the 'PFAS NEMP') (HEPA, 2020)
- National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013 (NEPC, 2013) (the 'ASC NEPM')
- NSW and Office of Environment and Heritage (OEH, 2019) *Human health soil screening criteria for PFOS, PFHxS and PFOA*

1.1 Background

From 2007, SA MFS began phasing out the use of aqueous film-forming foam (AFFF) containing perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) as key constituents, due to concerns regarding the hazards posed by these compounds to human health and the environment. The SA MFS replaced all firefighting foam in 2016 to ensure that only fluorine-free foam was in use. Currently, state-wide, all SA MFS appliances carry firefighting foams that do not contain PFOS or PFOA and are fluorine-free. During 2017/2018, the SA MFS also removed all fire extinguishers containing PFAS. In 2018, SA MFS engaged GHD to provide ongoing environmental services and undertake site contamination assessments across many of their operational sites as well as risk profiling for their entire portfolio of sites to effectively manage the potential for PFAS contamination and any associated human health and ecological risks.

The PFAS NEMP provides generic health investigation levels (HILs) for PFOS, PFOA and perfluorohexane sulfonate (PFHxS) in soil in four land use settings, as summarised in Table 1 below. The land use settings considered in the PFAS NEMP are consistent with those that underpin the HILs presented for a variety of contaminants within the ASC NEPM. The derivation of the PFAS HIL values is described in detail by OEH (2019).

Table 1 Summary of exposure scenarios adopted to derive generic HILs.

Land use	HIL (mg/kg)	Exposure scenario description
HIL A Residential, with gardens /accessible soil	PFOS+PFHxS: 0.01 PFOA: 0.1	- Low-density residential settings with sizeable gardens and with areas of soil that are accessible - Gardens are assumed to consist of lawns, garden beds and small vegetable gardens and areas of fruit trees - Assumes home-grown produce provides up to 10% of fruit and vegetable intake (does not account for consumption of eggs from home poultry) - Site users are adults, children and infants who spend most of their time at home and use the outdoor areas of the residences on a frequent basis for activities such as gardening or recreation. This scenario assumes 20 hours a day spent indoors and 4 hours a day spent outdoors in direct contact with soil. - Children are the most sensitive human receptors. This scenario is protective of childcare centres, kindergartens, preschools and primary schools and their integral playgrounds.
HIL B Residential, with minimal opportunities for soil access	PFOS+PFHxS: 2 PFOA: 20	- High-density residential settings, such as unit blocks, where communal outdoor spaces are largely covered by permanent paving and with some small areas of landscaping or lawns - Assumes that there are minimal opportunities for direct access to soil by residents. There may be some potential for residents to inhale, ingest or come into direct dermal contact with dust particulates derived from the on-site soil. - Assumes no use of soil to produce vegetables, fruit or poultry - Site users are adults, children and infants who spend most of their time indoors with limited use of communal outdoor areas on site. This scenario assumes 20 hours a day spent indoors and 1 hour a day spent outdoors in direct contact with soil. - Children are the most sensitive human receptors
HIL C Public open space	PFOS+PFHxS: 1 PFOA: 10	- Parks, playgrounds, recreational areas and playing fields that are fully accessible to the public - These areas may contain lawns, gardens, vegetated areas, and walkways with some areas of exposed soil - Assumes no use of soil to produce vegetables, fruit or poultry - Site users are adults and children who may use the area for up to 2 hours a day, 7 days a week - Children are the most sensitive human receptors
HIL D Commercial/ industrial	PFOS+PFHxS: 20 PFOA: 50	- Commercial and/or industrial settings where the outdoor areas are largely (80%) covered by hardstand, possibly with some limited areas of landscaping or lawns - Site users are adult employees that spend up to 8 hours a day indoors and 1 hour a day outdoors for up to 240 days per year - There are minimal opportunities for direct access to soil. There is the potential for employees to inhale, ingest or come into direct contact with dust particulates derived from the soil on the site.

A review of Table 1 indicates that the typical usage patterns at SA MFS fire stations most closely align with the exposure assumptions that underpin the HIL D values. The following inconsistencies are however noted:

– The preliminary site investigations undertaken at SA MFS sites across South Australia has identified that some fire stations have a higher proportion of unsealed ground (up to approximately 75% of the total site area) than has been assumed in the derivation of the HIL D values (up to approximately 20% of the total site area). As a result of this, there may be greater opportunities for direct access to soil at SA MFS fire stations, including the ingestion of soil and soil-derived dust.

– The shifts worked by SA MFS firefighters do not align with the assumption of a standard working week than underpins the HIL D values

Given these factors, SSHILs have been derived using exposure assumptions that reflect the typical usage pattern of the SA MFS fire stations, to allow for a more accurate assessment of the health risks that may be associated with the presence of PFAS in shallow soils.

1.2 Objective of this report

The objective of this report is to derive SSHILs for PFOS+PFHxS and PFOA in soils that are protective of workers at SA MFS fire stations in typical urban and regional settings. The purpose of these SSHILs is to facilitate the screening assessment of soil datasets for human health risks.

2. Derivation methodology

The SSHILs have been calculated using the HILs spreadsheet (Excel format) provided on the ASC NEPM website[1]. The algorithms underlying the HILs spreadsheet are detailed in Schedule B7 of the ASC NEPM. These algorithms were also used in the derivation of the HILs PFOS+PFHxS and PFOA, presented in Table 1 and as detailed by OEH (2019).

The process used to derive the SSHILs involved the following key steps:

- ***Toxicity assessment:*** which established the relationships between PFAS exposure and potential health and ecological effects, using published toxicological information
- ***Exposure assessment:*** which produced estimates of the PFAS exposure that may be experienced by users of SA MFS fire stations.
- ***Risk characterisation:*** which combines the results of the toxicity assessment and exposure assessment, to derive soil criteria that are protective of potential risks to the health of users of SA MFS fire stations.

The toxicity assessment and exposure assessment inputs used in the derivation of the SSHILs are detailed herein, with the SSHILs provided in Section 3.

2.1 Toxicity assessment methodology

A toxicity assessment determines whether human exposure to a chemical could cause an increase in the incidence of an adverse health condition (NEPC, 2013). The outcomes of the toxicity assessment process are a set of toxicity criteria that have been used to derive the SSHILs.

For most chemicals there is a dose below which no adverse health effect will occur (i.e., a threshold toxicant). PFAS have been linked with several threshold toxicities, including effects on cholesterol and immunotoxicity. Accordingly, the SSHILs focus on potential threshold risks linked to PFAS exposure. Chronic health risks for threshold chemicals are assessed by comparing the estimated intake with toxicity reference values (TRVs), which are a measure of tolerable daily exposure. The TRVs adopted in the derivation of the SSHILs are consistent with those that underpin the HIL D values presented in the PFAS NEMP, as detailed in Table 2.

The toxicity assessment process also considers the toxicokinetics of PFAS and in particular the tendency of PFAS to be absorbed via the various potential routes of exposure (i.e., ingestion, inhalation and dermal absorption). Consistent with the approach adopted by OEH (2019) the dermal uptake of PFAS has been assumed to be negligible and has not been included in the derivation of the SSHILs.

[1] **https://www.nepc.gov.au/nepms/assessment-site-contamination/toolbox**

Table 2 Summary of toxicological input parameters used in the derivation of the SSHILs.

Chemical	Toxicity assessment input parameters	Source
Toxicity reference values		
PFOS, PFHxS (sum)	20 ng/kg/day	OEH (2019); FSANZ (2017)
PFOA	160 ng/kg/day	OEH (2019); FSANZ (2017)
Absorption parameters		
Dermal absorption	Negligible	OEH (2019)
Gastrointestinal absorption	100%	OEH (2019); FSANZ (2017)

2.2 Exposure assessment methodology

In an exposure assessment, appropriate exposure assumptions are identified for each exposure pathway, and these are used in conjunction with exposure modelling algorithms to estimate intakes of contaminants by the exposed receptors (NEPC, 2013).

The exposure assessment inputs adopted in the derivation of the SSHILs have primarily been sourced from OEH (2019), with adjustments made as appropriate, based on information provided by SA MFS. A summary of the adopted exposure assessment inputs and the rational underpinning the selected values is provided in Attachment 1. These inputs can be summarised as follows:

- *Firefighter physiology*: The ASC NEPM Schedule B7 provides standard exposure parameters for commercial / industrial scenarios, including factors such as the body weight and inhalation characteristics of adult workers. Consistent with the approach adopted by OEH (2019), these have been adopted in the derivation of SSHILs, as SA MFS firefighters will typically be physiologically consistent with the general population.
- *Exposure frequency and time onsite*: Information provided by SA MFS has been used to select appropriate input assumptions around exposure frequency and time spent onsite, as detailed in Section 2.2.1
- *Exposure to PFAS from external sources*: PFAS is present in a variety of domestic products and commercial applications and is ubiquitous in urban settings. Hence, SA MFS firefighters are likely to be exposed to PFAS from a variety of sources external to the fire stations, such as food, air, water and consumer products. The TRVs detailed in Section 2.1 are relevant to the PFAS intake from all sources. The HIL D presented in the PFAS NEMP were derived based on the conservative assumption that 80% of the exposure to PFAS experienced by workers originates from external sources, with 20% of the TRV allocated to PFAS in fire station soils. This conservative assumption has been retained in the derivation of SSHILs for SA MFS firefighters
- *Incidental soil ingestion rates*: The incidental soil ingestion rates for SA MFS firefighters have been assumed to be consistent with those experienced by adults in a residential setting (50 mg/day), rather than those adopted in the ASC NEPM and by OEH (2019) for commercial/industrial sites (25 mg/day). This approach is likely to be conservative but has been adopted to account for the extended shifts worked by firefighters in metropolitan areas and the substantial areas of unsealed ground that are present on some of the SA MFS fire stations.
- *Use of SA MFS fire stations by children*: Children have not been specifically included in the derivation of the SSHILs. It is understood that children do visit the SA MFS fire stations but that this does not occur with regularity. Hence, the SSHILs, which have been derived to be protective of firefighters employed at the fire stations, will also be adequately protective of the health children visiting less frequently.

– *Produce production and consumption*: Historically, produce gardens were present on a number of the SA MFS fire stations and it is understood that there was some concern that the time spent tending these gardens and consuming produce would be associated with increased levels of exposure to PFAS. In 2022 however, SA MFS issued a directive on advice from GHD and EPA that all fruit and vegetable plants be removed from fire stations and replaced with ornamental plants (refer to Attachment 2). Areas of ornamental landscaping are not inconsistent with the exposure assumptions underpinning the HIL D values and therefore adjustments to the exposure assumptions used to derive the SSHILs have not been made on this basis.

2.2.1 Firefighter shifts

As noted in Table 1, the generic HIL D values assume that workers spend up to 240 days a year at commercial/industrial sites: eight hours a day indoors and one hour a day outdoors. This is equivalent to a total yearly exposure of 2160 hours. Given that the shifts worked by firefighter in both urban and regional areas differ from this pattern, the specific exposure times provided by SA MFS have been adopted in the derivation of the SSHILs as follows:

– Metropolitan fire stations – SA MFS has indicated that firefighters typically work two 10-hour dayshifts and two 14-hours nightshifts followed by four days off work and that firefighters work for 6 months before taking 6 weeks of annual leave. This averages to 12-hour shifts for circa 150 days per year. This is equivalent to a total yearly exposure of 1800 hours, which is lower than the exposure assumption underpinning the generic HIL D values.
– Regional fire stations – SA MFS has indicated that firefighters can spend up to three hours a week at regional fire stations. This is equivalent to a total yearly exposure of 156 hours per year, which is substantially lower than the exposure assumption underpinning the generic HIL D.

3. Site-specific HILs for the screening of PFAS contaminated soils at SA MFS sites

The input parameters selected via the toxicity assessment and exposure assessment processes, as detailed in Sections 2.1 and 2.2 respectively, have been combined to calculate SSHILs for the screening of PFAS contaminated soils at SA MFS fire stations. The models used to calculate the SSHILs are presented in Attachment 3 and Table 3 summarises the derived SSHIL values.

Table 3 SSHILs derived for the screening of PFAS contaminated soil in urban and regional SA MFS fire stations

Fire station type	PFOS+PFHxS	PFOA*	Comment
Metropolitan	14 mg/kg	50 mg/kg	These SSHILs assumes four 12-hour shifts every eight days (i.e., four days at work and four days off)
Regional	40 mg/kg	50 mg/kg	These SSHILs assumes one 3-hour shift per week.
Notes: Although higher values were calculated using the toxicity and exposure assessment process, the SSHIL for PFOA has been set as 50 mg/kg in anticipation of the Stockholm Convention low content limit. This is consistent with the PFAS NEMP			

4. Closure

We trust that the information above is sufficient for SA MFS's purposes. Should you have any further questions on this document please do not hesitate to contact the undersigned.

Regards

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Ben Petticrew
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5. References

FSANZ. (2017). *Food Standards Australia New Zealand's (FSANZ) report on Perfluorinated Chemicals in Food.*

HEPA. (2020). *PFAS National Environmental Management Plan - Version 2.0* .

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Amendment Measure* .

OEH. (2019). *Human health soil screening criteria for PFOS, PFHxS and PFOA.*

Attachments

Attachment 1

Summary of exposure assessment inputs

Summary of SA MFS sites - unsealed areas

Location (metro)	Unsealed area (m^2)	Total area (m^2)	% unsealed
Angle park	111254	153034	73%
Adelaide	115	20000	1%
St Marys	1229	4543	27%
Largs	1163	3316	35%
Woodville	141	2172	6%
Christie Downs	710	2321	31%
Camden Park	531	2771	19%
Oakden	1302	4802	27%
Port Adelaide	449	4349	10%
O'Halloran Hill	2959	7300	41%
Brooklyn Park	1090	3710	29%
Beulah Park	335	2791	12%
Elizabeth	100	3256	3%
Gawler	1300	3457	38%
Glen Osmond	180	3152	6%
Golden Grove	1172	3994	29%
Paradise	680	4090	17%
Prospect	580	2820	21%
Salisbury	2442	12607	19%
Seaford	2300	7450	31%
Mount Barker	362	2110	17%
	Unsealed Average	**Total Area Average**	**% average**
	815	4,913	17%
Max	111254	153034	73%
Min	100	2110	1%

Location (regional)	Unsealed area (m^2)	Total area (m^2)	% unsealed
Loxton	987	2154	46%
Moonta	1	920	0%
Whyalla	6224	11054	56%
Mt Gambier	1506	3884	39%
Kapunda	1	395	0%
Peterborough	519	994	52%
Port Pirie	7875	19297	41%
Port Augusta	961	2461	39%
Murray Bridge	796	2005	40%
Berri	583	3065	19%
Kadina	1	577	0%
Port Lincoln	420	6058	7%
Renmark	70	3573	2%
Tanunda	168	1438	12%
Victor Harbor	400	1847	22%
Wallaroo	1032	1600	65%
	Unsealed Average	**Total Area Average**	**% average**
	222	2,276	10%
Max	7875	19297	65%
Min	1	395	0%

Summary of exposure parameters

Summary of Exposure Parameters	units	Parameter			Rationale
		HIL D	SA MFS SSHIL - Urban	SA MFS SSHIL - Regional	
Soil and Dust Ingestion Rate	mg/day	25	50	50	HIL D assumes that the incidential soil ingestion rate experienced by adults working for 8-hours on a commercial industrial site (25 mg/day) is likely to be ~50% of that experienced by adults in a residential setting (50 mg/day), given that waking hours are typically ~16-hours per day. The ASC NEPM residential soil ingestion rate has been adopted for SA MFS firefighters, given that substantial areas of unsealed ground are present on some of the SA MFS fire stations and firefighters may spend significant periods of time outdoors. This assumption is likely to be conservative for firefighters in regional settings, who typically spend less time onsite
Time Spent Outdoors	hours	1	4	2	HIL D assumes a standard 8-hour working day, with minimal time spent outdoors. MFS SA has indicated that: - firefighters in metropolitan locations typically work 12-hour shifts - firefighters in regional locations typically work 3-hour shifts It has also been assumed that firefighters may spend significant amounts of time outdoors, undertaking activities such as training and equipment and facility maintenance
Time Spent Indoors	hours	8	8	1	
Lung Retention Factor	-	0.375	0.375	0.375	ASC NEPM default, as detailed in Schedule B7. Describes the percentage of dust that is small enough to be inhaled.
Particulate Emission Factor	(m^3/kg)	3.70E+10	9.7E+09	9.7E+09	Calculated as described in Schedule B7 of the ASC NEPM. For HIL D, up to 20% of the site is assumed to be open ground. For the SA MFS fire stations up to 75% of the site is assumed to be open ground
Indoor Air Dust Factor	(m^3/kg)	2.6E+07	2.6E+07	2.6E+07	ASC NEPM default, as described in Schedule B7. The indoor dust concentration is assumed to be equal to the 95th percentile from Australian data (enHealth 2012; 39 µg/m^3), noting that indoor air can be enriched with dust compared to the outdoor environment, due to the movement of dust indoors on clothing, footwear etc.
Fraction of indoor dust comprised of outdoor soil	-	0.5	0.5	0.5	ASC NEPM default, as described in Schedule B7. Assume 50% of indoor dust is comprised of soi tracked into the building
Body weight	kg	70	70	70	ASC NEPM default, as described in Schedule B7.
Exposure Frequency	days/year	240	140	52	HIL D assumes a 5-day working week for 48 weeks per year. MFS has indicated that - firefighters in metropolitan stations typically work four shifts every eight days - firefighters in regional stations typically work one 3-hour shift per week
Exposure Duration	years	30	30	30	ASC NEPM default, as described in Schedule B7. Note that this parameter does not influence the derived HIL for threshold chemicals, as exposure is averaged over the exposure duration.
Averaging Time (ingestion)	days	10950	10950	10950	Calculated based on the exposure duration. Multiplied by 24 hours for the assessment of inhalation exposures
Averaging Time (inhalation)	hours	262800	262800	262800	

Attachment 2

SA MFS directive on the removal of produce

Government of South Australia

SOUTH AUSTRALIAN METROPOLITAN FIRE SERVICE

MEMORANDUM NO. 77/2022

METROPOLITAN FIRE SERVICE SOUTH AUSTRALIA

29 September 2022

FRUIT AND VEGETABLE GARDEN REMOVAL FROM ALL MFS STATIONS

MFS is directing all MFS stations to remove all fruit and vegetable gardens from MFS stations.

This is required to be completed by the **31st of October 2022**.

Garden waste can be disposed of as per the normal station procedures to dispose of this sort of waste. Where this is not practicable due to volume, please contact your Commander to arrange for an alternative solution, such as the provision of the high sided/skip pod.

If the fruit and vegetable garden cannot be removed by station personnel, please advise via the mfspfas@sa.gov.au. That email is to contain an audit of all fruit/vegetable trees that require removal by external contractors prior to 21 October 2022. The MFS will then arrange for these to be removed.

All fruit and vegetable gardens are required to be removed as the EPA see the presence of fruit and vegetable trees on fire stations as a possible human receptor to PFAS (even if you are not consuming the fruit and vegetables from them).

The MFS will provide ornamental plants and vegetation to replace the plants pulled out up to a value of $100 on application. Applications from each station can be sent to mfspfas@sa.gov.au. Approval will then be forwarded to the relevant Metropolitan/Regional Commander to use their credit card to purchase the goods.

Metropolitan and Regional Commanders are to ensure that there are no fruit and vegetable gardens remaining at their relevant stations after the 31st of October 2022.

C Shift is responsible under the Station Management System - Station Administration, to ensure that this document is read, signed, placed on the Notice Board and filed.

Staff are reminded that the current SAPs, SOPs, Policies, SP Forms, Memorandums, Service Directives and Operational Procedures are available on the Members Only Website (MOW). This is a directive from the Chief Officer.

SIGNED

M. Morgan
CHIEF OFFICER and
CHIEF EXECUTIVE

ACTION	DATE	SIGN
Instruction received at Station		
Instruction read to “A” Shift		
Instruction read to “B” Shift		
Instruction read to “C” Shift		
Instruction read to “D” Shift		
Instruction read to Retained Staff		
Instruction read to OTR		
Placed on Notice Board		
Filed in Station File		

Attachment 3

SSHILs modelling inputs and outputs.

Derivation of Site specific health investigation levels

Firefighters at regional fire stations - South Australian Metropolitan Fire Service

Summary of Exposure Parameters	Abbreviation	units	Parameter	References/Notes
Soil and Dust Ingestion Rate - Adults	IR_{SA}	mg/day	50	Site-specific assumption: Consistent with assumption adopted for adults in residential settings
Time Spent Outdoors	ETo	hours	1	Site-specific assumption; 3-hour shifts during which 1 hour is spent outdoors.
Time Spent Indoors	ETi	hours	2	Site-specific assumption; 3-hour shifts during which 2 hours are spent indoors.
Lung Retention Factor	RF	-	0.375	ASC NEPM default assumption
Particulate Emission Factor	PEFo	(m^3/kg)	9.7E+09	Calculated: Based on the site-specific assumption that up to 75% of individual sites is open ground
Indoor Air Dust Factor	PEFi	(m^3/kg)	2.6E+07	ASC NEPM default assumption
Fraction of indoor dust comprised of outdoor soil	TF	-	0.5	ASC NEPM default
Body weight - Adults	BW_C	kg	70	ASC NEPM default
Exposure Frequency	EF	days/year	52	Site-specific assumption: One shift per week
Exposure Duration - Adults	ED_C	years	30	ASC NEPM default assumption
Averaging Time (non-carcinogenic)	AT_T	days	ED*365	Calculated based on ED for each relevant age group, multiplied by 24 hours for the assessment of inhalation exposures

Threshold Calculations - Adult Worker

Compound	Toxicity Reference Value Oral (TRV_O) (mg/kg/day)	GI Absorption (GAF) (unitless)	Toxicity Reference Value Dermal (TRV_D) (mg/kg/day)	Oral Bioavailability BA_O (%)	Dermal Absorption Factor (DAF) (unitless)	Background Intake Oral/Dermal (BI_O) (% of TDI)	Toxicity Reference Value Inhalation (TRV_I) (mg/m^3)	Background Intake Inhalation (BIi) (% of TC)		Pathway Specific HILs (mg/kg)			Derived Soil HIL (not rounded) (mg/kg)
										Soil Ingestion	Dermal	Dust	
PFOS+PFHxS	0.00002	1	0.00002	100%	-	80%	0.00007	0%		3.9E+01	NA	8.0E+05	39
PFOA	0.00016	1	0.00016	100%	-	80%	0.00056	0%		3.1E+02	NA	6.4E+06	314

NA Pathway not of significance for chemical assessed

Derivation of Site specific health investigation levels

Fire fighters at metropolitan fire stations - South Australian Metropolitan Fire Service

Summary of Exposure Parameters	Abbreviation	units	Parameter	References/Notes
Soil and Dust Ingestion Rate - Adults	IR_{SA}	mg/day	50	Site-specific assumption: Consistent with assumption adopted for adults in residential settings
Time Spent Outdoors	ETo	hours	4	Site-specific assumption; 12-hour shifts during which 4 hours are spent outdoors.
Time Spent Indoors	ETi	hours	8	Site-specific assumption; 12-hour shifts during which 8 hours are spent indoors.
Lung Retention Factor	RF	-	0.375	ASC NEPM default assumption
Particulate Emission Factor	PEFo	(m^3/kg)	9.7E+09	Calculated: Based on the site-specific assumption that up to 75% of individual sites is open ground
Indoor Air Dust Factor	PEFi	(m^3/kg)	2.6E+07	ASC NEPM default assumption
Fraction of indoor dust comprised of outdoor soil	TF	-	0.5	ASC NEPM default
Body weight - Adults	BW_C	kg	70	ASC NEPM default
Exposure Frequency	EF	days/year	146	Site-specific assumption: Four shifts every eight days (i.e., four days at work and four days off)
Exposure Duration - Adults	ED_C	years	30	ASC NEPM default assumption
Averaging Time (non-carcinogenic)	AT_T	days	ED*365	Calculated based on ED, multiplied by 24 hours for the assessment of inhalation exposures

Threshold Calculations - Adult Worker

Compound	Toxicity Reference Value Oral (TRV_O) (mg/kg/day)	GI Absorption (GAF) (unitless)	Toxicity Reference Value Dermal (TRV_D) (mg/kg/day)	Oral Bioavailability BA_O (%)	Dermal Absorption Factor (DAF) (unitless)	Background Intake Oral/Dermal (BI_O) (% of TDI)	Toxicity Reference Value Inhalation (TRV_I) (mg/m^3)	Background Intake Inhalation (BIi) (% of TC)		Pathway Specific HILs (mg/kg)			Derived Soil HIL (not rounded) (mg/kg)
										Soil Ingestion	Dermal	Dust	
PFOS+PFHxS	0.00002	1	0.00002	100%	-	80%	0.00007	0%		1.4E+01	NA	7.2E+04	14
PFOA	0.00016	1	0.00016	100%	-	80%	0.00056	0%		1.1E+02	NA	5.7E+05	112

NA Pathway not of significance for chemical assessed

Appendix E

Borehole Logs

BOREHOLE LOG

ENVIRONMENTAL-SOIL BORE

SOIL BORE BH12

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

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

Easting 272009.00 m E
Northing 6110046.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH12_0.0-0.1			TOPSOIL	D	VL	Organic/leaf litter	0
0.1						Sandy SILT fine to medium, brown, with medium to coarse gravel (FILL)			No odour and no staining	-0.1
0.2										-0.2
0.3										-0.3
0.4										-0.4
0.5	PT		BH12_0.4-0.5							-0.5
0.6						Silty CLAY low plasticity, pale tan, trace fine to medium sand (NATURAL - SOIL)	D	H	No odour and no staining	-0.6
0.7										-0.7
0.8										-0.8
0.9										-0.9
1			BH12_1.0-1.1							-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4						Silty CLAY medium plasticity, red- brown, trace fine to medium gravel (NATURAL - SOIL)	D	H	No odour and no staining	-1.4
1.5			BH12_1.5-1.6							-1.5
1.6										-1.6
1.7										-1.7
1.8										-1.8
1.9										-1.9
2			BH12_1.9-2.0							-2
						Termination Depth at: 2.00 m. Target depth achieved.				

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 BH13

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 272019.00 m E
Northing 6110049.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH13_0.0-0.1 (QC01, QC01a)			TOPSOIL	D	H	Leaf/organic debris	
0.1						Clayey SAND fine to medium, brown, with fine to medium gravel, some organic debris (FILL)			No odour and no staining	-0.1
0.2							D	H		-0.2
0.3						Clayey SAND fine to medium, grey- brown, with fine to medium gravel (FILL)			No odour and no staining	-0.3
0.4	PT									-0.4
0.5			BH13_0.4-0.5							-0.5
0.6										-0.6
0.7							D	H		-0.7
0.8						Clayey SAND low to medium plasticity, fine to medium, pale tan- brown (NATURAL - SOIL)			No odour and no staining	-0.8
0.9										-0.9
1			BH13_1.0-1.1							-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4										-1.4
1.5			BH13_1.5-1.6							-1.5
1.6						Silty CLAY medium plasticity, red- brown, trace fine to medium gravel (NATURAL - SOIL)	D	H	No odour and no staining	-1.6
1.7										-1.7
1.8										-1.8
1.9										-1.9
2			BH13_1.9-2.0			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 BH14

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 272034.00 m E
Northing 6110046.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH14_0.0-0.1			TOPSOIL	D	H	Leaf/organic debris	0
0.1						Clayey SAND fine to medium, brown, with fine to medium gravel, some organic debris (FILL)			No odour and no staining	-0.1
0.2										-0.2
0.3										-0.3
0.4										-0.4
0.5	PT		BH14_0.4-0.5							-0.5
0.6						Clayey SAND fine to medium, grey- brown, with fine to medium gravel (FILL)	D	H	No odour and no staining	-0.6
0.7										-0.7
0.8						Clayey SAND low to medium plasticity, fine to medium, pale tan- brown (NATURAL - SOIL)	D	H	No odour and no staining	-0.8
0.9										-0.9
1			BH14_1.0-1.1							-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4										-1.4
1.5			BH14_1.5-1.6							-1.5
1.6										-1.6
1.7										-1.7
1.8										-1.8
1.9										-1.9
2			BH14_1.9-2.0			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 BH15

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 272018.00 m E
Northing 6110041.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH15_0.0_0.1			TOPSOIL	D	H	Leaf/organic debris	0
0.1						Clayey SAND fine to medium, brown, with fine to medium gravel, some organic debris (FILL)			No odour and no staining	-0.1
0.2										-0.2
0.3						Clayey SAND fine to medium, grey- brown, with fine to medium gravel (FILL)	D	H	No odour and no staining	-0.3
0.4										-0.4
0.5	PT		BH15_0.4-0.5 (QC02, QC02a)							-0.5
0.6										-0.6
0.7										-0.7
0.8										-0.8
0.9										-0.9
1			BH15_1.0-1.1			Clayey SAND low to medium plasticity, fine to medium, pale tan- brown (NATURAL - SOIL)	D	H	No odour and no staining	-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4										-1.4
1.5			BH15_1.5-1.6							-1.5
1.6										-1.6
1.7										-1.7
1.8										-1.8
1.9										-1.9
2			BH15_1.9-2.0			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 BH16

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 272010.00 m E
Northing 6110035.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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						TOPSOIL	D	H	Leaf/organic debris	0
0.1						Clayey SAND fine to medium, brown, with fine to medium gravel, some organic debris (FILL)			No odour and no staining	-0.1
0.2										-0.2
0.3										-0.3
0.4						Clayey SAND fine to medium, grey- brown, with fine to medium gravel (FILL)	D	H	No odour and 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										-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4										-1.4
1.5										-1.5
1.6						Silty CLAY medium plasticity, red- brown, trace fine to medium gravel (NATURAL - SOIL)	D	H	No odour and 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 BH17

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 272019.00 m E
Northing 6110027.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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)
			BH17_0.0-0.1			TOPSOIL	D	MD	No odour and no staining	
						Clayey SAND low to medium plasticity, brown (NATURAL - SOIL)	D	H	Limestone	
0.5			BH17_0.4-0.5			Silty CLAY grey (NATURAL - SOIL)	D	H	No odour and no staining	-0.5
1			BH17_1.0-1.1			Clayey SAND fine to medium, tan- grey, with fine to medium gravel (NATURAL - SOIL)				-1
1.5			BH17_1.5-1.6							-1.5
						Silty CLAY medium plasticity, red- brown, trace fine to medium gravel (NATURAL - SOIL)	D	H	No odour and no staining	
2			BH17_1.9-2.0							-2
2.5										-2.5
3										-3
3.5										-3.5
4										-4
4.5										-4.5
5										-5
5.5										-5.5
6										-6
6.5										-6.5
7										-7
7.5										-7.5
8										-8
8.5										-8.5
9										-9
9.5										-9.5

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 BH18

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 0.50
Diameter (mm)

Easting 272029.00 m E
Northing 6110010.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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)
	HA		BH18_0.0-0.1			TOPSOIL			Some leaf litter	
0.02						Clayey SAND fine to medium, brown, with fine to medium gravel, some organic debris (FILL)	D	H	No odour and no staining	-0.02
0.04										-0.04
0.06										-0.06
0.08										-0.08
0.1										-0.1
0.12										-0.12
0.14										-0.14
0.16										-0.16
0.18										-0.18
0.2			BH18_0.2-0.3							-0.2
0.22										-0.22
0.24										-0.24
0.26										-0.26
0.28										-0.28
0.3										-0.3
0.32										-0.32
0.34										-0.34
0.36										-0.36
0.38										-0.38
0.4			BH18_0.4-0.5							-0.4
0.42										-0.42
0.44										-0.44
0.46										-0.46
0.48										-0.48
0.5										-0.5
0.52						Termination Depth at: 0.50 m. Refusal due to hard ground.				-0.52

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 BH19

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 1.50
Diameter (mm)

Easting 272033.00 m E
Northing 6110020.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH19_0.0-0.1			TOPSOIL	D	H	No odour and no staining	0
						Clayey SAND low to medium plasticity, brown (NATURAL - SOIL)				
0.3	PT					Clayey SAND fine to medium, tan- grey, with fine to medium gravel (FILL)	D	H	No odour and no staining	-0.3
0.5			BH19_0.4-0.5							-0.5
0.7						Silty CLAY low to medium plasticity, fine to medium, pale tan- brown (NATURAL - SOIL)	D	H	No odour and no staining, Limestone	-0.7
1			BH19_1.0-1.1							-1
1.5			BH19_1.4-1.5			Termination Depth at: 1.50 m. Refusal on bedrock.				-1.5

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 BH20

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 272002.00 m E
Northing 6110044.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH20_0.0-0.1			CRUSHED STONE				0
0.1						Clayey SAND fine to medium, brown (NATURAL - SOIL)	D	D	No odour and no staining	-0.1
0.2										-0.2
0.3	PT					Clayey SAND fine to medium, tan- grey, with fine to medium gravel (NATURAL - SOIL)	D	D	No odour and no staining	-0.3
0.4										-0.4
0.5			BH20_0.4-0.5							-0.5
0.6										-0.6
0.7										-0.7
0.8										-0.8
0.9						Silty CLAY low to medium plasticity, fine to medium, pale tan- brown (NATURAL - SOIL)	D	D	No odour and no staining	-0.9
1			BH20_1.0-1.1							-1
1.1										-1.1
1.2						CLAY medium to high plasticity, grey- brown, trace fine to medium sand (NATURAL - SOIL)	D	ST	No odour and no staining	-1.2
1.3										-1.3
1.4										-1.4
1.5			BH20_1.5-1.6							-1.5
1.6										-1.6
1.7										-1.7
1.8										-1.8
1.9										-1.9
2			BH20_1.9-2.0 (QC04, QC04a)			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 BH21

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 271999.25 m E
Northing 6110038.21 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH21_0.0-0.1			CRUSHED STONE				0
0.1						Clayey SAND fine to medium, brown (NATURAL - SOIL)	D	D	No odour and no staining	-0.1
0.5	PT		BH21_0.4-0.5			Clayey SAND fine to medium, tan- grey, with fine to medium gravel (NATURAL - SOIL)	D	VD	No odour and no staining	-0.5
1			BH21_1.0-1.1							-1
1.2						CLAY medium to high plasticity, grey- brown, trace fine to medium sand (NATURAL - SOIL)	D	VD	No odour and no staining	-1.2
1.5			BH21_1.5-1.6 (QC05, QC05a)							-1.5
2			BH21_1.9-2.0			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 BH22

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 271980.00 m E
Northing 6110033.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH22_0.0-0.1 (QC06, QC06a)			CONCRETE				0
0.4						Clayey SAND low to medium plasticity, orange- brown (FILL)	D	MD	No odour and no staining	-0.4
0.5	SFA		BH22_0.4-0.5			Clayey SAND low to medium plasticity, brown (NATURAL - SOIL)	D	MD	No odour and no staining	-0.5
1			BH22_1.0-1.1			Silty CLAY low to medium plasticity, fine to medium, pale tan- brown (NATURAL - SOIL)	D	D	No odour and no staining	-1
1.5			BH22_1.5-1.6			CLAY medium to high plasticity, grey- brown, some fine to medium gravel (NATURAL - SOIL)	D	H	No odour and no staining	-1.5
2			BH22_1.9-2.0			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 BH23

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 271974.00 m E
Northing 6110020.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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			BH23_0.0-0.1			CONCRETE				0
0.2						Clayey SAND low to medium plasticity, brown, some fine to medium gravel (NATURAL - SOIL)	D	MD	No odour and no staining	-0.2
0.5			BH23_0.4-0.5							-0.5
0.6						Clayey SAND low to medium plasticity, dark brown (NATURAL - SOIL)	D	VD	No odour and no staining	-0.6
1			BH23_1.0-1.1			Silty CLAY low to medium plasticity, fine to medium, pale tan- brown (NATURAL - SOIL)	D	H	No odour and no staining	-1
1.5			BH23_1.5-1.6							-1.5
1.6						Silty CLAY low to medium plasticity, fine to medium, pale tan- grey (NATURAL - SOIL)	D	H	No odour and no staining	-1.6
2			BH23_1.9-2.0			Termination Depth at: 2.00 m. Target depth achieved.				-2

Notes

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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 BH24

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 271978.00 m E
Northing 6110002.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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			BH24_0.0-0.1			CONCRETE				0
0.2						Clayey SAND poorly graded, subangular, with fine to medium gravel (FILL)	D	MD	No odour and no staining	-0.2
0.5			BH24_0.4-0.5							-0.5
0.9						CLAY medium to high plasticity, dark brown (NATURAL - SOIL)	D	F	No odour and no staining	-0.9
1			BH24_1.0-1.1							-1
1.1						Silty CLAY low to medium plasticity, fine to medium, pale tan- grey, trace fine to medium gravel (NATURAL - SOIL)	D	D	No odour and no staining	-1.1
1.5			BH24_1.5-1.6							-1.5
1.8						Clayey SAND fine to medium, mottled orange- grey, with fine to medium gravel (NATURAL - SOIL)	D	MD	No odour and no staining	-1.8
2			BH24_2.0-2.1			Termination Depth at: 2.00 m. Target depth achieved.				-2

Notes

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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 BH25

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No.; 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 10/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 271985.00 m E
Northing 6110014.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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			BH25_0.0-0.1			CONCRETE				0
0.1										-0.1
0.2						Clayey SAND poorly graded, subangular, with fine to medium gravel (FILL)	D	MD	No odour and no staining	-0.2
0.3										-0.3
0.4										-0.4
0.5			BH25_0.4-0.5							-0.5
0.6						CLAY medium to high plasticity, dark brown (NATURAL - SOIL)	D	H	No odour and no staining	-0.6
0.7										-0.7
0.8										-0.8
0.9						Silty CLAY low to medium plasticity, fine to medium, pale tan- grey, trace fine to medium gravel (NATURAL - SOIL)	D	F	No odour and no staining	-0.9
1			BH25_1.0-1.1							-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4										-1.4
1.5			BH25_1.5-1.6							-1.5
1.6										-1.6
1.7										-1.7
1.8						Silty CLAY low to medium plasticity, fine to medium, purple- brown, trace fine to medium gravel (NATURAL - SOIL)	D	F	No odour and no staining	-1.8
1.9										-1.9
2			BH25_1.9-2.0			Termination Depth at: 2.00 m. Target depth achieved.				-2

Notes

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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 BH26

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 11/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 272014.00 m E
Northing 6110021.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH26_0.0-0.1			TOPSOIL	D	MD	Dead grass/weeds	0
0.1						Clayey SAND fine to medium, brown, with fine to medium gravel, some organic debris (FILL)			No odour and no staining	-0.1
						Clayey SAND fine to medium, grey- brown, with fine to medium gravel (NATURAL - SOIL)	D	MD	No odour and no staining	
0.5			BH26_0.4-0.5							-0.5
0.6	PT									-0.6
0.8						Clayey SAND fine to medium, tan- grey, with fine to medium gravel (NATURAL - SOIL)	D	MD	No odour and no staining	-0.8
1			BH26_1.0-1.1							-1
1.5			BH26_1.5-1.6							-1.5
1.7						Silty CLAY medium plasticity, pale grey (NATURAL - SOIL)	D	S	No odour and no staining, Calcrete	-1.7
2			BH26_1.9-2.0 (QC08, QC08a)			Termination Depth at: 2.00 m. Target depth achieved.				-2

Notes

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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 BH27

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 11/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 272020.00 m E
Northing 6110003.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH27_0.0-0.1			TOPSOIL	D	MD	No odour and no staining	0
0.1						Clayey SAND fine to medium, brown, with fine to medium gravel, some organic debris (FILL)	D	MD	No odour and no staining	-0.1
0.2						Clayey SAND fine to medium, grey, with fine to medium gravel, some (FILL)				-0.2
0.3						Silty SAND fine, brown (NATURAL - SOIL)	D	MD	No odour and no staining	-0.3
0.4										-0.4
0.5	PT		BH27_0.4-0.5							-0.5
0.6										-0.6
0.7										-0.7
0.8										-0.8
0.9						Clayey SAND fine to medium, tan- brown (NATURAL - SOIL)	D	MD	No odour and no staining	-0.9
1			BH27_1.0-1.1							-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4										-1.4
1.5			BH27_1.5-1.6							-1.5
1.6										-1.6
1.7										-1.7
1.8						Silty CLAY medium plasticity, brown, trace fine to medium gravel (NATURAL - SOIL)	D	H	No odour and no staining	-1.8
1.9										-1.9
2			BH27_1.9-2.0			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 BH28

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 11/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 272024.00 m E
Northing 6110017.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH28_0.0-0.1			OTHER			Bitumen	
0.1						Clayey SAND fine to medium, grey, with fine to medium gravel, some (FILL)	D	D	No odour and no staining	-0.1
0.2										-0.2
0.3										-0.3
0.4						Silty CLAY low to medium plasticity, fine to medium, tan, trace fine gravel (NATURAL - SOIL)	D	D	No odour and no staining	-0.4
0.5	PT		BH28_0.4-0.5							-0.5
0.6										-0.6
0.7										-0.7
0.8										-0.8
0.9						Clayey SAND fine to medium, tan- brown (NATURAL - SOIL)	D	D	No odour and no staining	-0.9
1			BH28_1.0-1.1 (QC09, QC09a)							-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4										-1.4
1.5			BH28_1.5-1.6							-1.5
1.6						Silty CLAY medium plasticity, pale grey (NATURAL - SOIL)	D	S	No odour and no staining, Calcrete	-1.6
1.7										-1.7
1.8										-1.8
1.9										-1.9
2			BH28_1.9-2.0			Termination Depth at: 2.00 m. Target depth achieved.				-2

Notes

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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 BH29

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 11/04/2024

Drill Co. WB Drilling
Driller David Watt
Rig Type Eziprobe
Total Depth (m) 2.00
Diameter (mm)

Easting 272029.00 m E
Northing 6110005.00 m S
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson, Ally Kirkman
Checked By Angus Robinson

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	HA		BH29_0.0-0.1			OTHER			Bitumen	0
0.1						Clayey SAND fine to medium, grey, with fine to medium gravel, some (FILL)	D	D	No odour and no staining	-0.1
0.2										-0.2
0.3										-0.3
0.4										-0.4
0.5	PT		BH29_0.4-0.5			Silty CLAY low to medium plasticity, fine to medium, tan, trace fine gravel (NATURAL - SOIL)	D	D	No odour and no staining	-0.5
0.6										-0.6
0.7										-0.7
0.8										-0.8
0.9						Clayey SAND fine to medium, tan- brown (NATURAL - SOIL)	D	D	No odour and no staining	-0.9
1			BH29_1.0-1.1							-1
1.1										-1.1
1.2										-1.2
1.3										-1.3
1.4										-1.4
1.5			BH29_1.5-1.6 (QC10, QC10a)							-1.5
1.6						Silty CLAY medium plasticity, pale grey (NATURAL - SOIL)	D	S	No odour and no staining, Calcrete	-1.6
1.7										-1.7
1.8										-1.8
1.9						BOULDERS purple- brown (NATURAL - BEDROCK)	D	H	No odour and no staining	-1.9
2			BH29_1.9-2.0			Termination Depth at: 2.00 m. Target depth achieved.				-2

Notes

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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 BH30

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.70
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By Angus Robinson

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)
	SFA		BH30_0.0-0.1 (QC1, QC1A)			GRASS				
						SM - Silty SAND fine to coarse, poorly graded, brown, trace rootlets, trace fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	
0.05										-0.05
0.1										-0.1
0.15										-0.15
0.2						SC - Clayey SAND fine to coarse, poorly graded, pale grey- brown, low plasticity, some fine gravel (NATURAL - SOIL)	SM	S	No odour; no staining.	-0.2
0.25										-0.25
0.3										-0.3
0.35										-0.35
0.4			BH30_0.4-0.5							-0.4
0.45										-0.45
0.5						Clayey SAND fine to coarse, poorly graded, tan-brown, low plasticity, some fine gravel (NATURAL - SOIL)	SM	VD	Calcrete deposits, no odour; no staining.	-0.5
0.55										-0.55
0.6	HA		BH30_0.6-0.7							-0.6
0.65										-0.65
0.7						Termination Depth at: 0.70 m. Refusal on bedrock.				-0.7

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 BH31

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.80
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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	SFA		BH31_0.0-0.1			SP - Gravelly SAND fine to coarse, poorly graded, brown, subangular, fine to medium, poorly graded gravel (Reworked NATURAL)	D	L	No odour; no staining.	0
0.1						SM - Silty SAND fine to coarse, poorly graded, dark brown, trace rootlets, trace fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.1
0.4			BH31_0.4-0.5							-0.4
0.5						SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, some fine gravel (NATURAL - SOIL)	SM	D	Calcrete deposits, no odour; no staining.	-0.5
0.6	HA									-0.6
0.7			BH31_0.7-0.8							-0.7
0.8						Termination Depth at: 0.80 m. Refusal on bedrock.				-0.8

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 BH32

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.50
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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	SFA		BH32_0.0-0.1			SP - Gravelly SAND fine to coarse, poorly graded, brown, trace brick fragments, trace construction debris (FILL)	SM	MD	No odour; no staining.	0
0.4	HA		BH32_0.4-0.5			SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, some fine gravel (NATURAL - SOIL)	SM	VD	Calcrete deposits,no odour; no staining.	-0.4
0.5						Termination Depth at: 0.50 m. Refusal on bedrock.				-0.5

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 BH33

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 1.00
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH33_0.0-0.1			GRASS				
0.05						SM - Silty SAND fine to coarse, poorly graded, brown, trace rootlets (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.05
0.1										-0.1
0.15										-0.15
0.2						SC - Clayey SAND fine to coarse, poorly graded, pale grey- brown, low plasticity, trace fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.2
0.25										-0.25
0.3										-0.3
0.35										-0.35
0.4			BH33_0.4-0.5							-0.4
0.45										-0.45
0.5										-0.5
0.55										-0.55
0.6										-0.6
0.65										-0.65
0.7										-0.7
0.75										-0.75
0.8	HA					SC - Clayey SAND pale tan- brown, some fine to medium gravel (NATURAL - SOIL)			Calcrete deposits, no odour; no staining.	-0.8
0.85										-0.85
0.9			BH33_0.9-1.0							-0.9
0.95										-0.95
1						Termination Depth at: 1.00 m. Target depth achieved.				-1

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 BH34

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 1.00
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH34_0.0-0.1			GRASS				
0.05						SM - Silty SAND fine to coarse, poorly graded, dark brown, some fine gravel, trace rootlets (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.05
0.1										-0.1
0.15										-0.15
0.2						SC - Clayey SAND fine to coarse, poorly graded, pale grey- brown, low plasticity, trace silt (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.2
0.25										-0.25
0.3										-0.3
0.35										-0.35
0.4			BH34_0.4-0.5							-0.4
0.45										-0.45
0.5						SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, some fine to medium gravel (NATURAL - SOIL)	SM	VD	Calcrete deposits, no odour; no staining.	-0.5
0.55										-0.55
0.6										-0.6
0.65										-0.65
0.7										-0.7
0.75										-0.75
0.8	HA									-0.8
0.85										-0.85
0.9			BH34_0.9-1.0							-0.9
0.95										-0.95
1										-1
						Termination Depth at: 1.00 m. Target depth achieved.				

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 BH35

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.50
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH35_0.0-0.1			GRASS				
0.02						SM - Silty SAND fine to coarse, poorly graded, brown, trace rootlets (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.02
0.04										-0.04
0.06										-0.06
0.08										-0.08
0.1										-0.1
0.12										-0.12
0.14										-0.14
0.16										-0.16
0.18										-0.18
0.2										-0.2
0.22										-0.22
0.24										-0.24
0.26										-0.26
0.28										-0.28
0.3										-0.3
0.32										-0.32
0.34										-0.34
0.36										-0.36
0.38										-0.38
0.4	HA		BH35_0.4-0.5			SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, some fine to medium gravel (NATURAL - SOIL)	SM	VD	Calcrete deposits, no odour; no staining.	-0.4
0.42										-0.42
0.44										-0.44
0.46										-0.46
0.48										-0.48
0.5										-0.5
0.52						Termination Depth at: 0.50 m. Refusal on bedrock.				-0.52

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 BH36

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 1.00
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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	SFA		BH36_0.0-0.1			GRASS				0
						SM - Silty SAND fine to coarse, poorly graded, dark brown, trace rootlets, trace fine to coarse gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	
0.3						SC - Clayey SAND fine to coarse, poorly graded, pale grey- brown, low plasticity, trace fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.3
0.4			BH36_0.4-0.5							-0.4
0.7						SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, some fine to medium gravel (NATURAL - SOIL)	SM	VD	Calcrete deposits, No odour; no staining.	-0.7
0.8	HA									-0.8
0.9			BH36_0.9-1.0							-0.9
1						Termination Depth at: 1.00 m. Target depth achieved.				-1

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 BH37

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 1.00
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH37_0.0-0.1			GRASS				
0.05						SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, some fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.05
0.1										-0.1
0.15										-0.15
0.2						SC - Clayey SAND fine to coarse, poorly graded, pale grey- brown, low plasticity, trace fine to medium gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.2
0.25										-0.25
0.3										-0.3
0.35										-0.35
0.4			BH37_0.4-0.5							-0.4
0.45										-0.45
0.5						SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, some fine to medium gravel (NATURAL - SOIL)	SM	VD	Calcrete deposits, No odour; no staining.	-0.5
0.55										-0.55
0.6										-0.6
0.65										-0.65
0.7										-0.7
0.75										-0.75
0.8										-0.8
0.85										-0.85
0.9	HA		BH37_0.9-1.0							-0.9
0.95										-0.95
1										-1
						Termination Depth at: 1.00 m. Target depth achieved.				

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 BH38

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.80
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH38_0.0-0.1			GRASS				
0.05						SM - Silty SAND fine to coarse, poorly graded, pale brown, trace rootlets, trace fine to medium gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.05
0.1										-0.1
0.15										-0.15
0.2						SM - Silty SAND fine to coarse, poorly graded, dark brown, trace rootlets, trace fine to medium gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.2
0.25										-0.25
0.3										-0.3
0.35										-0.35
0.4			BH38_0.4-0.5 (QC2, QC2A)							-0.4
0.45										-0.45
0.5						SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, trace fine to medium gravel (NATURAL - SOIL)	D	VD	No odour; no staining.	-0.5
0.55										-0.55
0.6	HA									-0.6
0.65										-0.65
0.7			BH38_0.7-0.8							-0.7
0.75										-0.75
0.8						Termination Depth at: 0.80 m. Refusal on bedrock.				-0.8

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 BH39

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 1.00
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH39_0.0-0.1			GRASS				
0.05						SM - Silty SAND fine to coarse, poorly graded, dark brown, trace rootlets, trace fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.05
0.1										-0.1
0.15										-0.15
0.2										-0.2
0.25										-0.25
0.3										-0.3
0.35						SC - Clayey SAND fine to coarse, poorly graded, pale grey- brown, low plasticity, trace fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.35
0.4			BH39_0.4-0.5							-0.4
0.45										-0.45
0.5						SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, trace fine to medium gravel, trace roots (NATURAL - SOIL)	D	D	Calcrete deposits, no odour; no staining.	-0.5
0.55										-0.55
0.6										-0.6
0.65										-0.65
0.7										-0.7
0.75										-0.75
0.8										-0.8
0.85										-0.85
0.9	HA		BH39_0.9-1.0							-0.9
0.95										-0.95
1						Termination Depth at: 1.00 m. Target depth achieved.				-1

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 BH40

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 13/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.30
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH40_0.0-0.1			GRASS				
0.02						SM - Silty SAND fine to coarse, poorly graded, brown, trace rootlets, trace fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.02
0.04										-0.04
0.06										-0.06
0.08										-0.08
0.1										-0.1
0.12										-0.12
0.14										-0.14
0.16										-0.16
0.18										-0.18
0.2			BH40_0.2-0.3			SC - Clayey SAND fine to coarse, poorly graded, pale grey- brown, low plasticity, trace fine gravel (NATURAL - SOIL)	SM	VD	Calcrete deposits, no odour; no staining.	-0.2
0.22										-0.22
0.24										-0.24
0.26										-0.26
0.28										-0.28
0.3						Termination Depth at: 0.30 m. Refusal on bedrock.				-0.3

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 BH41

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 14/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.70
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH41_0.0-0.1			GRASS			No odour; no staining.	
						SM - Silty SAND fine to coarse, poorly graded, brown, trace rootlets (NATURAL - SOIL)	SM	L	No odour; no staining.	
0.05										-0.05
0.1										-0.1
0.15						SC - Clayey SAND fine to coarse, poorly graded, pale grey- brown, low plasticity, trace fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.15
0.2										-0.2
0.25										-0.25
0.3						SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, some fine to medium gravel (NATURAL - SOIL)	SM	VD	Calcrete deposits, no odour; no staining.	-0.3
0.35										-0.35
0.4			BH41_0.4-0.5							-0.4
0.45										-0.45
0.5										-0.5
0.55										-0.55
0.6	HA		BH41_0.6-0.7							-0.6
0.65										-0.65
0.7						Termination Depth at: 0.70 m. Refusal on bedrock.				-0.7

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 BH42

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 14/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.70
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH42_0.0-0.1			GRASS				
						SM - Silty SAND fine to coarse, poorly graded, dark brown, trace rootlets (NATURAL - SOIL)	SM	L	No odour; no staining.	
0.05										-0.05
0.1										-0.1
0.15										-0.15
0.2										-0.2
0.25										-0.25
0.3										-0.3
						SC - Clayey SAND fine to coarse, poorly graded, pale tan- brown, low plasticity, some fine to coarse gravel (NATURAL - SOIL)	SM	VD	Calcrete deposits, no odour; no staining.	
0.35										-0.35
0.4			BH42_0.4-0.5							-0.4
0.45										-0.45
0.5										-0.5
0.55										-0.55
0.6	HA		BH42_0.6-0.7							-0.6
0.65										-0.65
0.7						Termination Depth at: 0.70 m. Refusal on bedrock.				-0.7

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 BH43

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 14/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.50
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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	SFA		BH43_0.0-0.1			GRASS				0
0.02						SM - Silty SAND fine to coarse, poorly graded, dark brown, trace fine gravel, trace rootlets (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.02
0.04										-0.04
0.06										-0.06
0.08										-0.08
0.1										-0.1
0.12										-0.12
0.14										-0.14
0.16										-0.16
0.18										-0.18
0.2						SC - Clayey SAND fine to coarse, pale grey- brown, low plasticity, trace fine to medium gravel (NATURAL - SOIL)	SM	D	Ca, no odour; no staining.	-0.2
0.22										-0.22
0.24										-0.24
0.26										-0.26
0.28										-0.28
0.3										-0.3
0.32										-0.32
0.34										-0.34
0.36										-0.36
0.38										-0.38
0.4	HA		BH43_0.4-0.5							-0.4
0.42										-0.42
0.44										-0.44
0.46										-0.46
0.48										-0.48
0.5						Termination Depth at: 0.50 m. Target depth achieved.				-0.5
0.52										-0.52

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 BH44

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 14/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.50
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH44_0.0-0.1			GRASS				
0.02						SM - Silty SAND fine to coarse, poorly graded, brown, trace rootlets, trace fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.02
0.04										-0.04
0.06										-0.06
0.08										-0.08
0.1										-0.1
0.12										-0.12
0.14										-0.14
0.16										-0.16
0.18										-0.18
0.2										-0.2
0.22										-0.22
0.24										-0.24
0.26										-0.26
0.28										-0.28
0.3										-0.3
0.32										-0.32
0.34										-0.34
0.36										-0.36
0.38										-0.38
0.4			BH44_0.4-0.5			SC - Clayey SAND fine to coarse, poorly graded, pale grey- brown, low plasticity, some fine to medium gravel (NATURAL - SOIL)	SM	D	Calcrete deposits, no odour; no staining.	-0.4
0.42										-0.42
0.44										-0.44
0.46										-0.46
0.48										-0.48
0.5										-0.5
0.52						Termination Depth at: 0.50 m. Target depth achieved.				-0.52

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 BH45

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 14/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.50
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH45_0.0-0.1			GRASS				
0.02						SM - Silty SAND fine to coarse, poorly graded, brown, with fine to medium gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.02
0.04										-0.04
0.06										-0.06
0.08										-0.08
0.1										-0.1
0.12										-0.12
0.14										-0.14
0.16										-0.16
0.18										-0.18
0.2										-0.2
0.22										-0.22
0.24										-0.24
0.26						SM - Silty SAND fine to coarse, poorly graded, dark brown, low plasticity, trace clay (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.26
0.28										-0.28
0.3										-0.3
0.32										-0.32
0.34										-0.34
0.36										-0.36
0.38										-0.38
0.4	HA		BH45_0.4-0.5							-0.4
0.42										-0.42
0.44										-0.44
0.46										-0.46
0.48										-0.48
0.5										-0.5
0.52						Termination Depth at: 0.50 m. Target depth achieved.				-0.52

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 BH46

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 14/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.50
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH46_0.0-0.1			GRASS				
0.02						SM - Silty SAND fine to coarse, poorly graded, dark brown, some medium to coarse gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.02
0.04										-0.04
0.06										-0.06
0.08										-0.08
0.1										-0.1
0.12										-0.12
0.14										-0.14
0.16										-0.16
0.18										-0.18
0.2			BH46_0.2-0.3							-0.2
0.22										-0.22
0.24										-0.24
0.26										-0.26
0.28										-0.28
0.3										-0.3
0.32										-0.32
0.34										-0.34
0.36										-0.36
0.38										-0.38
0.4			BH46_0.4-0.5							-0.4
0.42										-0.42
0.44										-0.44
0.46										-0.46
0.48										-0.48
0.5										-0.5
0.52						Termination Depth at: 0.50 m. Target depth achieved.				-0.52

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 BH47

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 14/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.50
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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	SFA		BH47_0.0-0.1			GRASS				0
0.02						SM - Silty SAND fine to coarse, poorly graded, dark brown, trace rootlets, trace fine gravel (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.02
0.04										-0.04
0.06										-0.06
0.08										-0.08
0.1										-0.1
0.12										-0.12
0.14										-0.14
0.16										-0.16
0.18										-0.18
0.2			BH47_0.2-0.3							-0.2
0.22										-0.22
0.24										-0.24
0.26										-0.26
0.28										-0.28
0.3						SC - Sandy CLAY red- brown, medium plasticity, fine to coarse, poorly graded sand (NATURAL - SOIL)	SM	F	No odour; no staining.	-0.3
0.32										-0.32
0.34										-0.34
0.36										-0.36
0.38										-0.38
0.4			BH47_0.4-0.5							-0.4
0.42										-0.42
0.44										-0.44
0.46										-0.46
0.48										-0.48
0.5						Termination Depth at: 0.50 m. Target depth achieved.				-0.5
0.52										-0.52

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 BH48

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 14/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.50
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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)
	SFA		BH48_0.0-0.1			GRASS				
0.02						SM - Silty SAND fine to coarse, poorly graded, dark brown, trace rootlets (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.02
0.04										-0.04
0.06										-0.06
0.08										-0.08
0.1										-0.1
0.12										-0.12
0.14										-0.14
0.16										-0.16
0.18										-0.18
0.2			BH48_0.2-0.3			Sandy CLAY red- brown, medium plasticity, fine to coarse, poorly graded sand (NATURAL - SOIL)	SM	F	No odour; no staining.	-0.2
0.22										-0.22
0.24										-0.24
0.26										-0.26
0.28										-0.28
0.3										-0.3
0.32										-0.32
0.34										-0.34
0.36										-0.36
0.38										-0.38
0.4			BH48_0.4-0.5							-0.4
0.42										-0.42
0.44										-0.44
0.46										-0.46
0.48										-0.48
0.5										-0.5
0.52						Termination Depth at: 0.50 m. Target depth achieved.				-0.52

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 BH49

Client SA MFS
Project MFS Christie Downs Supplementary DSI
Project No. 12639293
Site MFS Christie Downs
Location 21 Holman Road
Date Drilled 14/08/2024

Drill Co.
Driller
Rig Type
Total Depth (m) 0.50
Diameter (mm)

Easting
Northing
Grid Ref GDA94_MGA_zone_54
Elevation
Logged By Terrence Wilson
Checked By

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	SFA		BH49_0.0-0.1 (QC3,QC3A)			GRASS				0
0.02						SC - Clayey SAND fine to coarse, poorly graded, pale grey- brown, low plasticity, some fine to coarse gravel, trace rootlets (NATURAL - SOIL)	SM	L	No odour; no staining.	-0.02
0.04										-0.04
0.06										-0.06
0.08										-0.08
0.1										-0.1
0.12										-0.12
0.14										-0.14
0.16										-0.16
0.18										-0.18
0.2			BH49_0.2-0.3							-0.2
0.22										-0.22
0.24										-0.24
0.26										-0.26
0.28										-0.28
0.3	HA					SC - Sandy CLAY red- brown, medium plasticity, fine to coarse, poorly graded sand, trace rootlets (NATURAL - SOIL)	SM	F	No odour; no staining.	-0.3
0.32										-0.32
0.34										-0.34
0.36										-0.36
0.38										-0.38
0.4			BH49_0.4-0.5							-0.4
0.42										-0.42
0.44										-0.44
0.46										-0.46
0.48										-0.48
0.5						Termination Depth at: 0.50 m. Target depth achieved.				-0.5
0.52										-0.52

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 F

Tabulated Analytical Results

					Misc.	Inorganics	Nutrients											
					% Moisture_	Moisture (%)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Nitrogen (Organic)	Phosphorus (Total)	Arsenic	Cadmium	Chromium (III+VI)
					%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					1	0.1	5	5	5	5	10	10	10	5	2	0.4	5
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)																	
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)																	
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)																	
SA MFS Site Specific Criteria - Metropolitan (Staffed)																	
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**													
BH12	10 Apr 2024	BH12_0.0-0.1	0 - 0.1	1088156	5.2	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH12_0.4-0.5	0.4 - 0.5	1088156	8.8	-	-	-	-	-	-	-	-	-	-	-	-
BH15	10 Apr 2024	BH15_0.4-0.5	0.4 - 0.5	1088156	23	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	QC02	0.4 - 0.5	1088156	12	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	QC02a	0.4 - 0.5	EM2406055	-	10.1	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH15_1.0-1.1	1 - 1.1	1088156	12	-	-	-	-	-	-	-	-	-	-	-	-
BH16	10 Apr 2024	BH16_0.4-0.5	0.4 - 0.5	1088156	9.9	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH16_1.0-1.1	1 - 1.1	1088156	10	-	-	-	-	-	-	-	-	-	-	-	-
BH20	10 Apr 2024	BH20_0.0-0.1	0 - 0.1	1088156	2.0	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH20_0.4-0.5	0.4 - 0.5	1088156	9.4	-	-	-	-	-	-	-	-	-	-	-	-
BH21	10 Apr 2024	BH21_0.0-0.1	0 - 0.1	1088156	2.2	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH21_0.4-0.5	0.4 - 0.5	1088156	14	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH21_1.5-1.6	1.5 - 1.6	1088156	14	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	QC05	1.5 - 1.6	1088156	14	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	QC05a	1.5 - 1.6	EM2406055	-	12.0	-	-	-	-	-	-	-	-	-	-	-
BH22	10 Apr 2024	BH22_0.4-0.5	0.4 - 0.5	1088156	13	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH22_1.5-1.6	1.5 - 1.6	1088156	9.5	-	-	-	-	-	-	-	-	-	-	-	-
BH23	10 Apr 2024	BH23_0.4-0.5	0.4 - 0.5	1088156	<1	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH23_1.5-1.6	1.5 - 1.6	1088156	11	-	-	-	-	-	-	-	-	-	-	-	-
BH24	10 Apr 2024	BH24_0.4-0.5	0.4 - 0.5	1088156	3.1	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	QC07	0.4 - 0.5	1088156	3.2	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	QC07a	0.4 - 0.5	EM2406055	-	3.1	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH24_1.5-1.6	1.5 - 1.6	1088156	28	-	-	-	-	-	-	-	-	-	-	-	-
BH25	10 Apr 2024	BH25_1.5-1.6	1.5 - 1.6	1088156	14	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH25_1.9-2.0	1.9 - 2	1088156	11	-	-	-	-	-	-	-	-	-	-	-	-
BH26	11 Apr 2024	BH26_0.0-0.1	0 - 0.1	1088156	5.5	-	-	-	-	-	-	-	-	-	-	-	-
	11 Apr 2024	BH26_0.4-0.5	0.4 - 0.5	1088156	9.1	-	-	-	-	-	-	-	-	-	-	-	-
	09 Jul 2024	BH26_1.0-1.1	1 - 1.1	1117313	13	-	-	-	-	-	-	-	-	-	-	-	-
BH27	11 Apr 2024	BH27_0.0-0.1	0 - 0.1	1088156	3.4	-	-	-	-	-	-	-	-	-	-	-	-
	11 Apr 2024	BH27_0.4-0.5	0.4 - 0.5	1088156	11	-	-	-	-	-	-	-	-	-	-	-	-
	09 Jul 2024	BH27_1.0-1.1	1 - 1.1	1117313	29	-	-	-	-	-	-	-	-	-	-	-	-
SS14	09 Jul 2024	SS14		1117313	11	-	-	-	-	-	-	-	-	-	-	-	-
SS15	09 Jul 2024	SS15		1117313	13	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

				Metals									PFAS - Perfluoroa			
				Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc	Perfluorobutane sulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorononane sulfonate (PFNS)	Perfluoroheptane sulfonic acid (PFHpS)
				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				5	5	0.1	5	5	2	2	10	5	0.0002	0.0002	0.005	0.0002
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)																
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)																
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)																
SA MFS Site Specific Criteria - Metropolitan (Staffed)																
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**												
BH12	10 Apr 2024	BH12_0.0-0.1	0 - 0.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH12_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH15	10 Apr 2024	BH15_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	0.0062	<0.005	<0.005	<0.005
	10 Apr 2024	QC02	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	0.0097	<0.005	<0.005	<0.005
	10 Apr 2024	QC02a	0.4 - 0.5	EM2406055	-	-	-	-	-	-	-	-	-	0.0106	<0.0002	-	0.0018
	10 Apr 2024	BH15_1.0-1.1	1 - 1.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH16	10 Apr 2024	BH16_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH16_1.0-1.1	1 - 1.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH20	10 Apr 2024	BH20_0.0-0.1	0 - 0.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH20_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH21	10 Apr 2024	BH21_0.0-0.1	0 - 0.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH21_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH21_1.5-1.6	1.5 - 1.6	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	QC05	1.5 - 1.6	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	QC05a	1.5 - 1.6	EM2406055	-	-	-	-	-	-	-	-	-	<0.0002	<0.0002	-	<0.0002
BH22	10 Apr 2024	BH22_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	0.008	<0.005	<0.005	<0.005
	10 Apr 2024	BH22_1.5-1.6	1.5 - 1.6	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH23	10 Apr 2024	BH23_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH23_1.5-1.6	1.5 - 1.6	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH24	10 Apr 2024	BH24_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	QC07	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	QC07a	0.4 - 0.5	EM2406055	-	-	-	-	-	-	-	-	-	<0.0002	0.0004	-	<0.0002
	10 Apr 2024	BH24_1.5-1.6	1.5 - 1.6	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.0098
BH25	10 Apr 2024	BH25_1.5-1.6	1.5 - 1.6	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH25_1.9-2.0	1.9 - 2	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH26	11 Apr 2024	BH26_0.0-0.1	0 - 0.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	11 Apr 2024	BH26_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	09 Jul 2024	BH26_1.0-1.1	1 - 1.1	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.0063
BH27	11 Apr 2024	BH27_0.0-0.1	0 - 0.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	0.012	0.011	<0.005
	11 Apr 2024	BH27_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	0.0052	0.045	<0.005
	09 Jul 2024	BH27_1.0-1.1	1 - 1.1	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.066
SS14	09 Jul 2024	SS14		1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SS15	09 Jul 2024	SS15		1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	0.0096	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

					lkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								
					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)
					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					0.0002	0.005	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)					20			20							50		
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)					2			2							20		
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)					0.01			0.01							0.1		
SA MFS Site Specific Criteria - Metropolitan (Staffed)															50		
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**													
BH12	10 Apr 2024	BH12_0.0-0.1	0 - 0.1	1088156	0.029	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH12_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH15	10 Apr 2024	BH15_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	0.013	0.22	<0.005	<0.005	<0.005	0.0085	0.016	<0.005	0.022	<0.005	<0.005
	10 Apr 2024	QC02	0.4 - 0.5	1088156	<0.005	<0.005	0.02	0.31	<0.005	<0.005	<0.005	0.012	0.025	<0.005	0.028	<0.005	<0.005
	10 Apr 2024	QC02a	0.4 - 0.5	EM2406055	0.0016	-	0.0202	0.256	0.001	<0.0002	<0.0002	0.0110	0.0260	<0.0002	0.0201	0.0031	<0.0005
	10 Apr 2024	BH15_1.0-1.1	1 - 1.1	1088156	<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
BH16	10 Apr 2024	BH16_0.4-0.5	0.4 - 0.5	1088156	0.081	<0.005	<0.005	0.058	<0.005	0.0083	<0.005	0.018	0.0076	0.033	0.027	<0.005	<0.005
	10 Apr 2024	BH16_1.0-1.1	1 - 1.1	1088156	0.081	<0.005	<0.005	0.0074	<0.005	0.0063	<0.005	<0.005	<0.005	0.069	<0.005	<0.005	<0.005
BH20	10 Apr 2024	BH20_0.0-0.1	0 - 0.1	1088156	0.0094	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH20_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005
BH21	10 Apr 2024	BH21_0.0-0.1	0 - 0.1	1088156	<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
	10 Apr 2024	BH21_0.4-0.5	0.4 - 0.5	1088156	0.057	<0.005	<0.005	0.0069	<0.005	0.027	<0.005	<0.005	<0.005	0.33	0.0057	<0.005	<0.005
	10 Apr 2024	BH21_1.5-1.6	1.5 - 1.6	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.015	<0.005	0.022	<0.005	<0.005	<0.005
	10 Apr 2024	QC05	1.5 - 1.6	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	0.023	<0.005	<0.005	<0.005
	10 Apr 2024	QC05a	1.5 - 1.6	EM2406055	<0.0002	-	<0.0002	0.0005	<0.001	<0.0002	<0.0002	0.0065	0.0013	0.0095	0.0012	0.0007	<0.0005
BH22	10 Apr 2024	BH22_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	0.0067	0.016	<0.005	<0.005	<0.005	0.015	0.014	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH22_1.5-1.6	1.5 - 1.6	1088156	<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
BH23	10 Apr 2024	BH23_0.4-0.5	0.4 - 0.5	1088156	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.017	<0.005	<0.005	<0.005
	10 Apr 2024	BH23_1.5-1.6	1.5 - 1.6	1088156	<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
BH24	10 Apr 2024	BH24_0.4-0.5	0.4 - 0.5	1088156	0.0082	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	QC07	0.4 - 0.5	1088156	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	QC07a	0.4 - 0.5	EM2406055	0.0077	-	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
	10 Apr 2024	BH24_1.5-1.6	1.5 - 1.6	1088156	0.71	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	0.057	<0.005	<0.005	<0.005
BH25	10 Apr 2024	BH25_1.5-1.6	1.5 - 1.6	1088156	<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
	10 Apr 2024	BH25_1.9-2.0	1.9 - 2	1088156	<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
BH26	11 Apr 2024	BH26_0.0-0.1	0 - 0.1	1088156	0.13	<0.005	<0.005	0.0067	<0.005	0.012	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	11 Apr 2024	BH26_0.4-0.5	0.4 - 0.5	1088156	1.6	<0.005	<0.005	0.025	<0.005	0.027	<0.005	0.0081	0.011	0.007	0.012	0.0073	<0.005
	09 Jul 2024	BH26_1.0-1.1	1 - 1.1	1117313	0.4	<0.005	<0.005	0.024	<0.005	0.034	<0.005	0.0088	0.0067	0.02	0.015	<0.005	<0.005
BH27	11 Apr 2024	BH27_0.0-0.1	0 - 0.1	1088156	0.56	<0.005	<0.005	0.011	<0.005	0.0090	0.0086	<0.005	<0.005	0.0058	0.0083	<0.005	<0.005
	11 Apr 2024	BH27_0.4-0.5	0.4 - 0.5	1088156	3.8	<0.005	<0.005	0.029	<0.005	<0.005	<0.005	0.0083	0.0050	0.022	0.018	<0.005	<0.005
	09 Jul 2024	BH27_1.0-1.1	1 - 1.1	1117313	0.8	<0.005	<0.005	0.1	<0.005	<0.005	<0.005	<0.005	0.0068	0.018	0.0079	<0.005	<0.005
SS14	09 Jul 2024	SS14		1117313	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS15	09 Jul 2024	SS15		1117313	0.74	<0.005	<0.005	0.066	<0.005	0.016	0.0055	<0.005	0.0075	0.068	<0.005	<0.005	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

					PFAS - Perfluoroalkyl Sulfonamide									PFAS - Fluorotelomer Sulfonic Acids			
					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/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					0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0005	0.0002	0.0005	0.0005	0.0005	0.0005
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)																	
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)																	
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)																	
SA MFS Site Specific Criteria - Metropolitan (Staffed)																	
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**													
BH12	10 Apr 2024	BH12_0.0-0.1	0 - 0.1	1088156	0.0053	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	BH12_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH15	10 Apr 2024	BH15_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	QC02	0.4 - 0.5	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	QC02a	0.4 - 0.5	EM2406055	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
	10 Apr 2024	BH15_1.0-1.1	1 - 1.1	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH16	10 Apr 2024	BH16_0.4-0.5	0.4 - 0.5	1088156	0.037	0.28	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	0.0093
	10 Apr 2024	BH16_1.0-1.1	1 - 1.1	1088156	<0.005	0.06	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH20	10 Apr 2024	BH20_0.0-0.1	0 - 0.1	1088156	0.01	0.022	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	BH20_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH21	10 Apr 2024	BH21_0.0-0.1	0 - 0.1	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	BH21_0.4-0.5	0.4 - 0.5	1088156	0.047	0.34	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	BH21_1.5-1.6	1.5 - 1.6	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	QC05	1.5 - 1.6	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	QC05a	1.5 - 1.6	EM2406055	<0.0002	0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
BH22	10 Apr 2024	BH22_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	BH22_1.5-1.6	1.5 - 1.6	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH23	10 Apr 2024	BH23_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	BH23_1.5-1.6	1.5 - 1.6	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH24	10 Apr 2024	BH24_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	QC07	0.4 - 0.5	1088156	<0.005	0.0059	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	QC07a	0.4 - 0.5	EM2406055	<0.0002	0.0032	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	<0.0005	<0.0005	<0.0005	<0.0005
	10 Apr 2024	BH24_1.5-1.6	1.5 - 1.6	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH25	10 Apr 2024	BH25_1.5-1.6	1.5 - 1.6	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	BH25_1.9-2.0	1.9 - 2	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH26	11 Apr 2024	BH26_0.0-0.1	0 - 0.1	1088156	0.17	0.055	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.085	<0.005	<0.01	0.01
	11 Apr 2024	BH26_0.4-0.5	0.4 - 0.5	1088156	0.017	0.62	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.014	<0.005	0.019	0.042
	09 Jul 2024	BH26_1.0-1.1	1 - 1.1	1117313	<0.005	0.39	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.015	0.064
BH27	11 Apr 2024	BH27_0.0-0.1	0 - 0.1	1088156	0.05	0.041	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.0078	<0.005	<0.01	0.027
	11 Apr 2024	BH27_0.4-0.5	0.4 - 0.5	1088156	0.0088	0.0085	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	0.063
	09 Jul 2024	BH27_1.0-1.1	1 - 1.1	1117313	<0.005	0.0053	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SS14	09 Jul 2024	SS14		1117313	0.032	0.028	<0.005	<0.01	<0.005	<0.005	<0.01	0.0056	<0.005	<0.005	<0.005	<0.01	<0.005
SS15	09 Jul 2024	SS15		1117313	0.19	0.45	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.0099	<0.005	<0.01	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

					PFAS - Sums				
					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
EQL					0.0002	0.0002	0.005	0.0002	0.005
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)								20	
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)								2[#1]	
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)								0.01[#1]	
SA MFS Site Specific Criteria - Metropolitan (Staffed)								14	
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**					
BH12	10 Apr 2024	BH12_0.0-0.1	0 - 0.1	1088156	<0.05	0.029	0.029	0.029	0.029
	10 Apr 2024	BH12_0.4-0.5	0.4 - 0.5	1088156	<0.05	<0.01	<0.005	0.007	0.007
BH15	10 Apr 2024	BH15_0.4-0.5	0.4 - 0.5	1088156	0.2857	0.2727	0.022	0.22	0.242
	10 Apr 2024	QC02	0.4 - 0.5	1088156	0.4047	0.3847	0.028	0.31	0.338
	10 Apr 2024	QC02a	0.4 - 0.5	EM2406055	0.355	0.329	-	0.258	-
	10 Apr 2024	BH15_1.0-1.1	1 - 1.1	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
BH16	10 Apr 2024	BH16_0.4-0.5	0.4 - 0.5	1088156	0.5592	0.2009	0.108	0.139	0.166
	10 Apr 2024	BH16_1.0-1.1	1 - 1.1	1088156	0.2237	0.0884	0.081	0.0884	0.0884
BH20	10 Apr 2024	BH20_0.0-0.1	0 - 0.1	1088156	<0.05	<0.01	0.0094	0.0094	0.0094
	10 Apr 2024	BH20_0.4-0.5	0.4 - 0.5	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
BH21	10 Apr 2024	BH21_0.0-0.1	0 - 0.1	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
	10 Apr 2024	BH21_0.4-0.5	0.4 - 0.5	1088156	0.8136	0.0696	0.0627	0.0639	0.0696
	10 Apr 2024	BH21_1.5-1.6	1.5 - 1.6	1088156	<0.05	0.015	<0.005	<0.005	<0.005
	10 Apr 2024	QC05	1.5 - 1.6	1088156	<0.05	0.012	<0.005	<0.005	<0.005
	10 Apr 2024	QC05a	1.5 - 1.6	EM2406055	0.0203	0.0102	-	0.0005	-
BH22	10 Apr 2024	BH22_0.4-0.5	0.4 - 0.5	1088156	0.0597	0.053	<0.005	0.016	0.016
	10 Apr 2024	BH22_1.5-1.6	1.5 - 1.6	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
BH23	10 Apr 2024	BH23_0.4-0.5	0.4 - 0.5	1088156	<0.05	0.015	0.015	0.015	0.015
	10 Apr 2024	BH23_1.5-1.6	1.5 - 1.6	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
BH24	10 Apr 2024	BH24_0.4-0.5	0.4 - 0.5	1088156	<0.05	<0.01	0.0082	0.0082	0.0082
	10 Apr 2024	QC07	0.4 - 0.5	1088156	<0.05	0.017	0.017	0.017	0.017
	10 Apr 2024	QC07a	0.4 - 0.5	EM2406055	0.0116	0.0077	-	0.0077	-
	10 Apr 2024	BH24_1.5-1.6	1.5 - 1.6	1088156	0.7888	0.722	0.71	0.722	0.722
BH25	10 Apr 2024	BH25_1.5-1.6	1.5 - 1.6	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
	10 Apr 2024	BH25_1.9-2.0	1.9 - 2	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
BH26	11 Apr 2024	BH26_0.0-0.1	0 - 0.1	1088156	0.4857	0.1467	0.13	0.1367	0.1367
	11 Apr 2024	BH26_0.4-0.5	0.4 - 0.5	1088156	2.4094	1.7244	1.612	1.625	1.637
	09 Jul 2024	BH26_1.0-1.1	1 - 1.1	1117313	0.9838	0.5335	0.415	0.424	0.439
BH27	11 Apr 2024	BH27_0.0-0.1	0 - 0.1	1088156	0.7515	0.6063	0.5683	0.571	0.5793
	11 Apr 2024	BH27_0.4-0.5	0.4 - 0.5	1088156	4.0128	3.9233	3.818	3.829	3.847
	09 Jul 2024	BH27_1.0-1.1	1 - 1.1	1117313	1.004	0.9147	0.8079	0.9	0.9079
SS14	09 Jul 2024	SS14		1117313	0.0876	0.022	0.022	0.022	0.022
SS15	09 Jul 2024	SS15		1117313	1.5625	0.8135	0.74	0.806	0.806

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

					Misc.	Inorganics	Nutrients											
					% Moisture_	Moisture (%)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Nitrogen (Organic)	Phosphorus (Total)	Arsenic	Cadmium	Chromium (III+VI)
					%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					1	0.1	5	5	5	5	10	10	10	5	2	0.4	5
PFAS NEMP 2.0 2020 Ecological direct exposure																	
PFAS NEMP 2.0 2020 Ecological indirect exposure																	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
	BH12_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	5.2	-	-	-	-	-	-	-	-	-	-	-	-
BH12	BH12_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	8.8	-	-	-	-	-	-	-	-	-	-	-	-
	BH15_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	23	-	-	-	-	-	-	-	-	-	-	-	-
	QC02	0.4 - 0.5	10 Apr 2024	1088156	12	-	-	-	-	-	-	-	-	-	-	-	-
	QC02a	0.4 - 0.5	10 Apr 2024	EM2406055	-	10.1	-	-	-	-	-	-	-	-	-	-	-
BH15	BH15_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	12	-	-	-	-	-	-	-	-	-	-	-	-
	BH16_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	9.9	-	-	-	-	-	-	-	-	-	-	-	-
BH16	BH16_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	10	-	-	-	-	-	-	-	-	-	-	-	-
	BH20_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	2.0	-	-	-	-	-	-	-	-	-	-	-	-
BH20	BH20_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	9.4	-	-	-	-	-	-	-	-	-	-	-	-
	BH21_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	2.2	-	-	-	-	-	-	-	-	-	-	-	-
	BH21_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	14	-	-	-	-	-	-	-	-	-	-	-	-
	BH21_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	14	-	-	-	-	-	-	-	-	-	-	-	-
	QC05	1.5 - 1.6	10 Apr 2024	1088156	14	-	-	-	-	-	-	-	-	-	-	-	-
BH21	QC05a	1.5 - 1.6	10 Apr 2024	EM2406055	-	12.0	-	-	-	-	-	-	-	-	-	-	-
	BH22_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	13	-	-	-	-	-	-	-	-	-	-	-	-
BH22	BH22_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	9.5	-	-	-	-	-	-	-	-	-	-	-	-
	BH23_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<1	-	-	-	-	-	-	-	-	-	-	-	-
BH23	BH23_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	11	-	-	-	-	-	-	-	-	-	-	-	-
	BH24_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	3.1	-	-	-	-	-	-	-	-	-	-	-	-
	QC07	0.4 - 0.5	10 Apr 2024	1088156	3.2	-	-	-	-	-	-	-	-	-	-	-	-
	QC07a	0.4 - 0.5	10 Apr 2024	EM2406055	-	3.1	-	-	-	-	-	-	-	-	-	-	-
BH24	BH24_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	28	-	-	-	-	-	-	-	-	-	-	-	-
	BH25_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	14	-	-	-	-	-	-	-	-	-	-	-	-
BH25	BH25_1.9-2.0	1.9 - 2	10 Apr 2024	1088156	11	-	-	-	-	-	-	-	-	-	-	-	-
	BH26_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	5.5	-	-	-	-	-	-	-	-	-	-	-	-
	BH26_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	9.1	-	-	-	-	-	-	-	-	-	-	-	-
BH26	BH26_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	13	-	-	-	-	-	-	-	-	-	-	-	-
	BH27_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	3.4	-	-	-	-	-	-	-	-	-	-	-	-
	BH27_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	11	-	-	-	-	-	-	-	-	-	-	-	-
BH27	BH27_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	29	-	-	-	-	-	-	-	-	-	-	-	-
SS14	SS14		09 Jul 2024	1117313	11	-	-	-	-	-	-	-	-	-	-	-	-
SS15	SS15		09 Jul 2024	1117313	13	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure

				Metals									PFAS - Perfluoroa			
				Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc	Perfluorobutane sulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorononane sulfonate (PFNS)	Perfluoroheptane sulfonic acid (PFHpS)
				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				5	5	0.1	5	5	2	2	10	5	0.0002	0.0002	0.005	0.0002
PFAS NEMP 2.0 2020 Ecological direct exposure																
PFAS NEMP 2.0 2020 Ecological indirect exposure																
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**												
	BH12_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH12	BH12_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH15_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	0.0062	<0.005	<0.005	<0.005
	QC02	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	0.0097	<0.005	<0.005	<0.005
	QC02a	0.4 - 0.5	10 Apr 2024	EM2406055	-	-	-	-	-	-	-	-	-	0.0106	<0.0002	-	0.0018
BH15	BH15_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH16_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH16	BH16_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH20_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH20	BH20_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH21_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH21_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH21_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	QC05	1.5 - 1.6	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH21	QC05a	1.5 - 1.6	10 Apr 2024	EM2406055	-	-	-	-	-	-	-	-	-	<0.0002	<0.0002	-	<0.0002
	BH22_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	0.008	<0.005	<0.005	<0.005
BH22	BH22_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH23_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH23	BH23_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH24_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	QC07	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	QC07a	0.4 - 0.5	10 Apr 2024	EM2406055	-	-	-	-	-	-	-	-	-	<0.0002	0.0004	-	<0.0002
BH24	BH24_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.0098
	BH25_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH25	BH25_1.9-2.0	1.9 - 2	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH26_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH26_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH26	BH26_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.0063
	BH27_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	0.012	0.011	<0.005
	BH27_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	0.0052	0.045	<0.005
BH27	BH27_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.066
SS14	SS14		09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SS15	SS15		09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	0.0096	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure

					lkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								
					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)
					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					0.0002	0.005	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005
PFAS NEMP 2.0 2020 Ecological direct exposure					1										10		
PFAS NEMP 2.0 2020 Ecological indirect exposure					0.01												
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
	BH12_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	0.029	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH12	BH12_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH15_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	0.013	0.22	<0.005	<0.005	<0.005	0.0085	0.016	<0.005	0.022	<0.005	<0.005
	QC02	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	0.02	0.31	<0.005	<0.005	<0.005	0.012	0.025	<0.005	0.028	<0.005	<0.005
	QC02a	0.4 - 0.5	10 Apr 2024	EM2406055	0.0016	-	0.0202	0.256	0.001	<0.0002	<0.0002	0.0110	0.0260	<0.0002	0.0201	0.0031	<0.0005
BH15	BH15_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	<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
	BH16_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.081	<0.005	<0.005	0.058	<0.005	0.0083	<0.005	0.018	0.0076	0.033	0.027	<0.005	<0.005
BH16	BH16_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	0.081	<0.005	<0.005	0.0074	<0.005	0.0063	<0.005	<0.005	<0.005	0.069	<0.005	<0.005	<0.005
	BH20_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	0.0094	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH20	BH20_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005
	BH21_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<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
	BH21_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.057	<0.005	<0.005	0.0069	<0.005	0.027	<0.005	<0.005	<0.005	0.33	0.0057	<0.005	<0.005
	BH21_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.015	<0.005	0.022	<0.005	<0.005	<0.005
	QC05	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	0.023	<0.005	<0.005	<0.005
BH21	QC05a	1.5 - 1.6	10 Apr 2024	EM2406055	<0.0002	-	<0.0002	0.0005	<0.001	<0.0002	<0.0002	0.0065	0.0013	0.0095	0.0012	0.0007	<0.0005
	BH22_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	0.0067	0.016	<0.005	<0.005	<0.005	0.015	0.014	<0.005	<0.005	<0.005	<0.005
BH22	BH22_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<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
	BH23_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.017	<0.005	<0.005	<0.005
BH23	BH23_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<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
	BH24_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.0082	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	QC07	0.4 - 0.5	10 Apr 2024	1088156	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	QC07a	0.4 - 0.5	10 Apr 2024	EM2406055	0.0077	-	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
BH24	BH24_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	0.71	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	0.057	<0.005	<0.005	<0.005
	BH25_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<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
BH25	BH25_1.9-2.0	1.9 - 2	10 Apr 2024	1088156	<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
	BH26_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	0.13	<0.005	<0.005	0.0067	<0.005	0.012	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH26_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	1.6	<0.005	<0.005	0.025	<0.005	0.027	<0.005	0.0081	0.011	0.007	0.012	0.0073	<0.005
BH26	BH26_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.4	<0.005	<0.005	0.024	<0.005	0.034	<0.005	0.0088	0.0067	0.02	0.015	<0.005	<0.005
	BH27_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	0.56	<0.005	<0.005	0.011	<0.005	0.0090	0.0086	<0.005	<0.005	0.0058	0.0083	<0.005	<0.005
	BH27_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	3.8	<0.005	<0.005	0.029	<0.005	<0.005	<0.005	0.0083	0.0050	0.022	0.018	<0.005	<0.005
BH27	BH27_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.8	<0.005	<0.005	0.1	<0.005	<0.005	<0.005	<0.005	0.0068	0.018	0.0079	<0.005	<0.005
SS14	SS14		09 Jul 2024	1117313	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS15	SS15		09 Jul 2024	1117313	0.74	<0.005	<0.005	0.066	<0.005	0.016	0.0055	<0.005	0.0075	0.068	<0.005	<0.005	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure

					PFAS - Perfluoroalkyl Sulfonamide									PFAS - Fluorotelomer Sulfonic Acids			
					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/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					0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0005	0.0002	0.0005	0.0005	0.0005	0.0005
PFAS NEMP 2.0 2020 Ecological direct exposure																	
PFAS NEMP 2.0 2020 Ecological indirect exposure																	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
	BH12_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	0.0053	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH12	BH12_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH15_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	QC02	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	QC02a	0.4 - 0.5	10 Apr 2024	EM2406055	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
BH15	BH15_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH16_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.037	0.28	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	0.0093
BH16	BH16_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	<0.005	0.06	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH20_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	0.01	0.022	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH20	BH20_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH21_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH21_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.047	0.34	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH21_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	QC05	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH21	QC05a	1.5 - 1.6	10 Apr 2024	EM2406055	<0.0002	0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
	BH22_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH22	BH22_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH23_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH23	BH23_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH24_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	QC07	0.4 - 0.5	10 Apr 2024	1088156	<0.005	0.0059	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	QC07a	0.4 - 0.5	10 Apr 2024	EM2406055	<0.0002	0.0032	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	<0.0005	<0.0005	<0.0005	<0.0005
BH24	BH24_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH25_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH25	BH25_1.9-2.0	1.9 - 2	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH26_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	0.17	0.055	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.085	<0.005	<0.01	0.01
	BH26_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	0.017	0.62	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.014	<0.005	0.019	0.042
BH26	BH26_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	<0.005	0.39	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.015	0.064
	BH27_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	0.05	0.041	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.0078	<0.005	<0.01	0.027
	BH27_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	0.0088	0.0085	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	0.063
BH27	BH27_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	<0.005	0.0053	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SS14	SS14		09 Jul 2024	1117313	0.032	0.028	<0.005	<0.01	<0.005	<0.005	<0.01	0.0056	<0.005	<0.005	<0.005	<0.01	<0.005
SS15	SS15		09 Jul 2024	1117313	0.19	0.45	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.0099	<0.005	<0.01	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure

					PFAS - Sums				
					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
EQL					0.0002	0.0002	0.005	0.0002	0.005
PFAS NEMP 2.0 2020 Ecological direct exposure									
PFAS NEMP 2.0 2020 Ecological indirect exposure									
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**					
	BH12_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.05	0.029	0.029	0.029	0.029
BH12	BH12_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.05	<0.01	<0.005	0.007	0.007
	BH15_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.2857	0.2727	0.022	0.22	0.242
	QC02	0.4 - 0.5	10 Apr 2024	1088156	0.4047	0.3847	0.028	0.31	0.338
	QC02a	0.4 - 0.5	10 Apr 2024	EM2406055	0.355	0.329	-	0.258	-
BH15	BH15_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
	BH16_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.5592	0.2009	0.108	0.139	0.166
BH16	BH16_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	0.2237	0.0884	0.081	0.0884	0.0884
	BH20_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.05	<0.01	0.0094	0.0094	0.0094
BH20	BH20_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
	BH21_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
	BH21_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.8136	0.0696	0.0627	0.0639	0.0696
	BH21_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.05	0.015	<0.005	<0.005	<0.005
	QC05	1.5 - 1.6	10 Apr 2024	1088156	<0.05	0.012	<0.005	<0.005	<0.005
BH21	QC05a	1.5 - 1.6	10 Apr 2024	EM2406055	0.0203	0.0102	-	0.0005	-
	BH22_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.0597	0.053	<0.005	0.016	0.016
BH22	BH22_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
	BH23_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.05	0.015	0.015	0.015	0.015
BH23	BH23_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
	BH24_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.05	<0.01	0.0082	0.0082	0.0082
	QC07	0.4 - 0.5	10 Apr 2024	1088156	<0.05	0.017	0.017	0.017	0.017
	QC07a	0.4 - 0.5	10 Apr 2024	EM2406055	0.0116	0.0077	-	0.0077	-
BH24	BH24_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	0.7888	0.722	0.71	0.722	0.722
	BH25_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
BH25	BH25_1.9-2.0	1.9 - 2	10 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
	BH26_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	0.4857	0.1467	0.13	0.1367	0.1367
	BH26_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	2.4094	1.7244	1.612	1.625	1.637
BH26	BH26_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.9838	0.5335	0.415	0.424	0.439
	BH27_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	0.7515	0.6063	0.5683	0.571	0.5793
	BH27_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	4.0128	3.9233	3.818	3.829	3.847
BH27	BH27_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	1.004	0.9147	0.8079	0.9	0.9079
SS14	SS14		09 Jul 2024	1117313	0.0876	0.022	0.022	0.022	0.022
SS15	SS15		09 Jul 2024	1117313	1.5625	0.8135	0.74	0.806	0.806

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure

					Misc.	Inorganics	Nutrients											
					% Moisture_	Moisture (%)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Nitrogen (Organic)	Phosphorus (Total)	Arsenic	Cadmium	Chromium (III+VI)
					%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					1	0.1	5	5	5	5	10	10	10	5	2	0.4	5
PFAS NEMP 2.0 2020 Public open space (HIL C)																	
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**													
BH13	10 Apr 2024	BH13_0.0-0.1	0 - 0.1	1088156	3.5	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH13_0.4-0.5	0.4 - 0.5	1088156	3.2	-	-	-	-	-	-	-	-	-	-	-	-
BH14	10 Apr 2024	BH14_0.0-0.1	0 - 0.1	1088156	4.5	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH14_0.4-0.5	0.4 - 0.5	1088156	6.0	-	-	-	-	-	-	-	-	-	-	-	-
BH17	10 Apr 2024	BH17_1.0-1.1	1 - 1.1	1088156	12	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH17_1.5-1.6	1.5 - 1.6	1088156	10	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	QC03	1.5 - 1.6	1088156	12	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	QC03a	1.5 - 1.6	EM2406055	-	12.4	-	-	-	-	-	-	-	-	-	-	-
BH18	10 Apr 2024	BH18_0.4-0.5	0.4 - 0.5	1088156	2.9	-	-	-	-	-	-	-	-	-	-	-	-
BH19	10 Apr 2024	BH19_0.0-0.1	0 - 0.1	1088156	4.6	-	-	-	-	-	-	-	-	-	-	-	-
	10 Apr 2024	BH19_0.4-0.5	0.4 - 0.5	1088156	8.8	-	-	-	-	-	-	-	-	-	-	-	-
	09 Jul 2024	BH19_1.0-1.1	1 - 1.1	1117313	12	-	-	-	-	-	-	-	-	-	-	-	-
BH28	11 Apr 2024	BH28_0.4-0.5	0.4 - 0.5	1088156	7.8	-	-	-	-	-	-	-	-	-	-	-	-
BH29	11 Apr 2024	BH29_0.4-0.5	0.4 - 0.5	1088156	9.6	-	-	-	-	-	-	-	-	-	-	-	-
	09 Jul 2024	BH29_1.0-1.1	1 - 1.1	1117313	12	-	-	-	-	-	-	-	-	-	-	-	-
BH30	13 Aug 2024	BH30_0.0-0.1	0 - 0.1	1129117	14	-	-	-	-	-	-	-	-	-	-	-	-
	13 Aug 2024	QC1	0 - 0.1	1129117	14	-	-	-	-	-	-	-	-	-	-	-	-
	13 Aug 2024	QC1A	0 - 0.1	EM2414005	-	16.2	-	-	-	-	-	-	-	-	-	-	-
BH31	13 Aug 2024	BH31_0.0-0.1	0 - 0.1	1129117	8.2	-	-	-	-	-	-	-	-	-	-	-	-
BH32	13 Aug 2024	BH32_0.0-0.1	0 - 0.1	1129117	7.9	-	-	-	-	-	-	-	-	-	-	-	-
BH33	13 Aug 2024	BH33_0.0-0.1	0 - 0.1	1129117	15	-	-	-	-	-	-	-	-	-	-	-	-
	13 Aug 2024	BH33_0.4-0.5	0.4 - 0.5	1132369	14	-	-	-	-	-	-	-	-	-	-	-	-
	13 Aug 2024	BH33_0.9-1.0	0.9 - 1	1134925	14	-	-	-	-	-	-	-	-	-	-	-	-
BH34	13 Aug 2024	BH34_0.0-0.1	0 - 0.1	1129117	18	-	-	-	-	-	-	-	-	-	-	-	-
	13 Aug 2024	BH34_0.4-0.5	0.4 - 0.5	1132369	17	-	-	-	-	-	-	-	-	-	-	-	-
	13 Aug 2024	BH34_0.9-1.0	0.9 - 1	1134925	18	-	-	-	-	-	-	-	-	-	-	-	-
BH35	13 Aug 2024	BH35_0.0-0.1	0 - 0.1	1129117	11	-	-	-	-	-	-	-	-	-	-	-	-
	13 Aug 2024	BH35_0.4-0.5	0.4 - 0.5	1132369	13	-	-	-	-	-	-	-	-	-	-	-	-
BH36	13 Aug 2024	BH36_0.0-0.1	0 - 0.1	1129117	16	-	-	-	-	-	-	-	-	-	-	-	-
BH37	13 Aug 2024	BH37_0.0-0.1	0 - 0.1	1129117	13	-	-	-	-	-	-	-	-	-	-	-	-
BH38	13 Aug 2024	BH38_0.0-0.1	0 - 0.1	1129117	12	-	-	-	-	-	-	-	-	-	-	-	-
BH39	13 Aug 2024	BH39_0.0-0.1	0 - 0.1	1129117	10	-	-	-	-	-	-	-	-	-	-	-	-
BH40	13 Aug 2024	BH40_0.0-0.1	0 - 0.1	1129117	12	-	-	-	-	-	-	-	-	-	-	-	-
BH41	13 Aug 2024	SS10/BH41_0.4-0.5	0.4 - 0.5	1129117	14	-	-	-	-	-	-	-	-	-	-	-	-
BH42	13 Aug 2024	SS10/BH42_0.4-0.5	0.4 - 0.5	1129117	13	-	-	-	-	-	-	-	-	-	-	-	-
BH43	13 Aug 2024	BH43_0.0-0.1	0 - 0.1	1129117	10	-	-	-	-	-	-	-	-	-	-	-	-
BH44	13 Aug 2024	BH44_0.0-0.1	0 - 0.1	1129117	11	-	-	-	-	-	-	-	-	-	-	-	-
BH45	13 Aug 2024	BH45_0.0-0.1	0 - 0.1	1129117	7.5	-	-	-	-	-	-	-	-	-	-	-	-
BH46	13 Aug 2024	BH46_0.0-0.1	0 - 0.1	1129117	14	-	-	-	-	-	-	-	-	-	-	-	-
BH47	13 Aug 2024	BH47_0.0-0.1	0 - 0.1	1129117	17	-	-	-	-	-	-	-	-	-	-	-	-
BH48	13 Aug 2024	BH48_0.2-0.3	0.2 - 0.3	1129117	17	-	-	-	-	-	-	-	-	-	-	-	-
BH49	13 Aug 2024	BH49_0.0-0.1	0 - 0.1	1129117	16	-	-	-	-	-	-	-	-	-	-	-	-
	13 Aug 2024	QC3	0 - 0.1	1129117	16	-	-	-	-	-	-	-	-	-	-	-	-
	14 Aug 2024	QC3A	0 - 0.1	EM2414005	-	16.9	-	-	-	-	-	-	-	-	-	-	-
SS07	09 Jul 2024	SS07		1117313	6.9	-	-	-	-	-	-	-	-	-	-	-	-
SS08	09 Jul 2024	SS08		1117313	15	-	-	-	-	-	-	-	-	-	-	-	-
SS09	09 Jul 2024	SS09		1117313	19	-	-	-	-	-	-	-	-	-	-	-	-
SS10	09 Jul 2024	SS10		1117313	12	-	-	-	-	-	-	-	-	-	-	-	-
SS11	09 Jul 2024	SS11		1117313	8.0	-	-	-	-	-	-	-	-	-	-	-	-
SS12	09 Jul 2024	SS12		1117313	18	-	-	-	-	-	-	-	-	-	-	-	-
SS13	09 Jul 2024	SS13		1117313	16	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)

				Metals										PFAS - Perfluoroa			
				Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc	Perfluorobutane sulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorononane sulfonate (PFNS)	Perfluoroheptane sulfonic acid (PFHpS)
				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				5	5	0.1	5	5	2	2	10	5	0.0002	0.0002	0.005	0.0002
PFAS NEMP 2.0 2020 Public open space (HIL C)																
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**												
BH13	10 Apr 2024	BH13_0.0-0.1	0 - 0.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH13_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH14	10 Apr 2024	BH14_0.0-0.1	0 - 0.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH14_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH17	10 Apr 2024	BH17_1.0-1.1	1 - 1.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH17_1.5-1.6	1.5 - 1.6	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	QC03	1.5 - 1.6	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	QC03a	1.5 - 1.6	EM2406055	-	-	-	-	-	-	-	-	-	0.0007	<0.0002	-	0.0006
BH18	10 Apr 2024	BH18_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH19	10 Apr 2024	BH19_0.0-0.1	0 - 0.1	1088156	-	-	-	-	-	-	-	-	-	<0.005	0.014	0.017	<0.005
	10 Apr 2024	BH19_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.036
	09 Jul 2024	BH19_1.0-1.1	1 - 1.1	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.0057
BH28	11 Apr 2024	BH28_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.01
BH29	11 Apr 2024	BH29_0.4-0.5	0.4 - 0.5	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.0058
	09 Jul 2024	BH29_1.0-1.1	1 - 1.1	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	0.0054	0.0072
BH30	13 Aug 2024	BH30_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	13 Aug 2024	QC1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	13 Aug 2024	QC1A	0 - 0.1	EM2414005	-	-	-	-	-	-	-	-	-	<0.0002	0.0018	-	0.0005
BH31	13 Aug 2024	BH31_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH32	13 Aug 2024	BH32_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH33	13 Aug 2024	BH33_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	0.015	0.035	<0.005
	13 Aug 2024	BH33_0.4-0.5	0.4 - 0.5	1132369	-	-	-	-	-	-	-	-	-	<0.005	0.012	0.021	<0.005
	13 Aug 2024	BH33_0.9-1.0	0.9 - 1	1134925	-	-	-	-	-	-	-	-	-	0.028	<0.005	<0.005	0.05
BH34	13 Aug 2024	BH34_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	0.017	0.064	<0.005
	13 Aug 2024	BH34_0.4-0.5	0.4 - 0.5	1132369	-	-	-	-	-	-	-	-	-	<0.005	<0.005	0.011	0.043
	13 Aug 2024	BH34_0.9-1.0	0.9 - 1	1134925	-	-	-	-	-	-	-	-	-	0.045	<0.005	<0.005	0.078
BH35	13 Aug 2024	BH35_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	0.0085	0.015	0.066	0.041
	13 Aug 2024	BH35_0.4-0.5	0.4 - 0.5	1132369	-	-	-	-	-	-	-	-	-	0.02	<0.005	<0.005	0.17
BH36	13 Aug 2024	BH36_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	0.0073	0.0092	<0.005
BH37	13 Aug 2024	BH37_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH38	13 Aug 2024	BH38_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH39	13 Aug 2024	BH39_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH40	13 Aug 2024	BH40_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH41	13 Aug 2024	SS10/BH41_0.4-0.5	0.4 - 0.5	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.0085
BH42	13 Aug 2024	SS10/BH42_0.4-0.5	0.4 - 0.5	1129117	-	-	-	-	-	-	-	-	-	0.014	<0.005	0.0066	0.034
BH43	13 Aug 2024	BH43_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH44	13 Aug 2024	BH44_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH45	13 Aug 2024	BH45_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH46	13 Aug 2024	BH46_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH47	13 Aug 2024	BH47_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH48	13 Aug 2024	BH48_0.2-0.3	0.2 - 0.3	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH49	13 Aug 2024	BH49_0.0-0.1	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	13 Aug 2024	QC3	0 - 0.1	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	14 Aug 2024	QC3A	0 - 0.1	EM2414005	-	-	-	-	-	-	-	-	-	<0.0002	<0.0002	-	0.0003
SS07	09 Jul 2024	SS07		1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SS08	09 Jul 2024	SS08		1117313	-	-	-	-	-	-	-	-	-	<0.005	0.016	0.027	<0.005
SS09	09 Jul 2024	SS09		1117313	-	-	-	-	-	-	-	-	-	<0.005	0.0089	0.0075	<0.005
SS10	09 Jul 2024	SS10		1117313	-	-	-	-	-	-	-	-	-	0.021	0.021	0.098	<0.015
SS11	09 Jul 2024	SS11		1117313	-	-	-	-	-	-	-	-	-	0.02	0.023	0.1	<0.015
SS12	09 Jul 2024	SS12		1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SS13	09 Jul 2024	SS13		1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)

					lkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								
					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)
					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					0.0002	0.005	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005
PFAS NEMP 2.0 2020 Public open space (HIL C)					1			1							10		
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**													
BH13	10 Apr 2024	BH13_0.0-0.1	0 - 0.1	1088156	<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
	10 Apr 2024	BH13_0.4-0.5	0.4 - 0.5	1088156	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0070	<0.005	<0.005	<0.005
BH14	10 Apr 2024	BH14_0.0-0.1	0 - 0.1	1088156	0.036	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	10 Apr 2024	BH14_0.4-0.5	0.4 - 0.5	1088156	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.016	<0.005	<0.005	<0.005
BH17	10 Apr 2024	BH17_1.0-1.1	1 - 1.1	1088156	0.18	<0.005	<0.005	0.0069	<0.005	0.007	<0.005	<0.005	<0.005	0.039	<0.005	<0.005	<0.005
	10 Apr 2024	BH17_1.5-1.6	1.5 - 1.6	1088156	0.11	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.12	<0.005	<0.005	<0.005
	10 Apr 2024	QC03	1.5 - 1.6	1088156	0.13	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	0.14	0.0054	<0.005	<0.005
	10 Apr 2024	QC03a	1.5 - 1.6	EM2406055	0.101	-	0.0006	0.0100	<0.001	0.0007	<0.0002	0.0029	0.0024	0.159	0.0036	0.0015	<0.0005
BH18	10 Apr 2024	BH18_0.4-0.5	0.4 - 0.5	1088156	0.85	<0.005	<0.005	0.016	<0.005	0.0064	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH19	10 Apr 2024	BH19_0.0-0.1	0 - 0.1	1088156	0.97	<0.005	<0.005	0.022	<0.005	0.0095	0.0056	<0.005	<0.005	<0.005	0.0062	<0.005	<0.005
	10 Apr 2024	BH19_0.4-0.5	0.4 - 0.5	1088156	6.6	<0.005	<0.005	0.091	<0.005	<0.005	<0.005	<0.005	0.0065	0.1	0.019	<0.005	<0.005
	09 Jul 2024	BH19_1.0-1.1	1 - 1.1	1117313	0.092	<0.005	0.0056	0.23	<0.005	<0.005	<0.005	0.014	0.012	0.15	0.047	0.0095	<0.005
BH28	11 Apr 2024	BH28_0.4-0.5	0.4 - 0.5	1088156	0.83	<0.005	<0.005	0.1	<0.005	<0.005	<0.005	0.0052	0.016	0.012	0.012	0.0061	<0.005
BH29	11 Apr 2024	BH29_0.4-0.5	0.4 - 0.5	1088156	0.94	<0.005	<0.005	0.081	<0.005	0.0069	0.0081	<0.005	0.022	0.038	0.0074	<0.005	<0.005
	09 Jul 2024	BH29_1.0-1.1	1 - 1.1	1117313	0.43	<0.005	<0.005	0.038	<0.005	<0.005	<0.005	<0.005	0.0058	0.035	<0.005	<0.005	<0.005
BH30	13 Aug 2024	BH30_0.0-0.1	0 - 0.1	1129117	0.34	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	<0.005	0.026	<0.005	<0.005	<0.005
	13 Aug 2024	QC1	0 - 0.1	1129117	0.27	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	0.025	<0.005	<0.005	<0.005
	13 Aug 2024	QC1A	0 - 0.1	EM2414005	0.287	-	<0.0002	0.0014	<0.001	0.0092	0.0022	0.0002	0.0004	0.0254	0.0005	0.0004	<0.0005
BH31	13 Aug 2024	BH31_0.0-0.1	0 - 0.1	1129117	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH32	13 Aug 2024	BH32_0.0-0.1	0 - 0.1	1129117	0.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH33	13 Aug 2024	BH33_0.0-0.1	0 - 0.1	1129117	1.3	<0.005	<0.005	0.01	<0.005	0.01	<0.005	<0.005	<0.005	0.0067	<0.005	<0.005	<0.005
	13 Aug 2024	BH33_0.4-0.5	0.4 - 0.5	1132369	1.7	<0.005	<0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	0.022	0.0058	<0.005	<0.005
	13 Aug 2024	BH33_0.9-1.0	0.9 - 1	1134925	0.64	0.012	0.028	0.76	<0.005	<0.005	<0.005	0.0084	0.09	0.029	0.095	0.017	<0.005
BH34	13 Aug 2024	BH34_0.0-0.1	0 - 0.1	1129117	1.4	<0.005	<0.005	0.014	<0.005	0.017	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005
	13 Aug 2024	BH34_0.4-0.5	0.4 - 0.5	1132369	2.4	<0.005	<0.005	0.083	<0.005	<0.005	<0.005	<0.005	<0.005	0.15	0.014	<0.005	<0.005
	13 Aug 2024	BH34_0.9-1.0	0.9 - 1	1134925	0.28	0.017	0.11	1.4	0.0090	<0.005	<0.005	0.034	0.12	0.058	0.1	0.022	<0.005
BH35	13 Aug 2024	BH35_0.0-0.1	0 - 0.1	1129117	7.6	0.0067	0.0052	0.083	<0.005	0.021	0.0052	<0.005	0.022	0.058	0.028	<0.005	<0.005
	13 Aug 2024	BH35_0.4-0.5	0.4 - 0.5	1132369	8.8	0.01	0.027	1.1	0.0074	0.016	<0.005	0.011	0.062	0.75	0.16	0.0098	<0.005
BH36	13 Aug 2024	BH36_0.0-0.1	0 - 0.1	1129117	0.32	<0.005	<0.005	0.011	<0.005	0.0100	0.01	<0.005	<0.005	<0.005	0.0058	<0.005	<0.005
BH37	13 Aug 2024	BH37_0.0-0.1	0 - 0.1	1129117	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH38	13 Aug 2024	BH38_0.0-0.1	0 - 0.1	1129117	0.061	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH39	13 Aug 2024	BH39_0.0-0.1	0 - 0.1	1129117	0.23	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	0.075	0.0091	<0.005	<0.005
BH40	13 Aug 2024	BH40_0.0-0.1	0 - 0.1	1129117	0.09	<0.005	<0.005	<0.005	<0.005	0.0071	<0.005	<0.005	<0.005	0.25	<0.005	<0.005	<0.005
BH41	13 Aug 2024	SS10/BH41_0.4-0.5	0.4 - 0.5	1129117	0.19	<0.005	<0.005	0.14	<0.005	<0.005	<0.005	0.0085	0.0091	0.24	0.039	<0.005	<0.005
BH42	13 Aug 2024	SS10/BH42_0.4-0.5	0.4 - 0.5	1129117	0.73	<0.005	0.02	0.44	<0.005	<0.005	<0.005	0.011	0.034	0.26	0.082	<0.005	<0.005
BH43	13 Aug 2024	BH43_0.0-0.1	0 - 0.1	1129117	0.0073	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH44	13 Aug 2024	BH44_0.0-0.1	0 - 0.1	1129117	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH45	13 Aug 2024	BH45_0.0-0.1	0 - 0.1	1129117	0.023	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH46	13 Aug 2024	BH46_0.0-0.1	0 - 0.1	1129117	0.0095	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH47	13 Aug 2024	BH47_0.0-0.1	0 - 0.1	1129117	0.11	<0.005	<0.005	<0.005	<0.005	0.015	0.012	<0.005	<0.005	0.038	<0.005	<0.005	<0.005
BH48	13 Aug 2024	BH48_0.2-0.3	0.2 - 0.3	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.13	<0.005	<0.005	<0.005
BH49	13 Aug 2024	BH49_0.0-0.1	0 - 0.1	1129117	0.063	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	13 Aug 2024	QC3	0 - 0.1	1129117	0.063	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	14 Aug 2024	QC3A	0 - 0.1	EM2414005	0.0571	-	<0.0002	0.0014	<0.001	<0.0002	<0.0002	<0.0002	0.0002	0.0003	0.0004	<0.0002	<0.0005
SS07	09 Jul 2024	SS07		1117313	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS08	09 Jul 2024	SS08		1117313	0.42	<0.005	<0.005	0.014	<0.005	0.013	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	<0.005
SS09	09 Jul 2024	SS09		1117313	0.31	<0.005	<0.005	0.0091	<0.005	0.018	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS10	09 Jul 2024	SS10		1117313	11	0.026	0.017	0.16	0.012	0.0063	0.013	0.0078	0.046	<0.005	0.037	0.011	<0.005
SS11	09 Jul 2024	SS11		1117313	11	0.024	0.016	0.15	0.012	0.0055	0.011	0.0074	0.043	<0.005	0.035	0.011	<0.005
SS12	09 Jul 2024	SS12		1117313	0.036	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS13	09 Jul 2024	SS13		1117313	0.095	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)

							PFAS - Perfluoroalkyl Sulfonamide								PFAS - Fluorotelomer Sulfonic Acids			
					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/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					0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0005	0.0002	0.0005	0.0005	0.0005	0.0005
PFAS NEMP 2.0 2020 Public open space (HIL C)																	
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**													
BH13	10 Apr 2024	BH13_0.0-0.1	0 - 0.1	1088156	<0.005	0.0076	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	BH13_0.4-0.5	0.4 - 0.5	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH14	10 Apr 2024	BH14_0.0-0.1	0 - 0.1	1088156	0.0051	0.017	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	BH14_0.4-0.5	0.4 - 0.5	1088156	<0.005	0.0062	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH17	10 Apr 2024	BH17_1.0-1.1	1 - 1.1	1088156	<0.005	0.018	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	BH17_1.5-1.6	1.5 - 1.6	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	QC03	1.5 - 1.6	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	10 Apr 2024	QC03a	1.5 - 1.6	EM2406055	<0.0002	0.0007	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
BH18	10 Apr 2024	BH18_0.4-0.5	0.4 - 0.5	1088156	<0.005	0.2	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH19	10 Apr 2024	BH19_0.0-0.1	0 - 0.1	1088156	0.034	0.11	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.016	<0.005	<0.01	0.01
	10 Apr 2024	BH19_0.4-0.5	0.4 - 0.5	1088156	<0.005	0.0056	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	0.0077
	09 Jul 2024	BH19_1.0-1.1	1 - 1.1	1117313	<0.005	0.0086	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.025	<0.005
BH28	11 Apr 2024	BH28_0.4-0.5	0.4 - 0.5	1088156	<0.005	0.0074	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.038	0.0055
BH29	11 Apr 2024	BH29_0.4-0.5	0.4 - 0.5	1088156	0.16	0.13	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	09 Jul 2024	BH29_1.0-1.1	1 - 1.1	1117313	0.025	0.098	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH30	13 Aug 2024	BH30_0.0-0.1	0 - 0.1	1129117	0.047	0.13	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	13 Aug 2024	QC1	0 - 0.1	1129117	0.036	0.16	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	13 Aug 2024	QC1A	0 - 0.1	EM2414005	0.0674	0.118	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
BH31	13 Aug 2024	BH31_0.0-0.1	0 - 0.1	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH32	13 Aug 2024	BH32_0.0-0.1	0 - 0.1	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH33	13 Aug 2024	BH33_0.0-0.1	0 - 0.1	1129117	0.032	0.063	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	13 Aug 2024	BH33_0.4-0.5	0.4 - 0.5	1132369	0.0077	0.02	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	13 Aug 2024	BH33_0.9-1.0	0.9 - 1	1134925	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH34	13 Aug 2024	BH34_0.0-0.1	0 - 0.1	1129117	0.03	0.11	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	13 Aug 2024	BH34_0.4-0.5	0.4 - 0.5	1132369	0.0088	0.026	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	13 Aug 2024	BH34_0.9-1.0	0.9 - 1	1134925	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH35	13 Aug 2024	BH35_0.0-0.1	0 - 0.1	1129117	0.1	0.27	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.013	0.018	<0.005	<0.01	0.028
	13 Aug 2024	BH35_0.4-0.5	0.4 - 0.5	1132369	0.042	0.12	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0061	<0.005	<0.005	<0.01	0.014
BH36	13 Aug 2024	BH36_0.0-0.1	0 - 0.1	1129117	0.18	0.13	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.035	<0.005	<0.01	0.011
BH37	13 Aug 2024	BH37_0.0-0.1	0 - 0.1	1129117	0.0063	0.016	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH38	13 Aug 2024	BH38_0.0-0.1	0 - 0.1	1129117	<0.005	0.0063	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH39	13 Aug 2024	BH39_0.0-0.1	0 - 0.1	1129117	0.023	0.11	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.0062	<0.005	<0.01	0.018
BH40	13 Aug 2024	BH40_0.0-0.1	0 - 0.1	1129117	0.029	0.1	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.0053	<0.005	<0.01	<0.005
BH41	13 Aug 2024	SS10/BH41_0.4-0.5	0.4 - 0.5	1129117	0.0055	0.028	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH42	13 Aug 2024	SS10/BH42_0.4-0.5	0.4 - 0.5	1129117	0.018	0.041	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	0.011
BH43	13 Aug 2024	BH43_0.0-0.1	0 - 0.1	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH44	13 Aug 2024	BH44_0.0-0.1	0 - 0.1	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH45	13 Aug 2024	BH45_0.0-0.1	0 - 0.1	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH46	13 Aug 2024	BH46_0.0-0.1	0 - 0.1	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH47	13 Aug 2024	BH47_0.0-0.1	0 - 0.1	1129117	0.19	0.81	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH48	13 Aug 2024	BH48_0.2-0.3	0.2 - 0.3	1129117	<0.005	0.019	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH49	13 Aug 2024	BH49_0.0-0.1	0 - 0.1	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	13 Aug 2024	QC3	0 - 0.1	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	14 Aug 2024	QC3A	0 - 0.1	EM2414005	0.0005	0.0007	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
SS07	09 Jul 2024	SS07		1117313	<0.005	0.013	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SS08	09 Jul 2024	SS08		1117313	0.021	0.1	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.0067	<0.005	<0.01	<0.005
SS09	09 Jul 2024	SS09		1117313	0.13	0.34	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.042	<0.005	<0.01	<0.005
SS10	09 Jul 2024	SS10		1117313	0.2	0.23	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.036	0.026	<0.005	<0.01	0.0084
SS11	09 Jul 2024	SS11		1117313	0.17	0.21	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.036	0.029	<0.005	<0.01	0.0083
SS12	09 Jul 2024	SS12		1117313	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SS13	09 Jul 2024	SS13		1117313	<0.005	0.015	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)

					PFAS - Sums				
					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
EQL					0.0002	0.0002	0.005	0.0002	0.005
PFAS NEMP 2.0 2020 Public open space (HIL C)								1	
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**					
BH13	10 Apr 2024	BH13_0.0-0.1	0 - 0.1	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
	10 Apr 2024	BH13_0.4-0.5	0.4 - 0.5	1088156	<0.05	0.011	0.011	0.011	0.011
BH14	10 Apr 2024	BH14_0.0-0.1	0 - 0.1	1088156	0.0581	0.036	0.036	0.036	0.036
	10 Apr 2024	BH14_0.4-0.5	0.4 - 0.5	1088156	0.0522	0.03	0.03	0.03	0.03
BH17	10 Apr 2024	BH17_1.0-1.1	1 - 1.1	1088156	0.2509	0.1869	0.18	0.1869	0.1869
	10 Apr 2024	BH17_1.5-1.6	1.5 - 1.6	1088156	0.24	0.12	0.11	0.12	0.12
	10 Apr 2024	QC03	1.5 - 1.6	1088156	0.2874	0.1474	0.1354	0.142	0.1474
	10 Apr 2024	QC03a	1.5 - 1.6	EM2406055	0.284	0.122	-	0.111	-
BH18	10 Apr 2024	BH18_0.4-0.5	0.4 - 0.5	1088156	1.0724	0.866	0.85	0.866	0.866
BH19	10 Apr 2024	BH19_0.0-0.1	0 - 0.1	1088156	1.2203	1.0142	0.976	0.992	0.998
	10 Apr 2024	BH19_0.4-0.5	0.4 - 0.5	1088156	6.8658	6.7242	6.619	6.691	6.71
	09 Jul 2024	BH19_1.0-1.1	1 - 1.1	1117313	0.5994	0.4295	0.139	0.322	0.369
BH28	11 Apr 2024	BH28_0.4-0.5	0.4 - 0.5	1088156	1.0422	1.0128	0.842	0.93	0.942
BH29	11 Apr 2024	BH29_0.4-0.5	0.4 - 0.5	1088156	1.3992	1.0504	0.9474	1.021	1.0284
	09 Jul 2024	BH29_1.0-1.1	1 - 1.1	1117313	0.6444	0.4738	0.43	0.468	0.468
BH30	13 Aug 2024	BH30_0.0-0.1	0 - 0.1	1129117	0.554	0.34	0.34	0.34	0.34
	13 Aug 2024	QC1	0 - 0.1	1129117	0.501	0.27	0.27	0.27	0.27
	13 Aug 2024	QC1A	0 - 0.1	EM2414005	0.514	0.290	-	0.288	-
BH31	13 Aug 2024	BH31_0.0-0.1	0 - 0.1	1129117	<0.05	0.025	0.025	0.025	0.025
BH32	13 Aug 2024	BH32_0.0-0.1	0 - 0.1	1129117	0.12	0.12	0.12	0.12	0.12
BH33	13 Aug 2024	BH33_0.0-0.1	0 - 0.1	1129117	1.4717	1.31	1.3	1.31	1.31
	13 Aug 2024	BH33_0.4-0.5	0.4 - 0.5	1132369	1.8135	1.7308	1.7058	1.725	1.7308
	13 Aug 2024	BH33_0.9-1.0	0.9 - 1	1134925	1.7574	1.6384	0.735	1.4	1.495
BH34	13 Aug 2024	BH34_0.0-0.1	0 - 0.1	1129117	1.661	1.414	1.4	1.414	1.414
	13 Aug 2024	BH34_0.4-0.5	0.4 - 0.5	1132369	2.7358	2.497	2.414	2.483	2.497
	13 Aug 2024	BH34_0.9-1.0	0.9 - 1	1134925	2.273	2.01	0.38	1.68	1.78
BH35	13 Aug 2024	BH35_0.0-0.1	0 - 0.1	1129117	8.3886	7.7695	7.628	7.683	7.711
	13 Aug 2024	BH35_0.4-0.5	0.4 - 0.5	1132369	11.3253	10.1842	8.96	9.9	10.06
BH36	13 Aug 2024	BH36_0.0-0.1	0 - 0.1	1129117	0.7293	0.3478	0.3258	0.331	0.3368
BH37	13 Aug 2024	BH37_0.0-0.1	0 - 0.1	1129117	0.1223	0.1	0.1	0.1	0.1
BH38	13 Aug 2024	BH38_0.0-0.1	0 - 0.1	1129117	0.0673	0.061	0.061	0.061	0.061
BH39	13 Aug 2024	BH39_0.0-0.1	0 - 0.1	1129117	0.4833	0.2571	0.2391	0.23	0.2391
BH40	13 Aug 2024	BH40_0.0-0.1	0 - 0.1	1129117	0.4814	0.09	0.09	0.09	0.09
BH41	13 Aug 2024	SS10/BH41_0.4-0.5	0.4 - 0.5	1129117	0.6686	0.3866	0.229	0.33	0.369
BH42	13 Aug 2024	SS10/BH42_0.4-0.5	0.4 - 0.5	1129117	1.7016	1.322	0.812	1.17	1.252
BH43	13 Aug 2024	BH43_0.0-0.1	0 - 0.1	1129117	<0.05	<0.01	0.0073	0.0073	0.0073
BH44	13 Aug 2024	BH44_0.0-0.1	0 - 0.1	1129117	<0.05	0.01	0.01	0.01	0.01
BH45	13 Aug 2024	BH45_0.0-0.1	0 - 0.1	1129117	<0.05	0.023	0.023	0.023	0.023
BH46	13 Aug 2024	BH46_0.0-0.1	0 - 0.1	1129117	<0.05	<0.01	0.0095	0.0095	0.0095
BH47	13 Aug 2024	BH47_0.0-0.1	0 - 0.1	1129117	1.175	0.11	0.11	0.11	0.11
BH48	13 Aug 2024	BH48_0.2-0.3	0.2 - 0.3	1129117	0.149	<0.01	<0.005	<0.005	<0.005
BH49	13 Aug 2024	BH49_0.0-0.1	0 - 0.1	1129117	0.063	0.063	0.063	0.063	0.063
	13 Aug 2024	QC3	0 - 0.1	1129117	0.063	0.063	0.063	0.063	0.063
	14 Aug 2024	QC3A	0 - 0.1	EM2414005	0.0609	0.0591	-	0.0585	-
SS07	09 Jul 2024	SS07		1117313	0.153	0.14	0.14	0.14	0.14
SS08	09 Jul 2024	SS08		1117313	0.6297	0.434	0.42	0.434	0.434
SS09	09 Jul 2024	SS09		1117313	0.8765	0.3191	0.31	0.3191	0.3191
SS10	09 Jul 2024	SS10		1117313	11.9765	11.3032	11.037	11.16	11.197
SS11	09 Jul 2024	SS11		1117313	11.9112	11.2867	11.035	11.15	11.185
SS12	09 Jul 2024	SS12		1117313	<0.05	0.036	0.036	0.036	0.036
SS13	09 Jul 2024	SS13		1117313	0.11	0.095	0.095	0.095	0.095

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)

					Misc.	Inorganics	Nutrients											
					% Moisture_	Moisture (%)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Nitrogen (Organic)	Phosphorus (Total)	Arsenic	Cadmium	Chromium (III+VI)
					%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					1	0.1	5	5	5	5	10	10	10	5	2	0.4	5
PFAS NEMP 2.0 2020 Ecological direct exposure																	
PFAS NEMP 2.0 2020 Ecological indirect exposure																	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
	BH13_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	3.5	-	-	-	-	-	-	-	-	-	-	-	-
BH13	BH13_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	3.2	-	-	-	-	-	-	-	-	-	-	-	-
	BH14_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	4.5	-	-	-	-	-	-	-	-	-	-	-	-
BH14	BH14_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	6.0	-	-	-	-	-	-	-	-	-	-	-	-
	BH17_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	12	-	-	-	-	-	-	-	-	-	-	-	-
	BH17_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	10	-	-	-	-	-	-	-	-	-	-	-	-
	QC03	1.5 - 1.6	10 Apr 2024	1088156	12	-	-	-	-	-	-	-	-	-	-	-	-
BH17	QC03a	1.5 - 1.6	10 Apr 2024	EM2406055	-	12.4	-	-	-	-	-	-	-	-	-	-	-
BH18	BH18_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	2.9	-	-	-	-	-	-	-	-	-	-	-	-
	BH19_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	4.6	-	-	-	-	-	-	-	-	-	-	-	-
	BH19_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	8.8	-	-	-	-	-	-	-	-	-	-	-	-
BH19	BH19_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	12	-	-	-	-	-	-	-	-	-	-	-	-
BH28	BH28_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	7.8	-	-	-	-	-	-	-	-	-	-	-	-
	BH29_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	9.6	-	-	-	-	-	-	-	-	-	-	-	-
BH29	BH29_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	12	-	-	-	-	-	-	-	-	-	-	-	-
	BH30_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	14	-	-	-	-	-	-	-	-	-	-	-	-
	QC1	0 - 0.1	13 Aug 2024	1129117	14	-	-	-	-	-	-	-	-	-	-	-	-
BH30	QC1A	0 - 0.1	13 Aug 2024	EM2414005	-	16.2	-	-	-	-	-	-	-	-	-	-	-
BH31	BH31_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	8.2	-	-	-	-	-	-	-	-	-	-	-	-
BH32	BH32_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	7.9	-	-	-	-	-	-	-	-	-	-	-	-
	BH33_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	15	-	-	-	-	-	-	-	-	-	-	-	-
	BH33_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	14	-	-	-	-	-	-	-	-	-	-	-	-
BH33	BH33_0.9-1.0	0.9 - 1	13 Aug 2024	1134925	14	-	-	-	-	-	-	-	-	-	-	-	-
	BH34_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	18	-	-	-	-	-	-	-	-	-	-	-	-
	BH34_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	17	-	-	-	-	-	-	-	-	-	-	-	-
BH34	BH34_0.9-1.0	0.9 - 1	13 Aug 2024	1134925	18	-	-	-	-	-	-	-	-	-	-	-	-
	BH35_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	11	-	-	-	-	-	-	-	-	-	-	-	-
BH35	BH35_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	13	-	-	-	-	-	-	-	-	-	-	-	-
BH36	BH36_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	16	-	-	-	-	-	-	-	-	-	-	-	-
BH37	BH37_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	13	-	-	-	-	-	-	-	-	-	-	-	-
BH38	BH38_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	12	-	-	-	-	-	-	-	-	-	-	-	-
BH39	BH39_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	10	-	-	-	-	-	-	-	-	-	-	-	-
BH40	BH40_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	12	-	-	-	-	-	-	-	-	-	-	-	-
BH41	SS10/BH41_0.4-0.5	0.4 - 0.5	13 Aug 2024	1129117	14	-	-	-	-	-	-	-	-	-	-	-	-
BH42	SS10/BH42_0.4-0.5	0.4 - 0.5	13 Aug 2024	1129117	13	-	-	-	-	-	-	-	-	-	-	-	-
BH43	BH43_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	10	-	-	-	-	-	-	-	-	-	-	-	-
BH44	BH44_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	11	-	-	-	-	-	-	-	-	-	-	-	-
BH45	BH45_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	7.5	-	-	-	-	-	-	-	-	-	-	-	-
BH46	BH46_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	14	-	-	-	-	-	-	-	-	-	-	-	-
BH47	BH47_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	17	-	-	-	-	-	-	-	-	-	-	-	-
BH48	BH48_0.2-0.3	0.2 - 0.3	13 Aug 2024	1129117	17	-	-	-	-	-	-	-	-	-	-	-	-
	BH49_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	16	-	-	-	-	-	-	-	-	-	-	-	-
	QC3	0 - 0.1	13 Aug 2024	1129117	16	-	-	-	-	-	-	-	-	-	-	-	-
BH49	QC3A	0 - 0.1	14 Aug 2024	EM2414005	-	16.9	-	-	-	-	-	-	-	-	-	-	-
SS07	SS07		09 Jul 2024	1117313	6.9	-	-	-	-	-	-	-	-	-	-	-	-
SS08	SS08		09 Jul 2024	1117313	15	-	-	-	-	-	-	-	-	-	-	-	-
SS09	SS09		09 Jul 2024	1117313	19	-	-	-	-	-	-	-	-	-	-	-	-
SS10	SS10		09 Jul 2024	1117313	12	-	-	-	-	-	-	-	-	-	-	-	-
SS11	SS11		09 Jul 2024	1117313	8.0	-	-	-	-	-	-	-	-	-	-	-	-
SS12	SS12		09 Jul 2024	1117313	18	-	-	-	-	-	-	-	-	-	-	-	-

					Misc.	Inorganics	Nutrients											
					% Moisture_	Moisture (%)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Nitrogen (Organic)	Phosphorus (Total)	Arsenic	Cadmium	Chromium (III+VI)
					%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					1	0.1	5	5	5	5	10	10	10	5	2	0.4	5
PFAS NEMP 2.0 2020 Ecological direct exposure																	
PFAS NEMP 2.0 2020 Ecological indirect exposure																	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
SS13	SS13		09 Jul 2024	1117313	16	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure

				Metals									PFAS - Perfluoroa			
				Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc	Perfluorobutane sulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorononane sulfonate (PFNS)	Perfluoroheptane sulfonic acid (PFHpS)
				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				5	5	0.1	5	5	2	2	10	5	0.0002	0.0002	0.005	0.0002
PFAS NEMP 2.0 2020 Ecological direct exposure																
PFAS NEMP 2.0 2020 Ecological indirect exposure																
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**												
	BH13_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH13	BH13_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH14_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH14	BH14_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH17_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH17_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	QC03	1.5 - 1.6	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH17	QC03a	1.5 - 1.6	10 Apr 2024	EM2406055	-	-	-	-	-	-	-	-	-	0.0007	<0.0002	-	0.0006
BH18	BH18_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH19_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	0.014	0.017	<0.005
	BH19_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.036
BH19	BH19_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.0057
BH28	BH28_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.01
	BH29_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.0058
BH29	BH29_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	0.0054	0.0072
	BH30_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	QC1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH30	QC1A	0 - 0.1	13 Aug 2024	EM2414005	-	-	-	-	-	-	-	-	-	<0.0002	0.0018	-	0.0005
BH31	BH31_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH32	BH32_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH33_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	0.015	0.035	<0.005
	BH33_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	-	-	-	-	-	-	-	-	-	<0.005	0.012	0.021	<0.005
BH33	BH33_0.9-1.0	0.9 - 1	13 Aug 2024	1134925	-	-	-	-	-	-	-	-	-	0.028	<0.005	<0.005	0.05
	BH34_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	0.017	0.064	<0.005
	BH34_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	-	-	-	-	-	-	-	-	-	<0.005	<0.005	0.011	0.043
BH34	BH34_0.9-1.0	0.9 - 1	13 Aug 2024	1134925	-	-	-	-	-	-	-	-	-	0.045	<0.005	<0.005	0.078
	BH35_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	0.0085	0.015	0.066	0.041
BH35	BH35_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	-	-	-	-	-	-	-	-	-	0.02	<0.005	<0.005	0.17
BH36	BH36_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	0.0073	0.0092	<0.005
BH37	BH37_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH38	BH38_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH39	BH39_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH40	BH40_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH41	SS10/BH41_0.4-0.5	0.4 - 0.5	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.0085
BH42	SS10/BH42_0.4-0.5	0.4 - 0.5	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	0.014	<0.005	0.0066	0.034
BH43	BH43_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH44	BH44_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH45	BH45_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH46	BH46_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH47	BH47_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH48	BH48_0.2-0.3	0.2 - 0.3	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	BH49_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
	QC3	0 - 0.1	13 Aug 2024	1129117	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
BH49	QC3A	0 - 0.1	14 Aug 2024	EM2414005	-	-	-	-	-	-	-	-	-	<0.0002	<0.0002	-	0.0003
SS07	SS07		09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SS08	SS08		09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	0.016	0.027	<0.005
SS09	SS09		09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	0.0089	0.0075	<0.005
SS10	SS10		09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	0.021	0.021	0.098	<0.015
SS11	SS11		09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	0.02	0.023	0.1	<0.015
SS12	SS12		09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005

					Metals									PFAS - Perfluoroa			
					Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc	Perfluorobutane sulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorononane sulfonate (PFNS)	Perfluoroheptane sulfonic acid (PFHpS)
					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					5	5	0.1	5	5	2	2	10	5	0.0002	0.0002	0.005	0.0002
PFAS NEMP 2.0 2020 Ecological direct exposure																	
PFAS NEMP 2.0 2020 Ecological indirect exposure																	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
SS13	SS13		09 Jul 2024	1117313	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure

					lkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								
					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)
					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					0.0002	0.005	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005
PFAS NEMP 2.0 2020 Ecological direct exposure					1										10		
PFAS NEMP 2.0 2020 Ecological indirect exposure					0.01												
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
	BH13_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<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
BH13	BH13_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0070	<0.005	<0.005	<0.005
	BH14_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	0.036	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH14	BH14_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.016	<0.005	<0.005	<0.005
	BH17_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	0.18	<0.005	<0.005	0.0069	<0.005	0.007	<0.005	<0.005	<0.005	0.039	<0.005	<0.005	<0.005
	BH17_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	0.11	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.12	<0.005	<0.005	<0.005
	QC03	1.5 - 1.6	10 Apr 2024	1088156	0.13	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	0.14	0.0054	<0.005	<0.005
BH17	QC03a	1.5 - 1.6	10 Apr 2024	EM2406055	0.101	-	0.0006	0.0100	<0.001	0.0007	<0.0002	0.0029	0.0024	0.159	0.0036	0.0015	<0.0005
BH18	BH18_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.85	<0.005	<0.005	0.016	<0.005	0.0064	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH19_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	0.97	<0.005	<0.005	0.022	<0.005	0.0095	0.0056	<0.005	0.0062	<0.005	0.006	<0.005	<0.005
	BH19_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	6.6	<0.005	<0.005	0.091	<0.005	<0.005	<0.005	<0.005	0.0065	0.1	0.019	<0.005	<0.005
BH19	BH19_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.092	<0.005	0.0056	0.23	<0.005	<0.005	<0.005	0.014	0.012	0.15	0.047	0.0095	<0.005
BH28	BH28_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	0.83	<0.005	<0.005	0.1	<0.005	<0.005	<0.005	0.0052	0.016	0.012	0.012	0.0061	<0.005
	BH29_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	0.94	<0.005	<0.005	0.081	<0.005	0.0069	0.0081	<0.005	0.022	0.038	0.0074	<0.005	<0.005
BH29	BH29_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.43	<0.005	<0.005	0.038	<0.005	<0.005	<0.005	<0.005	0.0058	0.035	<0.005	<0.005	<0.005
	BH30_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.34	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	<0.005	0.026	<0.005	<0.005	<0.005
	QC1	0 - 0.1	13 Aug 2024	1129117	0.27	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	0.025	<0.005	<0.005	<0.005
BH30	QC1A	0 - 0.1	13 Aug 2024	EM2414005	0.287	-	<0.0002	0.0014	<0.001	0.0092	0.0022	0.0002	0.0004	0.0254	0.0005	0.0004	<0.0005
BH31	BH31_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH32	BH32_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH33_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	1.3	<0.005	<0.005	0.01	<0.005	0.01	<0.005	<0.005	<0.005	0.0067	<0.005	<0.005	<0.005
	BH33_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	1.7	<0.005	<0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	0.022	0.0058	<0.005	<0.005
BH33	BH33_0.9-1.0	0.9 - 1	13 Aug 2024	1134925	0.64	0.012	0.028	0.76	<0.005	<0.005	<0.005	0.0084	0.09	0.029	0.095	0.017	<0.005
	BH34_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	1.4	<0.005	<0.005	0.014	<0.005	0.017	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005
	BH34_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	2.4	<0.005	<0.005	0.083	<0.005	<0.005	<0.005	<0.005	<0.005	0.15	0.014	<0.005	<0.005
BH34	BH34_0.9-1.0	0.9 - 1	13 Aug 2024	1134925	0.28	0.017	0.11	1.4	0.0090	<0.005	<0.005	0.034	0.12	0.058	0.1	0.022	<0.005
	BH35_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	7.6	0.0067	0.0052	0.083	<0.005	0.021	0.0052	<0.005	0.022	0.058	0.028	<0.005	<0.005
BH35	BH35_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	8.8	0.01	0.027	1.1	0.0074	0.016	<0.005	0.011	0.062	0.75	0.16	0.0098	<0.005
BH36	BH36_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.32	<0.005	<0.005	0.011	<0.005	0.0100	0.01	<0.005	<0.005	<0.005	0.0058	<0.005	<0.005
BH37	BH37_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH38	BH38_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.061	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH39	BH39_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.23	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	0.075	0.0091	<0.005	<0.005
BH40	BH40_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.09	<0.005	<0.005	<0.005	<0.005	0.0071	<0.005	<0.005	<0.005	0.25	<0.005	<0.005	<0.005
BH41	SS10/BH41_0.4-0.5	0.4 - 0.5	13 Aug 2024	1129117	0.19	<0.005	<0.005	0.14	<0.005	<0.005	<0.005	0.0085	0.0091	0.24	0.039	<0.005	<0.005
BH42	SS10/BH42_0.4-0.5	0.4 - 0.5	13 Aug 2024	1129117	0.73	<0.005	0.02	0.44	<0.005	<0.005	<0.005	0.011	0.034	0.26	0.082	<0.005	<0.005
BH43	BH43_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.0073	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH44	BH44_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH45	BH45_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.023	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH46	BH46_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.0095	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH47	BH47_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.11	<0.005	<0.005	<0.005	<0.005	0.015	0.012	<0.005	<0.005	0.038	<0.005	<0.005	<0.005
BH48	BH48_0.2-0.3	0.2 - 0.3	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.13	<0.005	<0.005	<0.005
	BH49_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.063	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	QC3	0 - 0.1	13 Aug 2024	1129117	0.063	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH49	QC3A	0 - 0.1	14 Aug 2024	EM2414005	0.0571	-	<0.0002	0.0014	<0.001	<0.0002	<0.0002	<0.0002	0.0002	0.0003	0.0004	<0.0002	<0.0005
SS07	SS07		09 Jul 2024	1117313	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS08	SS08		09 Jul 2024	1117313	0.42	<0.005	<0.005	0.014	<0.005	0.013	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	<0.005
SS09	SS09		09 Jul 2024	1117313	0.31	<0.005	<0.005	0.0091	<0.005	0.018	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS10	SS10		09 Jul 2024	1117313	11	0.026	0.017	0.16	0.012	0.0063	0.013	0.0078	0.046	<0.005	0.037	0.011	<0.005
SS11	SS11		09 Jul 2024	1117313	11	0.024	0.016	0.15	0.012	0.0055	0.011	0.0074	0.043	<0.005	0.035	0.011	<0.005
SS12	SS12		09 Jul 2024	1117313	0.036	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

					lkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								
					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)
					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					0.0002	0.005	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005
PFAS NEMP 2.0 2020 Ecological direct exposure					1										10		
PFAS NEMP 2.0 2020 Ecological indirect exposure					0.01												
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
SS13	SS13		09 Jul 2024	1117313	0.095	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure

					PFAS - Perfluoroalkyl Sulfonamide									PFAS - Fluorotelomer Sulfonic Acids			
					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/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					0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0005	0.0002	0.0005	0.0005	0.0005	0.0005
PFAS NEMP 2.0 2020 Ecological direct exposure																	
PFAS NEMP 2.0 2020 Ecological indirect exposure																	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
	BH13_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	0.0076	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH13	BH13_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH14_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	0.0051	0.017	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH14	BH14_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	0.0062	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH17_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	<0.005	0.018	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH17_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	QC03	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH17	QC03a	1.5 - 1.6	10 Apr 2024	EM2406055	<0.0002	0.0007	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
BH18	BH18_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	0.2	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH19_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	0.034	0.11	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.016	<0.005	<0.01	0.01
	BH19_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	0.0056	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	0.0077
BH19	BH19_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	<0.005	0.0086	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.025	<0.005
BH28	BH28_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	<0.005	0.0074	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	0.038	0.0055
	BH29_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	0.16	0.13	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH29	BH29_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.025	0.098	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH30_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.047	0.13	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	QC1	0 - 0.1	13 Aug 2024	1129117	0.036	0.16	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH30	QC1A	0 - 0.1	13 Aug 2024	EM2414005	0.0674	0.118	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
BH31	BH31_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH32	BH32_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH33_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.032	0.063	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH33_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	0.0077	0.02	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH33	BH33_0.9-1.0	0.9 - 1	13 Aug 2024	1134925	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH34_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.03	0.11	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH34_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	0.0088	0.026	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH34	BH34_0.9-1.0	0.9 - 1	13 Aug 2024	1134925	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH35_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.1	0.27	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.013	0.018	<0.005	<0.01	0.028
BH35	BH35_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	0.042	0.12	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0061	<0.005	<0.005	<0.01	0.014
BH36	BH36_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.18	0.13	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.035	<0.005	<0.01	0.011
BH37	BH37_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.0063	0.016	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH38	BH38_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	0.0063	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH39	BH39_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.023	0.11	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.0062	<0.005	<0.01	0.018
BH40	BH40_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.029	0.1	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.0053	<0.005	<0.01	<0.005
BH41	SS10/BH41_0.4-0.5	0.4 - 0.5	13 Aug 2024	1129117	0.0055	0.028	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH42	SS10/BH42_0.4-0.5	0.4 - 0.5	13 Aug 2024	1129117	0.018	0.041	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	0.011
BH43	BH43_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH44	BH44_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH45	BH45_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH46	BH46_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH47	BH47_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.19	0.81	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH48	BH48_0.2-0.3	0.2 - 0.3	13 Aug 2024	1129117	<0.005	0.019	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BH49_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	QC3	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
BH49	QC3A	0 - 0.1	14 Aug 2024	EM2414005	0.0005	0.0007	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
SS07	SS07		09 Jul 2024	1117313	<0.005	0.013	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SS08	SS08		09 Jul 2024	1117313	0.021	0.1	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.0067	<0.005	<0.01	<0.005
SS09	SS09		09 Jul 2024	1117313	0.13	0.34	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.042	<0.005	<0.01	<0.005
SS10	SS10		09 Jul 2024	1117313	0.2	0.23	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.036	0.026	<0.005	<0.01	0.0084
SS11	SS11		09 Jul 2024	1117313	0.17	0.21	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.036	0.029	<0.005	<0.01	0.0083
SS12	SS12		09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005

			PFAS - Perfluoroalkyl Sulfonamide							PFAS - Fluorotelomer Sulfonic Acids			
	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/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	0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0005	0.0002	0.0005	0.0005	0.0005	0.0005
PFAS NEMP 2.0 2020 Ecological direct exposure													
PFAS NEMP 2.0 2020 Ecological indirect exposure													

Location Code	Field ID	Depth	Date	Lab Report Number												
SS13	SS13		09 Jul 2024	1117313	<0.005	0.015	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure

					PFAS - Sums				
					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
EQL					0.0002	0.0002	0.005	0.0002	0.005
PFAS NEMP 2.0 2020 Ecological direct exposure									
PFAS NEMP 2.0 2020 Ecological indirect exposure									
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**					
	BH13_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
BH13	BH13_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.05	0.011	0.011	0.011	0.011
	BH14_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	0.0581	0.036	0.036	0.036	0.036
BH14	BH14_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.0522	0.03	0.03	0.03	0.03
	BH17_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	0.2509	0.1869	0.18	0.1869	0.1869
	BH17_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	0.24	0.12	0.11	0.12	0.12
	QC03	1.5 - 1.6	10 Apr 2024	1088156	0.2874	0.1474	0.1354	0.142	0.1474
BH17	QC03a	1.5 - 1.6	10 Apr 2024	EM2406055	0.284	0.122	-	0.111	-
BH18	BH18_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	1.0724	0.866	0.85	0.866	0.866
	BH19_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	1.2203	1.0142	0.976	0.992	0.998
	BH19_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	6.8658	6.7242	6.619	6.691	6.71
BH19	BH19_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.5994	0.4295	0.139	0.322	0.369
BH28	BH28_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	1.0422	1.0128	0.842	0.93	0.942
	BH29_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	1.3992	1.0504	0.9474	1.021	1.0284
BH29	BH29_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.6444	0.4738	0.43	0.468	0.468
	BH30_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.554	0.34	0.34	0.34	0.34
	QC1	0 - 0.1	13 Aug 2024	1129117	0.501	0.27	0.27	0.27	0.27
BH30	QC1A	0 - 0.1	13 Aug 2024	EM2414005	0.514	0.290	-	0.288	-
BH31	BH31_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.05	0.025	0.025	0.025	0.025
BH32	BH32_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.12	0.12	0.12	0.12	0.12
	BH33_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	1.4717	1.31	1.3	1.31	1.31
	BH33_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	1.8135	1.7308	1.7058	1.725	1.7308
BH33	BH33_0.9-1.0	0.9 - 1	13 Aug 2024	1134925	1.7574	1.6384	0.735	1.4	1.495
	BH34_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	1.661	1.414	1.4	1.414	1.414
	BH34_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	2.7358	2.497	2.414	2.483	2.497
BH34	BH34_0.9-1.0	0.9 - 1	13 Aug 2024	1134925	2.273	2.01	0.38	1.68	1.78
	BH35_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	8.3886	7.7695	7.628	7.683	7.711
BH35	BH35_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	11.3253	10.1842	8.96	9.9	10.06
BH36	BH36_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.7293	0.3478	0.3258	0.331	0.3368
BH37	BH37_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.1223	0.1	0.1	0.1	0.1
BH38	BH38_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.0673	0.061	0.061	0.061	0.061
BH39	BH39_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.4833	0.2571	0.2391	0.23	0.2391
BH40	BH40_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.4814	0.09	0.09	0.09	0.09
BH41	SS10/BH41_0.4-0.5	0.4 - 0.5	13 Aug 2024	1129117	0.6686	0.3866	0.229	0.33	0.369
BH42	SS10/BH42_0.4-0.5	0.4 - 0.5	13 Aug 2024	1129117	1.7016	1.322	0.812	1.17	1.252
BH43	BH43_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.05	<0.01	0.0073	0.0073	0.0073
BH44	BH44_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.05	0.01	0.01	0.01	0.01
BH45	BH45_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.05	0.023	0.023	0.023	0.023
BH46	BH46_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.05	<0.01	0.0095	0.0095	0.0095
BH47	BH47_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	1.175	0.11	0.11	0.11	0.11
BH48	BH48_0.2-0.3	0.2 - 0.3	13 Aug 2024	1129117	0.149	<0.01	<0.005	<0.005	<0.005
	BH49_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.063	0.063	0.063	0.063	0.063
	QC3	0 - 0.1	13 Aug 2024	1129117	0.063	0.063	0.063	0.063	0.063
BH49	QC3A	0 - 0.1	14 Aug 2024	EM2414005	0.0609	0.0591	-	0.0585	-
SS07	SS07		09 Jul 2024	1117313	0.153	0.14	0.14	0.14	0.14
SS08	SS08		09 Jul 2024	1117313	0.6297	0.434	0.42	0.434	0.434
SS09	SS09		09 Jul 2024	1117313	0.8765	0.3191	0.31	0.3191	0.3191
SS10	SS10		09 Jul 2024	1117313	11.9765	11.3032	11.037	11.16	11.197
SS11	SS11		09 Jul 2024	1117313	11.9112	11.2867	11.035	11.15	11.185
SS12	SS12		09 Jul 2024	1117313	<0.05	0.036	0.036	0.036	0.036

					PFAS - Sums				
					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
EQL					0.0002	0.0002	0.005	0.0002	0.005
PFAS NEMP 2.0 2020 Ecological direct exposure									
PFAS NEMP 2.0 2020 Ecological indirect exposure									
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**					
SS13	SS13		09 Jul 2024	1117313	0.11	0.095	0.095	0.095	0.095

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure

			Nutrients																
			Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Nitrogen (Organic)	Phosphorus (Total)	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)	Lead
			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
EQL			0.01	0.02	0.02	0.05	0.2	0.2	0.2	0.01	0.001	0.001	0.0001	0.0001	0.001	0.001	0.001	0.001	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																			
Field ID	**Date**	**Lab Report Number**																	
STMWTR_01	11 Jul 2024	1117313	<0.01	0.06	<0.02	-	-	-	-	-	-	<0.001	-	<0.0002	-	<0.001	-	0.006	-
STMWTR_02	11 Jul 2024	1117313	0.09	0.24	0.07	-	-	-	-	-	-	<0.001	-	<0.0002	-	0.001	-	0.016	-
STMWTR_03	11 Jul 2024	1117313	0.02	0.18	<0.02	-	-	-	-	-	-	<0.001	-	<0.0002	-	<0.001	-	0.004	-
SW01	12 Apr 2024	1088156	0.24	1.8	<0.02	1.8	2.3	0.5	0.26	0.16	0.001	-	<0.0002	-	<0.001	-	0.002	-	0.001
SW02	12 Apr 2024	1088156	0.26	1.7	<0.02	1.7	2.7	1.0	0.74	0.24	0.001	-	<0.0002	-	0.001	-	0.002	-	0.002
QC12	12 Apr 2024	1088156	0.14	0.42	<0.02	0.42	2.3	1.9	1.76	0.15	-	<0.001	-	<0.0002	-	<0.001	-	<0.001	-
QC12a	12 Apr 2024	EM2406055	-	-	-	-	-	-	-	-	-	<0.001	-	<0.0001	-	<0.001	-	0.002	-
SW03	12 Apr 2024	1088156	0.12	1.7	<0.02	1.8	3.0	1.2	1.08	0.17	<0.001	-	<0.0002	-	<0.001	-	0.002	-	0.001
SW04	12 Apr 2024	1088156	1.3	1.8	<0.02	1.8	3.3	1.5	0.2	0.04	0.001	-	<0.0002	-	<0.001	-	0.001	-	<0.001
SW05	12 Apr 2024	1088156	0.60	0.97	<0.02	0.97	2.1	1.1	0.5	0.06	0.001	-	<0.0002	-	<0.001	-	0.002	-	0.001
SW06	12 Apr 2024	1088156	0.17	1.1	<0.02	1.1	2.1	1.0	0.83	0.09	0.002	-	<0.0002	-	0.001	-	0.003	-	0.004
SW07	12 Apr 2024	1088156	0.12	1.1	<0.02	1.1	3.0	1.9	1.78	0.26	0.001	-	<0.0002	-	<0.001	-	0.001	-	0.002
SW08	11 Jul 2024	1117313	0.04	0.61	0.30	-	-	-	-	-	-	<0.001	-	<0.0002	-	0.002	-	0.003	-
SW09	11 Jul 2024	1117313	0.03	0.34	<0.02	-	-	-	-	-	-	<0.001	-	<0.0002	-	0.003	-	0.003	-
SW10	11 Jul 2024	1117313	<0.01	0.18	<0.02	-	-	-	-	-	-	<0.001	-	<0.0002	-	0.002	-	0.003	-
SW11	11 Jul 2024	1117313	0.04	0.11	<0.02	-	-	-	-	-	-	<0.001	-	<0.0002	-	0.002	-	0.004	-
SW12	11 Jul 2024	1117313	0.10	0.38	<0.02	-	-	-	-	-	-	<0.001	-	<0.0002	-	0.002	-	0.004	-
SW13	11 Jul 2024	1117313	0.05	0.20	<0.02	-	-	-	-	-	-	0.001	-	<0.0002	-	0.002	-	0.004	-
SW14	11 Jul 2024	1117313	<0.01	0.37	0.10	-	-	-	-	-	-	<0.001	-	<0.0002	-	0.002	-	0.004	-

Environmental Standards
National Health and Medical Research Council, January 2022, ADWG 2011 Health (v3.7 updated 2022)
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															
			Ammonia as N	Nitrate (as N)	Lead (filtered)	Mercury	Mercury (filtered)	Molybdenum	Molybdenum (filtered)	Nickel	Nickel (filtered)	Selenium	Selenium (filtered)	Silver	Silver (filtered)	Tin	Tin (filtered)	Zinc	Zinc (filtered)
			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
EQL			0.01	0.02	0.001	0.0001	0.0001	0.005	0.005	0.001	0.001	0.001	0.001	0.005	0.005	0.005	0.005	0.005	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																			
Field ID	**Date**	**Lab Report Number**																	
STMWTR_01	11 Jul 2024	1117313	<0.01	0.06	0.002	-	<0.0001	-	-	-	<0.001	-	-	-	-	-	-	-	0.053
STMWTR_02	11 Jul 2024	1117313	0.09	0.24	0.009	-	<0.0001	-	-	-	0.001	-	-	-	-	-	-	-	0.12
STMWTR_03	11 Jul 2024	1117313	0.02	0.18	0.002	-	<0.0001	-	-	-	<0.001	-	-	-	-	-	-	-	0.11
SW01	12 Apr 2024	1088156	0.24	1.8	-	<0.0001	-	<0.005	-	<0.001	-	0.003	-	<0.005	-	<0.005	-	0.007	-
SW02	12 Apr 2024	1088156	0.26	1.7	-	<0.0001	-	<0.005	-	0.001	-	0.003	-	<0.005	-	<0.005	-	0.010	-
QC12	12 Apr 2024	1088156	0.14	0.42	<0.001	-	<0.0001	-	<0.005	-	<0.001	-	0.003	-	<0.005	-	<0.005	-	<0.005
QC12a	12 Apr 2024	EM2406055	-	-	0.001	-	<0.0001	-	-	-	<0.001	-	-	-	-	-	-	-	0.015
SW03	12 Apr 2024	1088156	0.12	1.7	-	<0.0001	-	<0.005	-	<0.001	-	0.004	-	<0.005	-	<0.005	-	0.010	-
SW04	12 Apr 2024	1088156	1.3	1.8	-	<0.0001	-	<0.005	-	<0.001	-	0.004	-	<0.005	-	<0.005	-	0.007	-
SW05	12 Apr 2024	1088156	0.60	0.97	-	<0.0001	-	<0.005	-	<0.001	-	0.004	-	<0.005	-	<0.005	-	0.009	-
SW06	12 Apr 2024	1088156	0.17	1.1	-	<0.0001	-	<0.005	-	0.002	-	0.004	-	<0.005	-	<0.005	-	0.034	-
SW07	12 Apr 2024	1088156	0.12	1.1	-	<0.0001	-	<0.005	-	0.001	-	0.003	-	<0.005	-	<0.005	-	0.016	-
SW08	11 Jul 2024	1117313	0.04	0.61	0.002	-	<0.0001	-	-	-	<0.001	-	-	-	-	-	-	-	0.027
SW09	11 Jul 2024	1117313	0.03	0.34	0.005	-	<0.0001	-	-	-	<0.001	-	-	-	-	-	-	-	0.031
SW10	11 Jul 2024	1117313	<0.01	0.18	0.002	-	<0.0001	-	-	-	<0.001	-	-	-	-	-	-	-	0.031
SW11	11 Jul 2024	1117313	0.04	0.11	0.003	-	<0.0001	-	-	-	0.001	-	-	-	-	-	-	-	0.046
SW12	11 Jul 2024	1117313	0.10	0.38	0.003	-	<0.0001	-	-	-	0.001	-	-	-	-	-	-	-	0.039
SW13	11 Jul 2024	1117313	0.05	0.20	0.003	-	<0.0001	-	-	-	0.001	-	-	-	-	-	-	-	0.033
SW14	11 Jul 2024	1117313	<0.01	0.37	0.003	-	<0.0001	-	-	-	0.001	-	-	-	-	-	-	-	0.034

Environmental Standards
National Health and Medical Research Council, January 2022, ADWG 2011 Health (v3.7 updated 2022)
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 - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids						
	Ammonia as N	Nitrate (as N)	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	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	0.01	0.02	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
Field ID	**Date**	**Lab Report Number**															
STMWTR_01	11 Jul 2024	1117313	<0.01	0.06	0.007	<0.001	0.001	0.001	0.051	0.006	0.005	0.029	0.005	0.001	0.001	0.003	0.038	0.002	0.003
STMWTR_02	11 Jul 2024	1117313	0.09	0.24	<0.001	<0.001	<0.001	<0.001	0.0022	<0.001	<0.001	<0.001	<0.005	0.002	<0.001	0.006	0.002	<0.001	0.002
STMWTR_03	11 Jul 2024	1117313	0.02	0.18	0.001	<0.001	<0.001	<0.001	0.0040	<0.001	<0.001	0.002	<0.005	0.001	<0.001	<0.001	0.001	0.001	0.001
SW01	12 Apr 2024	1088156	0.24	1.8	0.003	<0.001	<0.001	<0.001	0.015	<0.001	0.001	0.014	0.010	<0.001	<0.001	0.005	0.011	0.002	0.009
SW02	12 Apr 2024	1088156	0.26	1.7	0.003	<0.001	<0.001	<0.001	0.018	<0.001	0.001	0.014	0.008	<0.001	<0.001	0.006	0.010	0.003	0.009
QC12	12 Apr 2024	1088156	0.14	0.42	0.003	<0.001	<0.001	<0.001	0.019	<0.001	0.001	0.0159	0.0083	<0.0005	<0.0005	0.0010	0.0037	0.0049	0.0043
QC12a	12 Apr 2024	EM2406055	-	-	0.0019	<0.0005	-	0.0008	0.0214	-	0.0023	0.014	<0.005	<0.001	<0.001	0.005	0.008	0.003	0.007
SW03	12 Apr 2024	1088156	0.12	1.7	0.003	<0.001	<0.001	<0.001	0.017	<0.001	0.001	0.016	<0.005	<0.001	<0.001	0.003	0.006	0.003	0.006
SW04	12 Apr 2024	1088156	1.3	1.8	0.002	<0.001	<0.001	<0.001	0.0042	<0.001	<0.001	0.004	0.006	<0.001	<0.001	0.004	0.008	<0.001	0.009
SW05	12 Apr 2024	1088156	0.60	0.97	0.003	<0.001	<0.001	<0.001	0.0041	<0.001	<0.001	0.004	<0.005	<0.001	<0.001	0.003	0.005	<0.001	0.006
SW06	12 Apr 2024	1088156	0.17	1.1	0.002	<0.001	<0.001	<0.001	0.0052	<0.001	<0.001	0.004	<0.005	<0.001	<0.001	0.003	0.005	<0.001	0.007
SW07	12 Apr 2024	1088156	0.12	1.1	0.002	<0.001	<0.001	<0.001	0.0042	<0.001	<0.001	0.005	<0.005	<0.001	<0.001	0.001	0.003	<0.001	0.004
SW08	11 Jul 2024	1117313	0.04	0.61	<0.001	<0.001	<0.001	<0.001	0.0025	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
SW09	11 Jul 2024	1117313	0.03	0.34	<0.001	<0.001	<0.001	<0.001	0.0026	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	0.001	<0.001	0.001
SW10	11 Jul 2024	1117313	<0.01	0.18	0.001	<0.001	<0.001	<0.001	0.0030	<0.001	<0.001	0.001	<0.005	<0.001	0.001	<0.001	0.001	<0.001	0.001
SW11	11 Jul 2024	1117313	0.04	0.11	<0.001	<0.001	<0.001	<0.001	0.0034	<0.001	<0.001	0.001	<0.005	<0.001	<0.001	<0.001	0.002	<0.001	0.001
SW12	11 Jul 2024	1117313	0.10	0.38	0.001	<0.001	<0.001	<0.001	0.0040	<0.001	<0.001	0.001	<0.005	0.001	<0.001	<0.001	0.002	<0.001	0.001
SW13	11 Jul 2024	1117313	0.05	0.20	0.001	<0.001	<0.001	<0.001	0.0040	<0.001	<0.001	0.001	<0.005	<0.001	0.001	<0.001	0.002	<0.001	0.001
SW14	11 Jul 2024	1117313	<0.01	0.37	0.001	<0.001	<0.001	<0.001	0.0040	<0.001	<0.001	0.001	<0.005	<0.001	0.001	<0.001	0.002	<0.001	0.001

Environmental Standards

National Health and Medical Research Council, January 2022, ADWG 2011 Health (v3.7 updated 2022)
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 - Perfluoroalkyl Sulfonamide							PFAS - Fluorotelomer Sulfonic Acids			
			Ammonia as N	Nitrate (as N)	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	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			0.01	0.02	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																			
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																			
PFAS NEMP 2.0 2020 Recreational Water																			
Field ID	**Date**	**Lab Report Number**																	
STMWTR_01	11 Jul 2024	1117313	<0.01	0.06	0.012	<0.001	0.002	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.001	<0.001	0.007	0.004
STMWTR_02	11 Jul 2024	1117313	0.09	0.24	0.022	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
STMWTR_03	11 Jul 2024	1117313	0.02	0.18	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW01	12 Apr 2024	1088156	0.24	1.8	0.013	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW02	12 Apr 2024	1088156	0.26	1.7	0.017	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
QC12	12 Apr 2024	1088156	0.14	0.42	<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
QC12a	12 Apr 2024	EM2406055	-	-	0.006	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW03	12 Apr 2024	1088156	0.12	1.7	0.009	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW04	12 Apr 2024	1088156	1.3	1.8	0.009	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW05	12 Apr 2024	1088156	0.60	0.97	0.008	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW06	12 Apr 2024	1088156	0.17	1.1	0.010	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW07	12 Apr 2024	1088156	0.12	1.1	0.007	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW08	11 Jul 2024	1117313	0.04	0.61	0.004	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW09	11 Jul 2024	1117313	0.03	0.34	0.002	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW10	11 Jul 2024	1117313	<0.01	0.18	0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW11	11 Jul 2024	1117313	0.04	0.11	0.002	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW12	11 Jul 2024	1117313	0.10	0.38	0.002	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW13	11 Jul 2024	1117313	0.05	0.20	0.002	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001
SW14	11 Jul 2024	1117313	<0.01	0.37	0.002	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001

Environmental Standards
National Health and Medical Research Council, January 2022, ADWG 2011 Health (v3.7 updated 2022)
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 - Sums				
	Ammonia as N	Nitrate (as N)	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/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.01	0.02	0.0002	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	
Field ID	**Date**	**Lab Report Number**							
STMWTR_01	11 Jul 2024	1117313	<0.01	0.06	0.187	0.159	0.054	**0.08**	0.083
STMWTR_02	11 Jul 2024	1117313	0.09	0.24	0.0362	0.0342	0.0042	0.0022	0.0042
STMWTR_03	11 Jul 2024	1117313	0.02	0.18	0.011	0.009	0.005	0.006	0.007
SW01	12 Apr 2024	1088156	0.24	1.8	0.083	0.08	0.024	0.029	0.038
SW02	12 Apr 2024	1088156	0.26	1.7	0.089	0.085	0.027	0.032	0.041
QC12	12 Apr 2024	1088156	0.14	0.42	0.0645	0.0565	-	0.0373	-
QC12a	12 Apr 2024	EM2406055	-	-	0.064	0.06	0.024	0.031	0.038
SW03	12 Apr 2024	1088156	0.12	1.7	0.066	0.062	0.025	0.035	0.041
SW04	12 Apr 2024	1088156	1.3	1.8	0.0462	0.0462	0.0132	0.0082	0.0172
SW05	12 Apr 2024	1088156	0.60	0.97	0.0331	0.0331	0.0101	0.0081	0.0141
SW06	12 Apr 2024	1088156	0.17	1.1	0.0362	0.0362	0.0122	0.0092	0.0162
SW07	12 Apr 2024	1088156	0.12	1.1	0.0262	0.0262	0.0082	0.0092	0.0132
SW08	11 Jul 2024	1117313	0.04	0.61	0.0075	0.0075	0.0035	0.0025	0.0035
SW09	11 Jul 2024	1117313	0.03	0.34	0.0066	0.0066	0.0036	0.0026	0.0036
SW10	11 Jul 2024	1117313	<0.01	0.18	0.009	0.008	0.004	0.004	0.005
SW11	11 Jul 2024	1117313	0.04	0.11	0.0094	0.0094	0.0044	0.0044	0.0054
SW12	11 Jul 2024	1117313	0.10	0.38	0.012	0.011	0.005	0.005	0.006
SW13	11 Jul 2024	1117313	0.05	0.20	0.012	0.011	0.005	0.005	0.006
SW14	11 Jul 2024	1117313	<0.01	0.37	0.012	0.011	0.005	0.005	0.006

Environmental Standards
National Health and Medical Research Council, January 2022, ADWG 2011 Health (v3.7 updated 2022)
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

					Misc.	Inorganics	Nutrients											
					% Moisture_	Moisture (%)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Nitrogen (Organic)	Phosphorus (Total)	Arsenic	Cadmium	Chromium (III+VI)
					%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					1	0.1	5	5	5	5	10	10	10	5	2	0.4	5
Human Health – Incidental ingestion during recreational use																	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
SED01	SED01		12 Apr 2024	1088156	39	-	-	-	-	-	-	-	-	-	-	-	-
SED02	SED02		12 Apr 2024	1088156	26	-	-	-	-	-	-	-	-	-	-	-	-
SED03	QC12		12 Apr 2024	1088156	18	-	38	<5	<5	<5	110	110	72	900	2.8	<0.4	8.0
SED03	QC12a		12 Apr 2024	EM2406055	-	17.1	-	-	-	-	-	-	-	-	-	-	-
SED03	SED03		12 Apr 2024	1088156	22	-	-	-	-	-	-	-	-	-	-	-	-
SED04	SED04		12 Apr 2024	1088156	31	-	-	-	-	-	-	-	-	-	-	-	-
SED05	SED05		12 Apr 2024	1088156	38	-	-	-	-	-	-	-	-	-	-	-	-
SED06	SED06		12 Apr 2024	1088156	30	-	-	-	-	-	-	-	-	-	-	-	-
SED07	SED07		12 Apr 2024	1088156	36	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

					Metals									PFAS - Perfluoroa			
					Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc	Perfluorobutane sulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorononane sulfonate (PFNS)	Perfluoroheptane sulfonic acid (PFHpS)
					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					5	5	0.1	5	5	2	2	10	5	0.0002	0.0002	0.005	0.0002
Human Health – Incidental ingestion during recreational use																	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
SED01	SED01		12 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SED02	SED02		12 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SED03	QC12		12 Apr 2024	1088156	5.4	39	0.3	<5	<5	<2	<2	<10	29	<0.005	<0.005	<0.005	<0.005
SED03	QC12a		12 Apr 2024	EM2406055	-	-	-	-	-	-	-	-	-	<0.0002	<0.0002	-	<0.0002
SED03	SED03		12 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SED04	SED04		12 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SED05	SED05		12 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SED06	SED06		12 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
SED07	SED07		12 Apr 2024	1088156	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

					lkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								
					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)
					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					0.0002	0.005	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005
Human Health – Incidental ingestion during recreational use					1			1							10		
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
SED01	SED01		12 Apr 2024	1088156	0.0059	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SED02	SED02		12 Apr 2024	1088156	<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
SED03	QC12		12 Apr 2024	1088156	<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
SED03	QC12a		12 Apr 2024	EM2406055	<0.0002	-	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
SED03	SED03		12 Apr 2024	1088156	<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
SED04	SED04		12 Apr 2024	1088156	<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
SED05	SED05		12 Apr 2024	1088156	<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
SED06	SED06		12 Apr 2024	1088156	<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
SED07	SED07		12 Apr 2024	1088156	<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

Environmental Standards

HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

					PFAS - Perfluoroalkyl Sulfonamide									PFAS - Fluorotelomer Sulfonic Acids			
					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/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					0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0005	0.0002	0.0005	0.0005	0.0005	0.0005
Human Health – Incidental ingestion during recreational use																	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
SED01	SED01		12 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SED02	SED02		12 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SED03	QC12		12 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SED03	QC12a		12 Apr 2024	EM2406055	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
SED03	SED03		12 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SED04	SED04		12 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SED05	SED05		12 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SED06	SED06		12 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
SED07	SED07		12 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

					PFAS - Sums				
					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
EQL					0.0002	0.0002	0.005	0.0002	0.005
Human Health – Incidental ingestion during recreational use								1	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**					
SED01	SED01		12 Apr 2024	1088156	<0.05	<0.01	0.0059	0.0059	0.0059
SED02	SED02		12 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
SED03	QC12		12 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
SED03	QC12a		12 Apr 2024	EM2406055	<0.0002	<0.0002	-	<0.0002	-
SED03	SED03		12 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
SED04	SED04		12 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
SED05	SED05		12 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
SED06	SED06		12 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005
SED07	SED07		12 Apr 2024	1088156	<0.05	<0.01	<0.005	<0.005	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

UCL Statistics for Uncensored Full Data Sets		
User Selected Options		
Date/Time of Computation	ProUCL 5.2 6/12/2024 3:08:52 AM	
From File	WorkSheet.xls	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

PFOS

General Statistics

Total Number of Observations	33	Number of Distinct Observations	25
		Number of Missing Observations	0
Minimum	0.005	Mean	0.362
Maximum	3.8	Median	0.03
SD	0.916	Std. Error of Mean	0.159
Coefficient of Variation	2.533	Skewness	3.274

Normal GOF Test

Shapiro Wilk Test Statistic	0.438	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.906	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.388	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.177	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.632	95% Adjusted-CLT UCL (Chen-1995)	0.721
		95% Modified-t UCL (Johnson-1978)	0.647

Gamma GOF Test

A-D Test Statistic	2.874	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.851	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.245	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.166	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.322	k star (bias corrected MLE)	0.313
Theta hat (MLE)	1.123	Theta star (bias corrected MLE)	1.156
nu hat (MLE)	21.25	nu star (bias corrected)	20.65
MLE Mean (bias corrected)	0.362	MLE Sd (bias corrected)	0.646
		Approximate Chi Square Value (0.05)	11.33
Adjusted Level of Significance	0.0419	Adjusted Chi Square Value	10.98

Assuming Gamma Distribution

95% Approximate Gamma UCL	0.659	95% Adjusted Gamma UCL	0.68

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.892	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.942	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.141	**Lilliefors Lognormal GOF Test**

55	10% Lilliefors Critical Value					0.139	Data Not Lognormal at 10% Significance Level					
56	**Data Not Lognormal at 10% Significance Level**											
57												
58	**Lognormal Statistics**											
59	Minimum of Logged Data					-5.298	Mean of logged Data					-3.135
60	Maximum of Logged Data					1.335	SD of logged Data					2.012
61												
62	**Assuming Lognormal Distribution**											
63	95% H-UCL					1.305	90% Chebyshev (MVUE) UCL					0.684
64	95% Chebyshev (MVUE) UCL					0.867	97.5% Chebyshev (MVUE) UCL					1.121
65	99% Chebyshev (MVUE) UCL					1.619						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data do not follow a Discernible Distribution**											
69												
70	**Nonparametric Distribution Free UCLs**											
71	95% CLT UCL					0.624	95% BCA Bootstrap UCL					0.758
72	95% Standard Bootstrap UCL					0.626	95% Bootstrap-t UCL					1.145
73	95% Hall's Bootstrap UCL					1.023	95% Percentile Bootstrap UCL					0.657
74	90% Chebyshev(Mean, Sd) UCL					0.84	95% Chebyshev(Mean, Sd) UCL					1.057
75	97.5% Chebyshev(Mean, Sd) UCL					1.357	99% Chebyshev(Mean, Sd) UCL					1.948
76												
77	**Suggested UCL to Use**											
78	95% Student's-t UCL					0.632						
79												
80	**The calculated UCLs are based on assumptions that the data were collected in a random and unbiased manner.**											
81	**Please verify the data were collected from random locations.**											
82	**If the data were collected using judgmental or other non-random methods,**											
83	**then contact a statistician to correctly calculate UCLs.**											
84												
85	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
86	Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.											
87	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
88												

Appendix G

Historic and Current Analytical Results Tables

		Misc.	PFAS - Perfluoroalkyl Sulfonic 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)
		%	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
PFAS NEMP 2.0 2020 Ecological direct exposure							1							
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites							0.14							
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)							20			20				
PFAS NEMP 2.0 2020 Public open space (HIL C)							1			1				
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)							2			2				
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)							0.01			0.01				
SA MFS Site Specific Criteria - Metropolitan (Staffed)														
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**											
BH01	BH01_0-0.13	0 - 0.13	19 Jul 2023	1010934	5.0	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH01_3.4-3.5	3.4 - 3.5	19 Jul 2023	1010934	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH02	BH02_0.35-0.45	0.35 - 0.45	19 Jul 2023	1010934	16	<0.005	<0.005	0.025	<0.005	3.6	<0.005	<0.005	0.078	<0.005	0.012	0.0076	0.0063
	BH02_2.7-2.8	2.7 - 2.8	19 Jul 2023	1010934	7.6	0.013	<0.005	<0.005	<0.005	<0.005	0.0059	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH04	BH04_0.4-0.5	0.4 - 0.5	20 Jul 2023	1010934	17	<0.005	<0.005	<0.005	<0.005	0.46	<0.005	<0.005	0.016	<0.005	0.013	<0.005	<0.005
	BH04_2.1-2.2	2.1 - 2.2	20 Jul 2023	1010934	7.5	<0.005	<0.005	<0.005	<0.005	0.029	<0.005	<0.005	0.019	<0.005	<0.005	<0.005	<0.005
BH05	BH05_0.12-0.2	0.12 - 0.2	20 Jul 2023	1010934	3.5	<0.005	<0.005	<0.005	<0.005	0.0099	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH05_1.8-1.9	1.8 - 1.9	20 Jul 2023	1010934	9.2	0.0052	<0.005	<0.005	<0.005	<0.005	<0.005	0.0053	0.0079	<0.005	<0.005	<0.005	<0.005
BH06	BH06_0.15-0.35	0.15 - 0.35	20 Jul 2023	1010934	2.8	<0.005	<0.005	<0.005	<0.005	0.13	<0.005	<0.005	0.015	<0.005	<0.005	<0.005	<0.005
	BH06_2.4-2.5	2.4 - 2.5	20 Jul 2023	1010934	8.3	<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	BH10_0.12-0.3	0.12 - 0.3	21 Jul 2023	1010934	1.6	<0.005	<0.005	<0.005	<0.005	0.054	<0.005	<0.005	0.0093	<0.005	<0.005	<0.005	<0.005
	BH10_1.0-1.1	1 - 1.1	21 Jul 2023	1010934	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
BH11	BH11_0.12-0.22	0.12 - 0.22	21 Jul 2023	1010934	4.3	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH11_1.5-1.6	1.5 - 1.6	21 Jul 2023	1010934	13	<0.005	<0.005	<0.005	<0.005	0.064	<0.005	<0.005	0.054	<0.005	<0.005	<0.005	<0.005
BH12	BH12_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	5.2	<0.005	<0.005	<0.005	<0.005	0.029	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH12_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	8.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005
BH15	BH15_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	23	0.0062	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	0.22	<0.005	<0.005	<0.005	0.0085
	BH15_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH16	BH16_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	9.9	<0.005	<0.005	<0.005	<0.005	0.081	<0.005	<0.005	0.058	<0.005	0.0083	<0.005	0.018
	BH16_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	10	<0.005	<0.005	<0.005	<0.005	0.081	<0.005	<0.005	0.0074	<0.005	0.0063	<0.005	<0.005
BH20	BH20_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	2.0	<0.005	<0.005	<0.005	<0.005	0.0094	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH20_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	9.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH21	BH21_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	2.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH21_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	14	<0.005	<0.005	<0.005	<0.005	0.057	<0.005	<0.005	0.0069	<0.005	0.027	<0.005	<0.005
	BH21_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.015
BH22	BH22_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	13	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	0.0067	0.016	<0.005	<0.005	<0.005	0.015
	BH22_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	9.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH23	BH23_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<1	<0.005	<0.005	<0.005	<0.005	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH23_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	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
BH24	BH24_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	3.1	<0.005	<0.005	<0.005	<0.005	0.0082	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH24_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	28	<0.005	<0.005	<0.005	0.0098	0.71	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005
BH26	BH26_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	5.5	<0.005	<0.005	<0.005	<0.005	0.13	<0.005	<0.005	0.0067	<0.005	0.012	0.017	<0.005
	BH26_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	9.1	<0.005	<0.005	<0.005	<0.005	1.6	<0.005	<0.005	0.025	<0.005	0.027	<0.005	0.0081
	BH26_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	13	<0.005	<0.005	<0.005	0.0063	0.4	<0.005	<0.005	0.024	<0.005	0.034	<0.005	0.0088
BH27	BH27_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	3.4	<0.005	0.012	0.011	<0.005	0.56	<0.005	<0.005	0.011	<0.005	0.0090	0.0086	<0.005
	BH27_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	11	<0.005	0.0052	0.045	<0.005	3.8	<0.005	<0.005	0.029	<0.005	<0.005	<0.005	0.0083
	BH27_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	29	<0.005	<0.005	<0.005	0.066	0.8	<0.005	<0.005	0.1	<0.005	<0.005	<0.005	<0.005
MW01	MW01_0.05-0.15	0.05 - 0.15	21 Jul 2023	1010934	<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
	MW01_10.0	10	04 Sep 2023	1023122	7.9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	MW01_15.0	15	04 Sep 2023	1023122	1.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	MW01_2.0-2.1	2 - 2.1	21 Jul 2023	1010934	8.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	MW01_20.0	20	04 Sep 2023	1023122	<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
	MW01_4.5-5.0	4.5 - 5	04 Sep 2023	1023122	7.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW02	MW02_0.12-0.32	0.12 - 0.32	21 Jul 2023	1010934	2.7	<0.005	<0.005	<0.005	<0.005	0.054	<0.005	<0.005	0.0079	<0.005	<0.005	<0.005	<0.005
	MW02_2.2-2.3	2.2 - 2.3	21 Jul 2023	1010934	10	<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	MW03_0.12-0.22	0.12 - 0.22	21 Jul 2023	1010934	3.9	<0.005	<0.005	<0.005	<0.005	0.073	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005
	MW03_3.4-3.5	3.4 - 3.5	21 Jul 2023	1010934	12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS01	SS01		21 Jul 2023	1010934	30	<0.005	<0.005	<0.005	<0.005	0.066	<0.005	<0.005	0.0068	<0.005	<0.005	<0.005	<0.005
SS02	SS02		21 Jul 2023	1010934	11	<0.005	<0.005	<0.005	<0.005	0.0064	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS03	SS03		04 Sep 2023	1023122	18	<0.005	<0.005	<0.005	<0.005	0.25	<0.005	<0.005	0.0053	<0.005	0.014	0.0084	<0.005

		Misc.	PFAS - Perfluoroalkyl Sulfonic 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)
		%	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
PFAS NEMP 2.0 2020 Ecological direct exposure							1							
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites							0.14							
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)							20			20				
PFAS NEMP 2.0 2020 Public open space (HIL C)							1			1				
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)							2			2				
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)							0.01			0.01				
SA MFS Site Specific Criteria - Metropolitan (Staffed)														
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**										
SS04	SS04		04 Sep 2023	1023122	6.7	<0.005	<0.005	<0.005	<0.005	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS05	SS05		04 Sep 2023	1023122	24	<0.005	<0.005	<0.005	<0.005	0.091	<0.005	<0.005	<0.005	<0.005	0.011	0.0098	<0.005
SS06	SS06		04 Sep 2023	1023122	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
SS14	SS14		09 Jul 2024	1117313	11	<0.005	<0.005	<0.005	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS15	SS15		09 Jul 2024	1117313	13	<0.005	<0.005	0.0096	<0.005	0.74	<0.005	<0.005	0.066	<0.005	0.016	0.0055	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

	PFAS - Perfluoroalkyl Carboxylic Acids							PFAS - Perfluoroalkyl Sulfonamide					
	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)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.01	0.005
PFAS NEMP 2.0 2020 Ecological direct exposure			10										
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites													
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)			50										
PFAS NEMP 2.0 2020 Public open space (HIL C)			10										
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)			20										
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)			0.1										
SA MFS Site Specific Criteria - Metropolitan (Staffed)			50										

Location Code	Field ID	Depth	Date	Lab Report Number													
BH01	BH01_0-0.13	0 - 0.13	19 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH01_3.4-3.5	3.4 - 3.5	19 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH02	BH02_0.35-0.45	0.35 - 0.45	19 Jul 2023	1010934	0.015	0.0054	0.024	<0.005	<0.005	0.072	0.37	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH02_2.7-2.8	2.7 - 2.8	19 Jul 2023	1010934	0.0064	0.091	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH04	BH04_0.4-0.5	0.4 - 0.5	20 Jul 2023	1010934	<0.005	0.0056	0.0079	<0.005	<0.005	0.016	0.21	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH04_2.1-2.2	2.1 - 2.2	20 Jul 2023	1010934	<0.005	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH05	BH05_0.12-0.2	0.12 - 0.2	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH05_1.8-1.9	1.8 - 1.9	20 Jul 2023	1010934	0.0058	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH06	BH06_0.15-0.35	0.15 - 0.35	20 Jul 2023	1010934	0.0060	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH06_2.4-2.5	2.4 - 2.5	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH10	BH10_0.12-0.3	0.12 - 0.3	21 Jul 2023	1010934	<0.005	0.024	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH10_1.0-1.1	1 - 1.1	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH11	BH11_0.12-0.22	0.12 - 0.22	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH11_1.5-1.6	1.5 - 1.6	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH12	BH12_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	0.0053	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH12_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH15	BH15_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.016	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH15_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH16	BH16_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.0076	0.033	0.027	<0.005	<0.005	0.037	0.28	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH16_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	<0.005	0.069	<0.005	<0.005	<0.005	<0.005	0.06	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH20	BH20_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	0.022	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH20_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH21	BH21_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH21_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	0.33	0.0057	<0.005	<0.005	0.047	0.34	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH21_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH22	BH22_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH22_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH23	BH23_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH23_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH24	BH24_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH24_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	0.057	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH26	BH26_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	0.17	0.055	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH26_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	0.011	0.007	0.012	0.0073	<0.005	0.017	0.62	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH26_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.0067	0.02	0.015	<0.005	<0.005	<0.005	0.39	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH27	BH27_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	<0.005	0.0058	0.0083	<0.005	<0.005	0.05	0.041	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH27_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	0.0050	0.022	0.018	<0.005	<0.005	0.0088	0.0085	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH27_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.0068	0.018	0.0079	<0.005	<0.005	<0.005	0.0053	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
MW01	MW01_0.05-0.15	0.05 - 0.15	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	MW01_10.0	10	04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	MW01_15.0	15	04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	MW01_2.0-2.1	2 - 2.1	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	MW01_20.0	20	04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	MW01_4.5-5.0	4.5 - 5	04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
MW02	MW02_0.12-0.32	0.12 - 0.32	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	MW02_2.2-2.3	2.2 - 2.3	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
MW03	MW03_0.12-0.22	0.12 - 0.22	21 Jul 2023	1010934	<0.005	0.06	<0.005	<0.005	<0.005	0.021	0.033	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	MW03_3.4-3.5	3.4 - 3.5	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS01	SS01		21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	0.067	0.054	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS02	SS02		21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	0.0076	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS03	SS03		04 Sep 2023	1023122	<0.005	0.0068	<0.005	<0.005	<0.005	0.21	0.079	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005

	PFAS - Perfluoroalkyl Carboxylic Acids							PFAS - Perfluoroalkyl Sulfonamide					
	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)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.01	0.005
PFAS NEMP 2.0 2020 Ecological direct exposure			10										
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites													
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)			50										
PFAS NEMP 2.0 2020 Public open space (HIL C)			10										
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)			20										
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)			0.1										
SA MFS Site Specific Criteria - Metropolitan (Staffed)			50										
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**									
SS04	SS04		04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.005	<0.005	0.1	0.038	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS05	SS05		04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.005	<0.005	0.33	0.049	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS06	SS06		04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0063	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS14	SS14		09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.005	<0.005	0.032	0.028	<0.005	<0.01	<0.005	<0.005	<0.01	0.0056
SS15	SS15		09 Jul 2024	1117313	0.0075	0.068	<0.005	<0.005	<0.005	0.19	0.45	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

					PFAS - Fluorotelomer Sulfonic Acids					PFAS - Sums				
					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
EQL					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 Industrial/ commercial (HIL D)													20	
PFAS NEMP 2.0 2020 Public open space (HIL C)													1	
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)													2	
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)													0.01	
SA MFS Site Specific Criteria - Metropolitan (Staffed)													14	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**										
BH01	BH01_0-0.13	0 - 0.13	19 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.013	0.013	0.013	0.013
	BH01_3.4-3.5	3.4 - 3.5	19 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH02	BH02_0.35-0.45	0.35 - 0.45	19 Jul 2023	1010934	<0.005	0.0081	<0.005	<0.01	0.033	4.2564	3.7563	3.624	3.678	3.702
	BH02_2.7-2.8	2.7 - 2.8	19 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	0.1163	0.0194	<0.005	<0.005	<0.005
BH04	BH04_0.4-0.5	0.4 - 0.5	20 Jul 2023	1010934	<0.005	0.011	<0.005	<0.01	0.029	0.7685	0.5129	0.4679	0.476	0.4839
	BH04_2.1-2.2	2.1 - 2.2	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	0.078	0.048	0.029	0.048	0.048
BH05	BH05_0.12-0.2	0.12 - 0.2	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	0.0099	0.0099	0.0099
	BH05_1.8-1.9	1.8 - 1.9	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.0189	<0.005	0.0079	0.0079
BH06	BH06_0.15-0.35	0.15 - 0.35	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	0.151	0.151	0.13	0.145	0.145
	BH06_2.4-2.5	2.4 - 2.5	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH10	BH10_0.12-0.3	0.12 - 0.3	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	0.0873	0.0633	0.054	0.0633	0.0633
	BH10_1.0-1.1	1 - 1.1	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH11	BH11_0.12-0.22	0.12 - 0.22	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	0.008	0.008	0.008
	BH11_1.5-1.6	1.5 - 1.6	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	0.118	0.118	0.064	0.118	0.118
BH12	BH12_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.029	0.029	0.029	0.029
	BH12_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	0.007	0.007
BH15	BH15_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	0.2857	0.2727	0.022	0.22	0.242
	BH15_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH16	BH16_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	0.0093	0.5592	0.2009	0.108	0.139	0.166
	BH16_1.0-1.1	1 - 1.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	0.2237	0.0884	0.081	0.0884	0.0884
BH20	BH20_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	0.0094	0.0094	0.0094
	BH20_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH21	BH21_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
	BH21_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	0.8136	0.0696	0.0627	0.0639	0.0696
	BH21_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.015	<0.005	<0.005	<0.005
BH22	BH22_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	0.0597	0.053	<0.005	0.016	0.016
	BH22_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH23	BH23_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.015	0.015	0.015	0.015
	BH23_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH24	BH24_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	0.0082	0.0082	0.0082
	BH24_1.5-1.6	1.5 - 1.6	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	0.7888	0.722	0.71	0.722	0.722
BH26	BH26_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	<0.005	0.085	<0.005	<0.01	0.01	0.4857	0.1467	0.13	0.1367	0.1367
	BH26_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	<0.005	0.014	<0.005	0.019	0.042	2.4094	1.7244	1.612	1.625	1.637
	BH26_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	<0.005	<0.005	<0.005	0.015	0.064	0.9838	0.5335	0.415	0.424	0.439
BH27	BH27_0.0-0.1	0 - 0.1	11 Apr 2024	1088156	<0.005	0.0078	<0.005	<0.01	0.027	0.7515	0.6063	0.5683	0.571	0.5793
	BH27_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	0.063	4.0128	3.9233	3.818	3.829	3.847
	BH27_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.01	<0.005	1.004	0.9147	0.8079	0.9	0.9079
MW01	MW01_0.05-0.15	0.05 - 0.15	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
	MW01_10.0	10	04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
	MW01_15.0	15	04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
	MW01_2.0-2.1	2 - 2.1	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
	MW01_20.0	20	04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
	MW01_4.5-5.0	4.5 - 5	04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
MW02	MW02_0.12-0.32	0.12 - 0.32	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	0.0619	0.0619	0.054	0.0619	0.0619
	MW02_2.2-2.3	2.2 - 2.3	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
MW03	MW03_0.12-0.22	0.12 - 0.22	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	0.199	0.085	0.073	0.085	0.085
	MW03_3.4-3.5	3.4 - 3.5	21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
SS01	SS01		21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	0.1938	0.0728	0.066	0.0728	0.0728
SS02	SS02		21 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	0.0064	0.0064	0.0064
SS03	SS03		04 Sep 2023	1023122	<0.005	0.01	<0.005	<0.01	<0.005	0.5835	0.2553	0.25	0.2553	0.2553

		PFAS - Fluorotelomer Sulfonic Acids				PFAS - Sums				
	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
EQL	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 Industrial/ commercial (HIL D)									20	
PFAS NEMP 2.0 2020 Public open space (HIL C)									1	
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)									2	
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)									0.01	
SA MFS Site Specific Criteria - Metropolitan (Staffed)									14	

Location Code	Field ID	Depth	Date	Lab Report Number									
SS04	SS04		04 Sep 2023	1023122	<0.005	0.0073	<0.005	<0.01	<0.005	0.1753	0.03	0.03	0.03	0.03
SS05	SS05		04 Sep 2023	1023122	<0.005	0.015	<0.005	<0.01	<0.005	0.5058	0.091	0.091	0.091	0.091
SS06	SS06		04 Sep 2023	1023122	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
SS14	SS14		09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.01	<0.005	0.0876	0.022	0.022	0.022	0.022
SS15	SS15		09 Jul 2024	1117313	<0.005	0.0099	<0.005	<0.01	<0.005	1.5625	0.8135	0.74	0.806	0.806

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

		Misc.	PFAS - Perfluoroalkyl Sulfonic 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)
		%	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
PFAS NEMP 2.0 2020 Ecological direct exposure							1							
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites							0.14							
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)							20			20				
PFAS NEMP 2.0 2020 Public open space (HIL C)							1			1				
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)							2			2				
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)							0.01			0.01				
SA MFS Site Specific Criteria - Metropolitan (Staffed)														
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**											
BH03	BH03_0.04-0.14	0.04 - 0.14	20 Jul 2023	1010934	<1	<0.005	<0.005	<0.005	<0.005	0.0100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH03_2.1-2.2	2.1 - 2.2	20 Jul 2023	1010934	12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH08	BH08_0.05-0.15	0.05 - 0.15	20 Jul 2023	1010934	<1	<0.005	<0.005	<0.005	<0.005	0.0064	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH08_0.35-0.45	0.35 - 0.45	20 Jul 2023	1010934	1.3	<0.005	<0.005	<0.005	<0.005	0.044	<0.005	<0.005	<0.005	0.0064	<0.005	<0.005	<0.005
	BH08_3.2-3.3	3.2 - 3.3	20 Jul 2023	1010934	6.5	<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	BH09_0-0.15	0 - 0.15	20 Jul 2023	1010934	12	<0.005	<0.005	0.0061	<0.005	0.35	<0.005	<0.005	<0.005	<0.005	<0.005	0.027	0.018	<0.005
	BH09_3.4-3.5	3.4 - 3.5	20 Jul 2023	1010934	12	<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
BH13	BH13_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	3.5	<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
	BH13_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	3.2	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH14	BH14_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	4.5	<0.005	<0.005	<0.005	<0.005	0.036	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BH14_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	6.0	<0.005	<0.005	<0.005	<0.005	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BH18	BH18_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	2.9	<0.005	<0.005	<0.005	<0.005	0.85	<0.005	<0.005	0.016	<0.005	<0.005	0.0064	<0.005	<0.005
BH19	BH19_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	4.6	<0.005	0.014	0.017	<0.005	0.97	<0.005	<0.005	0.022	<0.005	0.0095	0.0056	<0.005	<0.005
	BH19_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	8.8	<0.005	<0.005	<0.005	0.036	6.6	<0.005	<0.005	0.091	<0.005	<0.005	<0.005	<0.005	<0.005
	BH19_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	12	<0.005	<0.005	<0.005	0.0057	0.092	<0.005	0.0056	0.23	<0.005	<0.005	<0.005	0.014	
BH28	BH28_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	7.8	<0.005	<0.005	<0.005	0.01	0.83	<0.005	<0.005	0.1	<0.005	<0.005	<0.005	0.0052	
BH29	BH29_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	9.6	<0.005	<0.005	<0.005	0.0058	0.94	<0.005	<0.005	0.081	<0.005	0.0069	0.0081	<0.005	
	BH29_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	12	<0.005	<0.005	0.0054	0.0072	0.43	<0.005	<0.005	0.038	<0.005	<0.005	<0.005	<0.005	
BH30	BH30_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	14	<0.005	<0.005	<0.005	<0.005	0.34	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	
	QC1	0 - 0.1	13 Aug 2024	1129117	8.2	<0.005	<0.005	<0.005	<0.005	0.27	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	
BH31	BH31_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	7.9	<0.005	<0.005	<0.005	<0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
BH32	BH32_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	15	<0.005	<0.005	<0.005	<0.005	0.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
BH33	BH33_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	14	<0.005	0.015	0.035	<0.005	1.3	<0.005	<0.005	0.01	<0.005	0.01	<0.005	<0.005	
	BH33_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	14	<0.005	0.012	0.021	<0.005	1.7	<0.005	<0.005	0.025	<0.005	<0.005	<0.005	<0.005	
BH34	BH34_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	18	<0.005	0.017	0.064	<0.005	1.4	<0.005	<0.005	0.014	<0.005	0.017	<0.005	<0.005	
	BH34_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	17	<0.005	<0.005	0.011	0.043	2.4	<0.005	<0.005	0.083	<0.005	<0.005	<0.005	<0.005	
BH35	BH35_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	18	0.0085	0.015	0.066	0.041	7.6	0.0067	0.0052	0.083	<0.005	0.021	0.0052	<0.005	
	BH35_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	11	0.02	<0.005	<0.005	0.17	8.8	0.01	0.027	1.1	0.0074	0.016	<0.005	0.011	
BH36	BH36_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	13	<0.005	0.0073	0.0092	<0.005	0.32	<0.005	<0.005	0.011	<0.005	0.0100	0.01	<0.005	
BH37	BH37_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	16	<0.005	<0.005	<0.005	<0.005	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
BH38	BH38_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	13	<0.005	<0.005	<0.005	<0.005	0.061	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
BH39	BH39_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	12	<0.005	<0.005	<0.005	<0.005	0.23	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	
BH40	BH40_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	10	<0.005	<0.005	<0.005	<0.005	0.09	<0.005	<0.005	<0.005	<0.005	0.0071	<0.005	<0.005	
BH41	SS10/BH41_0.4-0.5	0.4 - 0.5	14 Aug 2024	1129117	12	<0.005	<0.005	<0.005	0.0085	0.19	<0.005	<0.005	0.14	<0.005	<0.005	<0.005	0.0085	
BH42	SS11/BH42_0.4-0.5	0.4 - 0.5	14 Aug 2024	1129117	14	0.014	<0.005	0.0066	0.034	0.73	<0.005	0.02	0.44	<0.005	<0.005	<0.005	0.011	
BH43	BH43_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	13	<0.005	<0.005	<0.005	<0.005	0.0073	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
BH44	BH44_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	10	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
BH45	BH45_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	11	<0.005	<0.005	<0.005	<0.005	0.023	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
BH46	BH46_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	7.5	<0.005	<0.005	<0.005	<0.005	0.0095	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
BH47	BH47_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	14	<0.005	<0.005	<0.005	<0.005	0.11	<0.005	<0.005	<0.005	<0.005	0.015	0.012	<0.005	
BH48	BH48_0.2-0.3	0.2 - 0.3	14 Aug 2024	1129117	17	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
BH49	BH49_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	17	<0.005	<0.005	<0.005	<0.005	0.063	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
	QC3	0 - 0.1	14 Aug 2024	1129117	16	<0.005	<0.005	<0.005	<0.005	0.063	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
SS07	SS07		09 Jul 2024	1117313	6.9	<0.005	<0.005	<0.005	<0.005	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
SS08	SS08		09 Jul 2024	1117313	15	<0.005	0.016	0.027	<0.005	0.42	<0.005	<0.005	0.014	<0.005	0.013	<0.005	<0.005	

		Misc.	PFAS - Perfluoroalkyl Sulfonic 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)
		%	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
PFAS NEMP 2.0 2020 Ecological direct exposure							1							
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites							0.14							
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)							20			20				
PFAS NEMP 2.0 2020 Public open space (HIL C)							1			1				
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)							2			2				
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)							0.01			0.01				
SA MFS Site Specific Criteria - Metropolitan (Staffed)														
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**										
SS09	SS09		09 Jul 2024	1117313	19	<0.005	0.0089	0.0075	<0.005	0.31	<0.005	<0.005	0.0091	<0.005	0.018	0.011	<0.005
SS10	SS10		09 Jul 2024	1117313	12	0.021	0.021	0.098	<0.015	11	0.026	0.017	0.16	0.012	0.0063	0.013	0.0078
SS11	SS11		09 Jul 2024	1117313	8.0	0.02	0.023	0.1	<0.015	11	0.024	0.016	0.15	0.012	0.0055	0.011	0.0074
SS12	SS12		09 Jul 2024	1117313	18	<0.005	<0.005	<0.005	<0.005	0.036	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SS13	SS13		09 Jul 2024	1117313	16	<0.005	<0.005	<0.005	<0.005	0.095	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

	PFAS - Perfluoroalkyl Carboxylic Acids							PFAS - Perfluoroalkyl Sulfonamide					
	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)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.01	0.005
PFAS NEMP 2.0 2020 Ecological direct exposure			10										
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites													
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)			50										
PFAS NEMP 2.0 2020 Public open space (HIL C)			10										
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)			20										
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)			0.1										
SA MFS Site Specific Criteria - Metropolitan (Staffed)			50										
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**									
BH03	BH03_0.04-0.14	0.04 - 0.14	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH03_2.1-2.2	2.1 - 2.2	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH08	BH08_0.05-0.15	0.05 - 0.15	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH08_0.35-0.45	0.35 - 0.45	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0085	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH08_3.2-3.3	3.2 - 3.3	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH09	BH09_0-0.15	0 - 0.15	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	0.0050	0.14	0.077	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH09_3.4-3.5	3.4 - 3.5	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH13	BH13_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0076	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH13_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	0.0070	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH14	BH14_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	0.0051	0.017	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH14_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	0.016	<0.005	<0.005	<0.005	<0.005	0.0062	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH18	BH18_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.2	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH19	BH19_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	0.0062	<0.005	0.006	<0.005	<0.005	0.034	0.11	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH19_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	0.0065	0.1	0.019	<0.005	<0.005	<0.005	0.0056	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH19_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.012	0.15	0.047	0.0095	<0.005	<0.005	0.0086	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH28	BH28_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	0.016	0.012	0.012	0.0061	<0.005	<0.005	0.0074	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH29	BH29_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	0.022	0.038	0.0074	<0.005	<0.005	0.16	0.13	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH29_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	0.0058	0.035	<0.005	<0.005	<0.005	0.025	0.098	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH30	BH30_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	0.026	<0.005	<0.005	<0.005	0.047	0.13	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	QC1	0 - 0.1	13 Aug 2024	1129117	<0.005	0.025	<0.005	<0.005	<0.005	0.036	0.16	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH31	BH31_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH32	BH32_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH33	BH33_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	0.0067	<0.005	<0.005	<0.005	0.032	0.063	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH33_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	<0.005	0.022	0.0058	<0.005	<0.005	0.0077	0.02	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH34	BH34_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	0.0090	<0.005	<0.005	<0.005	0.03	0.11	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH34_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	<0.005	0.15	0.014	<0.005	<0.005	0.0088	0.026	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH35	BH35_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.022	0.058	0.028	<0.005	<0.005	0.1	0.27	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	BH35_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	0.062	0.75	0.16	0.0098	<0.005	0.042	0.12	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH36	BH36_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	0.0058	<0.005	<0.005	0.18	0.13	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH37	BH37_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	0.0063	0.016	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH38	BH38_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0063	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH39	BH39_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	0.075	0.0091	<0.005	<0.005	0.023	0.11	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH40	BH40_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	0.25	<0.005	<0.005	<0.005	0.029	0.1	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH41	SS10/BH41_0.4-0.5	0.4 - 0.5	14 Aug 2024	1129117	0.0091	0.24	0.039	<0.005	<0.005	0.0055	0.028	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH42	SS11/BH42_0.4-0.5	0.4 - 0.5	14 Aug 2024	1129117	0.034	0.26	0.082	<0.005	<0.005	0.018	0.041	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH43	BH43_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH44	BH44_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH45	BH45_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH46	BH46_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH47	BH47_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	0.038	<0.005	<0.005	<0.005	0.19	0.81	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH48	BH48_0.2-0.3	0.2 - 0.3	14 Aug 2024	1129117	<0.005	0.13	<0.005	<0.005	<0.005	<0.005	0.019	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
BH49	BH49_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
	QC3	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS07	SS07		09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS08	SS08		09 Jul 2024	1117313	<0.005	0.012	<0.005	<0.005	<0.005	0.021	0.1	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005

	PFAS - Perfluoroalkyl Carboxylic Acids							PFAS - Perfluoroalkyl Sulfonamide					
	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)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.01	0.005
PFAS NEMP 2.0 2020 Ecological direct exposure			10										
PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites													
PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)			50										
PFAS NEMP 2.0 2020 Public open space (HIL C)			10										
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)			20										
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)			0.1										
SA MFS Site Specific Criteria - Metropolitan (Staffed)			50										
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**													
SS09	SS09		09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.005	<0.005	0.13	0.34	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS10	SS10		09 Jul 2024	1117313	0.046	<0.005	0.037	0.011	<0.005	0.2	0.23	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS11	SS11		09 Jul 2024	1117313	0.043	<0.005	0.035	0.011	<0.005	0.17	0.21	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS12	SS12		09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005
SS13	SS13		09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.015	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

					PFAS - Fluorotelomer Sulfonic Acids					PFAS - Sums				
					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
EQL					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 Industrial/ commercial (HIL D)													20	
PFAS NEMP 2.0 2020 Public open space (HIL C)													1	
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)													2	
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)													0.01	
SA MFS Site Specific Criteria - Metropolitan (Staffed)													14	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**										
BH03	BH03_0.04-0.14	0.04 - 0.14	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.01	0.01	0.01	0.01
	BH03_2.1-2.2	2.1 - 2.2	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH08	BH08_0.05-0.15	0.05 - 0.15	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	0.0064	0.0064	0.0064
	BH08_0.35-0.45	0.35 - 0.45	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	0.0589	0.0504	0.044	0.0504	0.0504
	BH08_3.2-3.3	3.2 - 3.3	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH09	BH09_0-0.15	0 - 0.15	20 Jul 2023	1010934	<0.005	0.38	<0.005	<0.01	0.043	1.0461	0.393	0.35	0.35	0.35
	BH09_3.4-3.5	3.4 - 3.5	20 Jul 2023	1010934	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
BH13	BH13_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	<0.005	<0.005	<0.005
	BH13_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.011	0.011	0.011	0.011
BH14	BH14_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	0.0581	0.036	0.036	0.036	0.036
	BH14_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	0.0522	0.03	0.03	0.03	0.03
BH18	BH18_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	1.0724	0.866	0.85	0.866	0.866
BH19	BH19_0.0-0.1	0 - 0.1	10 Apr 2024	1088156	<0.005	0.016	<0.005	<0.01	0.01	1.2203	1.0142	0.976	0.992	0.998
	BH19_0.4-0.5	0.4 - 0.5	10 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	0.0077	6.8658	6.7242	6.619	6.691	6.71
	BH19_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	<0.005	<0.005	<0.005	0.025	<0.005	0.5994	0.4295	0.139	0.322	0.369
BH28	BH28_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	<0.005	<0.005	<0.005	0.038	0.0055	1.0422	1.0128	0.842	0.93	0.942
BH29	BH29_0.4-0.5	0.4 - 0.5	11 Apr 2024	1088156	<0.005	<0.005	<0.005	<0.01	<0.005	1.3992	1.0504	0.9474	1.021	1.0284
	BH29_1.0-1.1	1 - 1.1	09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.01	<0.005	0.6444	0.4738	0.43	0.468	0.468
BH30	BH30_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	0.554	0.34	0.34	0.34	0.34
	QC1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	0.501	0.27	0.27	0.27	0.27
BH31	BH31_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.025	0.025	0.025	0.025
BH32	BH32_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	0.12	0.12	0.12	0.12	0.12
BH33	BH33_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	1.4717	1.31	1.3	1.31	1.31
	BH33_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	<0.005	<0.005	<0.005	<0.01	<0.005	1.8135	1.7308	1.7058	1.725	1.7308
BH34	BH34_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	1.661	1.414	1.4	1.414	1.414
	BH34_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	<0.005	<0.005	<0.005	<0.01	<0.005	2.7358	2.497	2.414	2.483	2.497
BH35	BH35_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	0.013	0.018	<0.005	<0.01	0.028	8.3886	7.7695	7.628	7.683	7.711
	BH35_0.4-0.5	0.4 - 0.5	13 Aug 2024	1132369	0.0061	<0.005	<0.005	<0.01	0.014	11.3253	10.1842	8.96	9.9	10.06
BH36	BH36_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	0.035	<0.005	<0.01	0.011	0.7293	0.3478	0.3258	0.331	0.3368
BH37	BH37_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	0.1223	0.1	0.1	0.1	0.1
BH38	BH38_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	0.0673	0.061	0.061	0.061	0.061
BH39	BH39_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	0.0062	<0.005	<0.01	0.018	0.4833	0.2571	0.2391	0.23	0.2391
BH40	BH40_0.0-0.1	0 - 0.1	13 Aug 2024	1129117	<0.005	0.0053	<0.005	<0.01	<0.005	0.4814	0.09	0.09	0.09	0.09
BH41	SS10/BH41_0.4-0.5	0.4 - 0.5	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	0.6686	0.3866	0.229	0.33	0.369
BH42	SS11/BH42_0.4-0.5	0.4 - 0.5	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	0.011	1.7016	1.322	0.812	1.17	1.252
BH43	BH43_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	0.0073	0.0073	0.0073
BH44	BH44_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.01	0.01	0.01	0.01
BH45	BH45_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.023	0.023	0.023	0.023
BH46	BH46_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.01	0.0095	0.0095	0.0095
BH47	BH47_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	1.175	0.11	0.11	0.11	0.11
BH48	BH48_0.2-0.3	0.2 - 0.3	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	0.149	<0.01	<0.005	<0.005	<0.005
BH49	BH49_0.0-0.1	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	0.063	0.063	0.063	0.063	0.063
	QC3	0 - 0.1	14 Aug 2024	1129117	<0.005	<0.005	<0.005	<0.01	<0.005	0.063	0.063	0.063	0.063	0.063
SS07	SS07		09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.01	<0.005	0.153	0.14	0.14	0.14	0.14
SS08	SS08		09 Jul 2024	1117313	<0.005	0.0067	<0.005	<0.01	<0.005	0.6297	0.434	0.42	0.434	0.434

		PFAS - Fluorotelomer Sulfonic Acids				PFAS - Sums				
	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
EQL	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 Industrial/ commercial (HIL D)									20	
PFAS NEMP 2.0 2020 Public open space (HIL C)									1	
PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)									2	
PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)									0.01	
SA MFS Site Specific Criteria - Metropolitan (Staffed)									14	
Location Code	**Field ID**	**Depth**	**Date**	**Lab Report Number**										
SS09	SS09		09 Jul 2024	1117313	<0.005	0.042	<0.005	<0.01	<0.005	0.8765	0.3191	0.31	0.3191	0.3191
SS10	SS10		09 Jul 2024	1117313	0.036	0.026	<0.005	<0.01	0.0084	11.9765	11.3032	11.037	11.16	11.197
SS11	SS11		09 Jul 2024	1117313	0.036	0.029	<0.005	<0.01	0.0083	11.9112	11.2867	11.035	11.15	11.185
SS12	SS12		09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	0.036	0.036	0.036	0.036
SS13	SS13		09 Jul 2024	1117313	<0.005	<0.005	<0.005	<0.01	<0.005	0.11	0.095	0.095	0.095	0.095

Environmental Standards
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological direct exposure
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Ecological indirect exposure – Developed sites
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Industrial/ commercial (HIL D)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Public open space (HIL C)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential w/ min opportunities for soil access (HIL B)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Residential with garden/accessible soil (HIL A)
28/06/2023, SA MFS Site Specific Criteria - Metropolitan (Staffed)

Appendix H

Laboratory Reports

eurofins | Environment Testing

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

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

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

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

Eurofins ProMicro Pty Ltd

ABN: 47 009 120 549

Perth ProMicro
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2561
Site# 2554

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

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

Sample Receipt Advice

Company name:	GHD Pty Ltd SA
Contact name:	Angus Robinson
Project name:	MFS Christie Downs Supp DSI
Project ID:	12639293
Turnaround time:	5 Day
Date/Time received	Apr 16, 2024 11:38 AM
Eurofins reference	1088156

Sample Information

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

Notes

BH19_1.5-1.6 RECD AS BH19_1.4-1.5| QC12 SPLIT INTO TWO SAMPLES BASED ON MATRIX

Contact

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

Amy Meunier on phone : or by email: AmyMeunier@eurofins.com

Results will be delivered electronically via email to Angus Robinson - angus.robinson@ghd.com.

Note: A copy of these results will also be delivered to the general GHD Pty Ltd SA email address.

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 6000 EnviroSampleVic@eurofins.com

Company	GHD	Project №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman
Handed over by	Terrence Wilson
Email for Invoice	accountspayableAU@ghd.com ben.petti
Email for Results	

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

№	Client Sample ID	Sampled Date/Time (dd/mm/yy hh:mm)	Matrix Soils (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD	Containers (Change container type & size if necessary) 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
	BH12_0.0-0.1	10/4/24	S	X											1		
	BH12_0.4-0.5	10/4/24	S	X											1		
	BH12_1.0-1.1	10/4/24	S					X							1		
	BH12_1.5-1.6	10/4/24	S					X							1		
	BH12_1.9-2.0	10/4/24	S					X							1		
	BH13_0.0-0.1	10/4/24	S	X											1		
	BH13_0.4-0.5	10/4/24	S	X											1		
	BH13_1.0-1.1	10/4/24	S					X							1		
	BH13_1.5-1.6	10/4/24	S					X							1		
	BH13_1.9-2.0	10/4/24	S					X							1		
	BH14_0.0-0.1	10/4/24	S	X											1		
	BH14_0.4-0.5	10/4/24	S	X											1		
	BH14_1.0-1.1	10/4/24	S					X							1		
	BH14_1.5-1.6	10/4/24	S					X							1		
	Total Counts			6				8							1		

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 days*
- ☑ 5 days (Standard)
- ☐ Other( )

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name		Signature		Date		Time	
Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | ORW	Signature		Date		Time		Temperature	
	Received By		SYD | BNE | MEL | PER | ADL | NTL | ORW	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.

QSD009_R10 Modified by: Dr. R Symons Approved by: G. Jackson Approved on: 8 August 2019

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 №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MF8 Christie Downs Supp DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman
Handed over by	Terrence Wilson
Email for Invoice	accountspayableAU@ghd.com ben.petti
Email for Results	

Analyses (Where metals are requested please specify "Total" or "Dissolved"; 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 days*
☑ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time (dd:mm:yy hh:mm)	Matrix Soils (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	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
	BH14_1.9-2.0	10/4/24	S					X							1		
	BH16_0.0-0.1	10/4/24	S					X							1		
	BH16_0.4-0.5	10/4/24	S	X											1		
	BH16_1.0-1.1	10/4/24	S	X											1		
	BH16_1.5-1.6	10/4/24	S					X							1		
	BH16_1.9-2.0	10/4/24	S					X							1		
	BH17_0.0-0.1	10/4/24	S					X							1		
	BH17_0.4-0.5	10/4/24	S					X							1		
	BH17_1.0-1.1	10/4/24	S	X											1		
	BH17_1.5-1.6	10/4/24	S	X											1		
	BH17_1.9-2.0	10/4/24	S					X							1		
	BH18_0.0-0.1	10/4/24	S					X							1		
	BH18_0.2-0.3	10/4/24	S					X							1		
	BH18_0.4-0.5	10/4/24	S	X											1		
	Total Counts			5				9							14		

Method of Shipment: ☐ Courier (#) ☐ Hand Delivered ☐ Postal | Name | Signature | Date | Time

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.

GS3001_R10 Modified by: Dr. R Symons Approved by: G. Jackson Approved on: 5 August 2019

CHAIN OF CUSTODY RECORD

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☐ 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 №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman	
Handed over by	Terrence Wilson	
Email for Invoice	accountspayableAU@ghd.com ben.petti	
Email for Results		

Analyses
Where metals are requested, please specify "Total" or "Filtered". SUITE codes must be used to request SUITE pricing

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	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
	BH15_0.0-0.1	10/4/24	S					X							1		
	BH15_0.4-0.5	10/4/24	S	X											1		
	BH15_1.0-1.1	10/4/24	S	X											1		
	BH15_1.5-1.6	10/4/24	S					X							1		
	BH15_1.9-2.0	10/4/24	S					X							1		
	Total Counts			2				3							5		

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 days*
- ☑ 5 days (Standard)
- ☐ Other( )

Method of Shipment: ☐ Courier (#) ☐ Hand Delivered ☐ Postal | Name | Signature | Date | Time

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.

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 №**	12629293	**Project Manager**	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	**Project Name**	MFS Christie Downs Supp DSI	**EDD Format** ESdat, EQuIS etc	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman
Handed over by	Terrence Wilson
Email for Invoice	accountspayableAU@ghd.com ben.petti
Email for Results	

Analyses (Where metals are required, please specify "Total" or "Filtered". SUITE code must be used for all full SUITE orders)

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD	Containers: 500mL Plastic	250mL Plastic	125mL Plastic	250mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	BH19_0.0-0.1	10/4/24	S	X											1		
	BH19_0.4-0.5	10/4/24	S	X											1		
	BH19_1.0-1.1	10/4/24	S					X							1		
	BH19_1.5-1.6	10/4/24	S					X							1		
	BH20_0.0-0.1	10/4/24	S	X											1		
	BH20_0.4-0.5	10/4/24	S	X											1		
	BH20_1.0-1.1	10/4/24	S					X							1		
	BH20_1.5-1.6	10/4/24	S					X							1		
	BH20_1.9-2.0	10/4/24	S					X							1		
	BH21_0.0-0.1	10/4/24	S	X											1		
	BH21_0.4-0.5	10/4/24	S	X											1		
	BH21_1.0-1.1	10/4/24	S					X							1		
	BH21_1.5-1.6	10/4/24	S	X											1		
	BH21_1.9-2.0	10/4/24	S					X							1		
	Total Counts			7				7							14		

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 days*
- ☑ 5 days (Standard)
- ☐ Other( )

Method of Shipment ☐ Courier (#) ☐ Hand Delivered ☐ Postal Name Signature Date Time

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.

QS3009_R10 Modified by: Dr. R Symons Approved by: G. Jackson Approved on: 8 August 2019

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 №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman	
Handed over by	Terrence Wilson	
Email for Invoice	accountspayableAU@ghd.com ben.petti	
Email for Results		

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

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD
	BH22_0.0-0.1	10/4/24	S					X
	BH22_0.4-0.5	10/4/24	S	X				
	BH22_1.0-1.1	10/4/24	S					X
	BH22_1.5-1.6	10/4/24	S	X				
	BH22_1.9-2.0	10/4/24	S					X
	BH23_0.0-0.1	10/4/24	S					X
	BH23_0.4-0.5	10/4/24	S	X				
	BH23_1.0-1.1	10/4/24	S					X
	BH23_1.5-1.6	10/4/24	S	X				
	BH23_1.9-2.0	10/4/24	S					X
	BH24_0.0-0.1	10/4/24	S					X
	BH24_0.4-0.5	10/4/24	S	X				
	BH24_1.0-1.1	10/4/24	S					X
	BH24_1.5-1.6	10/4/24	S	X				
	Total Counts			6				8

Containers
Change container type & size if necessary.

500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)
						1	
						1	
						1	
						1	
						1	
						1	
						1	
						1	
						1	
						1	
						1	
						1	
						1	
						1	
						14	

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 days*
☑ 5 days (Standard)
☐ Other( )

Sample Comments / Dangerous Goods Hazard Warning

Method of Shipment ☐ Courier (#) ☐ Hand Delivered ☐ Postal Name Signature Date Time

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.

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 №**	12639293	**Project Manager**	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	**Project Name**	MF8 Christie Downs Supp DSI	**EDD Format** ESdat, EQuIS etc	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman	
Handed over by	Terrence Wilson	
Email for Invoice	accountspayableAU@ghd.com ben.pettl	
Email for Results		

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

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Soils (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	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
	BH24_1.9-2.0	10/4/24	S					X							1		
	BH25_0.0-0.1	10/4/24	S					X							1		
	BH25_0.4-0.5	10/4/24	S					X							1		
	BH25_1.0-1.1	10/4/24	S					X							1		
	BH25_1.5-1.6	10/4/24	S	X											1		
	BH25_1.9-2.0	10/4/24	S	X											1		
	BH26_0.0-0.1	11/4/24	S	X											1		
	BH26_0.4-0.5	11/4/24	S	X											1		
	BH26_1.0-1.1	11/4/24	S					X							1		
	BH26_1.5-1.6	11/4/24	S					X							1		
	BH26_1.9-2.0	11/4/24	S					X							1		
	BH27_0.0-0.1	11/4/24	S	X											1		
	BH27_0.4-0.5	11/4/24	S	X											1		
	BH27_1.0-1.1	11/4/24	S					X							1		
	Total Counts			6				6							14		

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 days*
- ☑ 5 days (Standard)
- ☐ Other( )

Method of Shipment ☐ Courier (#) ☐ Hand Delivered ☐ Postal Name Signature Date Time

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.

EQS0508_R10 Modified by: Dr. R Symons Approved by: G. Jackson Approved on: 8 August 2019

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 №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman	
Handed over by	Terrence Wilson	
Email for Invoice	accountspayableAU@ghd.com ben.petti	
Email for Results		

Analyses (Where metals are required, please specify "Total" or "Filtered". SUITE code must be used to select SUITE analysis.)

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD	Containers: 500mL Plastic	250mL Plastic	125mL Plastic (metals)	125mL Plastic (inorganics)	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	BH27_1.5-1.6	11/4/24	S					X							1		
	BH27_1.9-2.0	11/4/24	S					X							1		
	BH28_0.0-0.1	11/4/24	S					X							1		
	BH28_0.4-0.5	11/4/24	S	X											1		
	BH28_1.0-1.1	11/4/24	S					X							1		
	BH28_1.5-1.6	11/4/24	S					X							1		
	BH28_1.9-2.0	11/4/24	S					X							1		
	BH29_0.0-0.1	11/4/24	S					X							1		
	BH29_0.4-0.5	11/4/24	S	X											1		
	BH29_1.0-1.1	11/4/24	S					X							1		
	BH29_1.5-1.6	11/4/24	S					X							1		
	BH29_1.9-2.0	11/4/24	S					X							1		
	SW01	12/4/24	W		X	X	X				1	1		1			Not filtered in field
	SED01	12/4/24	S	X											1		
	Total Counts			3	1	1	1	10			1	1		1	13		

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 days*
- ☑ 5 days (Standard)
- ☐ Other( )

Method of Shipment	☐ Courier (#) ☐ Hand Delivered ☐ Postal	Name		Signature		Date		Time	
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.

QSD059_R10 Modified by: Dr. R Symons Approved by: Q. Jackson Approved on: 8 August 2019

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 №**	12639293	**Project Manager**	Angus Robinson
Address	Level 4, 211 Victoria Square. Adelaide	**Project Name**	MFS Christie Downs Supp DSI	**EDD Format** (Excel, ESdat etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman	
Handed over by	Terrence Wilson	
Email for Invoice	accountspayableAU@ghd.com ben.petti	
Email for Results		

Analyses (Where metals are required, please specify "Total" or "Filtered". SUITE codes must be used to ensure SUITE pricing.)

Containers (Change container type & size if necessary.)

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

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

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD	500mL Plastic	250mL Plastic	125mL Plastic (metals)	125mL Plastic (inorganics)	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	SW02	12/4/24	W		X	X	X				1	1		1			Not filtered in field
	SED02	12/4/24	S	X											1		
	SW03	12/4/24	W		X	X	X				1	1		1			Not filtered in field
	SED03	12/4/24	S	X											1		
	SW04	12/4/24	W		X	X	X				1	1		1			Not filtered in field
	SED04	12/4/24	S	X											1		
	SW05	12/4/24	W		X	X	X				1	1		1			Not filtered in field
	SED05	12/4/24	S	X											1		
	SW06	12/4/24	W		X	X	X				1	1		1			Not filtered in field
	SED06	12/4/24	S	X											1		
	SW07	12/4/24	W		X	X	X				1	1		1			Not filtered in field
	SED07	12/4/24	S	X											1		
	SS07	12/4/24	S					X			1	1		1			
	SS08	12/4/24	S					X							1		
	Total Counts			6	6	6	6	2			7	7		7	7		

Method of Shipment ☐ Courier (#) ☐ Hand Delivered ☐ Postal Name Signature Date Time

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.

OES0009_R10 Modified by: Dr. R Symons 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 №**	12639293	**Project Manager**	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	**Project Name**	MFS Christie Downs Supp DSI	**EDD Format** ESdat, EQuIS etc	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman
Handed over by	Terrence Wilson
Email for Invoice	accountspayableAU@ghd.com ben.petti
Email for Results	

Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to select SUITE placing.

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Soils (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD	Containers: 500mL Plastic	250mL Plastic	125mL Plastic (metals)	125mL Plastic (inorganics)	40mL VOA Vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	SS09	12/4/24	S					X							1		
	SS10	12/4/24	S					X							1		
	SS11	12/4/24	S					X							1		
	SS12	12/4/24	S					X							1		
	SS13	12/4/24	S					X							1		
	SS14	12/4/24	S					X							1		
	SS15	12/4/24	S					X							1		
	QC01	10/4/24	S					X							1		
	QC02	10/4/24	S	X											1		
	QC03	10/4/24	S	X											1		
	QC04	10/4/24	S					X							1		
	QC05	10/4/24	S	X											1		
	QC06	10/4/24	S					X							1		
	Total Counts			3				10							13		

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 days*
- ☑ 5 days (Standard)
- ☐ Other( )

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name		Signature		Date		Time	
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.

EQS009_R10 Modified by: Dr. R Symons Approved by: G. Jackson Approved on: 8 August 2019

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 №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (ESdat, EDuS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman	
Handed over by	Terrence Wilson	
Email for Invoice	accountspayableAU@ghd.com ben.petti	
Email for Results		

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

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD
	QC07	10/4/24	S	X				
	QC08	11/4/24	S					X
	QC09	11/4/24	S					X
	QC10	11/4/24	S					X
	QC11	12/4/24	S					X
	QC12	12/4/24	S/W	X	X	X	X	
	QC01a	10/4/24	S					X
	QC02a	10/4/24	S	X				
	QC03a	10/4/24	S	X				
	QC04a	10/4/24	S					X
	QC05a	10/4/24	S	X				
	QC06a	10/4/24	S					X
	QC07a	10/4/24	S	X				
	QC08a	11/4/24	S					X
	Total Counts			6	1	1	1	8

Containers
Change container type & size if necessary.

№	500mL Plastic	250mL Plastic	125mL Plastic (metals)	125mL Plastic (inorganics)	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)
							1	
							1	
							1	
							1	
							1	
			1	1		1	1	
							1	
							1	
							1	
							1	
							1	
							1	
							1	
							1	
			1	1		1	14	

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 days♦
☑ 5 days (Standard)
☐ Other( )

Sample Comments / Dangerous Goods Hazard Warning

№	Sample Comments / Dangerous Goods Hazard Warning
	Please forward to ALS
	Please forward to ALS
	Please forward to ALS
	Please forward to ALS
	Please forward to ALS
	Please forward to ALS
	Please forward to ALS
	Please forward to ALS

Method of Shipment ☐ Courier (#) ☐ Hand Delivered ☐ Postal Name Signature Date Time

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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EQS3009_R10 Modified by: Dr. R.Symons Approved by: G. Jackson Approved on: 8 August 2019

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 №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman	
Handed over by	Terrence Wilson	
Email for Invoice	accountspayableAU@ghd.com ben.petti	
Email for Results		

Analyses (Where metals are requested, please specify Total or Filtered. SUITE codes must be used to obtain SUITE prices.)

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 days*
☑ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time (dd/mm/yy hh:mm)	Matrix Solid (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD	PFAS (Short Suite)	500mL Plastic	125mL Plastic	125mL Plastic (metals)	125mL Plastic (inorganics)	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	QC09a	11/4/24	S					X								1		Please forward to ALS
	QC10a	11/4/24	S					X								1		Please forward to ALS
	QC11a	12/4/24	S					X								1		Please forward to ALS
	QC12a	12/4/24	S/W	X	X	X	X					1	1		1	1		Please forward to ALS
	RB01	10/4/24	W						X		1							
	RB02	11/4/24	W						X		1							
	RB03	12/4/24	W						X		1							
	FB01	10/4/24	W						X		1							
	FB02	11/4/24	W						X		1							
	FB03	12/4/24	W						X		1							
	Total Counts			1	1	1	1	3	6		6	1	1		1	4		

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name	Signature	Date	Time

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

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QS3009_R13 Modified by: Dr. R Symons Approved by: C. Jackson Approved on: 6 August 2019

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 №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman				
Handed over by	Terrence Wilson				
Email for Invoice	accountspayableAU@ghd.com ben.petti				
Email for Results					

Analyses (Where metals are required, please specify 'Total' or 'Filtered'. SUITE codes must be listed to ensure Suites are run)

Containers (Change container type & size if necessary)

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

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

◆Surcharge will apply

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Soil (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD	500mL Plastic	250mL Plastic	125mL Plastic (metals)	125mL Plastic (inorganics)	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	QC07	10/4/24	S	X											1		
	QC08	11/4/24	S					X							1		
	QC09	11/4/24	S					X							1		
	QC10	11/4/24	S					X							1		
	QC11	12/4/24	S					X							1		
	QC12	12/4/24	S/W	X	X	X	X				1	1		1	1		
	QC01a	10/4/24	S					X							1		Please forward to ALS
	QC02a	10/4/24	S	X											1		Please forward to ALS
	QC03a	10/4/24	S	X											1		Please forward to ALS
	QC04a	10/4/24	S					X							1		Please forward to ALS
	QC05a	10/4/24	S	X											1		Please forward to ALS
	QC06a	10/4/24	S					X							1		Please forward to ALS
	QC07a	10/4/24	S	X											1		Please forward to ALS
	QC08a	11/4/24	S					X							1		Please forward to ALS
	Total Counts			6	1	1	1	8			1	1		1	14		

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name		Signature		Date		Time	
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

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DS3099_R19 Modified by: Dr. R Symons Approved by: G. Jackson Approved on: 8 August 2019

SAL 1/2

(5)

COPY

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

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Company	GHD	Project №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (Excel, EQuIS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman	
Handed over by	Terrence Wilson	
Email for Invoice	accountspayableAU@ghd.com ben.petti	
Email for Results		

Analyses — Where metals are requested, please specify "Total" or "Filtered". Suite codes must be listed to ensure SUITE pricing.

Containers — Change container type & size if necessary

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

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

♦Surcharge will apply

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD	PFAS (Short Suite)	500mL Plastic	125mL Plastic	125mL Plastic (metals)	125mL Plastic (inorganics)	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	QC09a	11/4/24	S					X								1		Please forward to ALS
	QC10a	11/4/24	S					X								1		Please forward to ALS
	QC11a	12/4/24	S					X								1		Please forward to ALS
	QC12a	12/4/24	S/W	X	X	X	X					1	1		1	1		Please forward to ALS
	RB01	10/4/24	W						X		1							
	RB02	11/4/24	W						X		1							
	RB03	12/4/24	W						X		1							
	FB01	10/4/24	W						X		1							
	FB02	11/4/24	W						X		1							
	FB03	12/4/24	W						X		1							
	Total Counts			1	1	1	1	3	8		8	1	1		1	4		

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name		Signature		Date		Time	
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

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Jessica Sheppard

From: Parimal Acharya
Sent: Tuesday, 16 April 2024 11:38 AM
To: #AU_CAU001_EnviroSampleVic
Cc: Amy.Meunier@eurofinsanz.com
Subject: FW: 12639293 GHD COC
Attachments: 12639293_Eurofins-COC-240412.pdf

Importance: High

Follow Up Flag: Follow up
Flag Status: Completed

INFO: INTERNAL EMAIL - Sent from your own Eurofins email domain.

Hi Jess/Amy,

Please find attached COC for GHD samples I sent on Friday in esky #21-22.

Kind Regards

Parimal Acharya

Eurofins Environment Testing
9 Main Tce,
RICHMOND SA 5033
AUSTRALIA
Phone : +61 8 8443 4430

Email : EnquiriesAdelaide@eurofins.com
Website : environment.eurofins.com.au

From: Ally Kirkman <Ally.Kirkman@ghd.com>
Sent: Tuesday, 16 April 2024 10:30 AM
To: Parimal Acharya <ParimalAcharya@eurofins.com>
Cc: Angus Robinson <Angus.Robinson@ghd.com>; Ben Petticrew <Ben.Petticrew@ghd.com>; Terrence Wilson <Terrence.Wilson@ghd.com>
Subject: 12639293 GHD COC

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins. Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hi Parimal,

Apologies for the delay. Attached is the COC for the samples dropped off by GHD on Friday 12 April.

Feel free to reach out if you have any questions.

Kind regards,

eurofins | Environment Testing

PROJECT INFORMATION

Date Received: 12/04/24

Company: GHD

Contact person: Terrence.W / Ally K.

Contact Number:

Contact E-mail:

Project Name/site:

Project Number: 12639293

COC: **Attached** ☐
E-mailed ☑
Not received ☐

7.9°C
−0.1°C
7.8°C.

eurofins

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

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

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

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

Eurofins ProMicro Pty Ltd
ABN: 47 009 120 549

Perth ProMicro
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2561
Site# 2554

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

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

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

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail	HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254	X	X	X	X	X	X	X	X	X	X	X
External Laboratory											

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID										
1	BH12_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040809					X		X				
2	BH12_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040810					X		X				
3	BH13_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040811					X		X				
4	BH13_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040812					X		X				
5	BH14_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040813					X		X				
6	BH14_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040814					X		X				
7	BH16_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040815					X		X				
8	BH16_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040816					X		X				
9	BH17_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040817					X		X				
10	BH17_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040818					X		X				
11	BH18_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040819					X		X				
12	BH15_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040820					X		X				
13	BH15_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040821					X		X				

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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Company Name: GHD Pty Ltd SA
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SA 5001

Order No.:
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Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Eurofins Analytical Services Manager : Amy Meunier

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
14	BH15_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040822	X										
15	BH19_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040823					X		X				
16	BH19_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040824					X		X				
17	BH20_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040825					X		X				
18	BH20_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040826					X		X				
19	BH21_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040827					X		X				
20	BH21_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040828					X		X				
21	BH21_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040829					X		X				
22	BH22_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040830					X		X				
23	BH22_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040831					X		X				
24	BH23_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040832					X		X				
25	BH23_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040833					X		X				
26	BH24_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040834					X		X				
27	BH24_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040835					X		X				
28	BH25_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040836					X		X				
29	BH25_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040837					X		X				

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Project ID: 12639293

Eurofins Analytical Services Manager : Amy Meunier

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
30	BH26_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040838					X		X				
31	BH26_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040839					X		X				
32	BH27_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040840					X		X				
33	BH27_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040841					X		X				
34	BH28_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040842					X		X				
35	BH29_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040843					X		X				
36	SW01	Apr 12, 2024		Water	M24-Ap0040844		X	X			X				X	
37	SED01	Apr 12, 2024		Soil	M24-Ap0040845					X		X				
38	SW02	Apr 12, 2024		Water	M24-Ap0040846		X	X			X				X	
39	SED02	Apr 12, 2024		Soil	M24-Ap0040847					X		X				
40	SW03	Apr 12, 2024		Water	M24-Ap0040848		X	X			X				X	
41	SED03	Apr 12, 2024		Soil	M24-Ap0040849					X		X				
42	SW04	Apr 12, 2024		Water	M24-Ap0040850		X	X			X				X	
43	SED04	Apr 12, 2024		Soil	M24-Ap0040851					X		X				
44	SW05	Apr 12, 2024		Water	M24-Ap0040852		X	X			X				X	
45	SED05	Apr 12, 2024		Soil	M24-Ap0040853					X		X				

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Eurofins Analytical Services Manager : Amy Meunier

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
46	SW06	Apr 12, 2024		Water	M24-Ap0040854		X	X			X				X	
47	SED06	Apr 12, 2024		Soil	M24-Ap0040855					X		X				
48	SW07	Apr 12, 2024		Water	M24-Ap0040856		X	X			X				X	
49	SED07	Apr 12, 2024		Soil	M24-Ap0040857					X		X				
50	QC02	Apr 10, 2024		Soil	M24-Ap0040858					X		X				
51	QC03	Apr 10, 2024		Soil	M24-Ap0040859					X		X				
52	QC05	Apr 10, 2024		Soil	M24-Ap0040860					X		X				
53	QC07	Apr 10, 2024		Soil	M24-Ap0040861					X		X				
54	QC12 SOIL	Apr 12, 2024		Soil	M24-Ap0040862			X		X		X	X			X
55	QC12 WATER	Apr 12, 2024		Water	M24-Ap0040863		X		X		X	X			X	
56	RB01	Apr 10, 2024		Water	M24-Ap0040864									X		
57	RB02	Apr 11, 2024		Water	M24-Ap0040865									X		
58	RB03	Apr 12, 2024		Water	M24-Ap0040866									X		
59	FB01	Apr 10, 2024		Water	M24-Ap0040867									X		
60	FB02	Apr 11, 2024		Water	M24-Ap0040868									X		
61	FB03	Apr 12, 2024		Water	M24-Ap0040869									X		

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
62	BH12_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040870	X										
63	BH12_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040871	X										
64	BH12_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040872	X										
65	BH13_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040873	X										
66	BH13_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040874	X										
67	BH13_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040875	X										
68	BH14_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040876	X										
69	BH14_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040877	X										
70	BH14_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040878	X										
71	BH16_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040879	X										
72	BH16_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040880	X										
73	BH16_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040881	X										
74	BH17_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040882	X										
75	BH17_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040883	X										
76	BH17_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040884	X										
77	BH18_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040885	X										

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
78	BH18_0.2-0.3	Apr 10, 2024		Soil	M24-Ap0040886	X										
79	BH15_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040887	X										
80	BH15_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040888	X										
81	BH19_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040889	X										
82	BH19_1.4-1.5	Apr 10, 2024		Soil	M24-Ap0040890	X										
83	BH20_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040891	X										
84	BH20_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040892	X										
85	BH20_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040893	X										
86	BH21_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040894	X										
87	BH21_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040895	X										
88	BH22_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040896	X										
89	BH22_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040897	X										
90	BH22_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040898	X										
91	BH23_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040899	X										
92	BH23_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040900	X										
93	BH23_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040901	X										

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+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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

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

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
94	BH24_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040902	X										
95	BH24_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040903	X										
96	BH24_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040904	X										
97	BH25_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040905	X										
98	BH25_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040906	X										
99	BH25_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040907	X										
100	BH26_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040908	X										
101	BH26_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040909	X										
102	BH26_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040910	X										
103	BH27_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040911	X										
104	BH27_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040912	X										
105	BH27_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040913	X										
106	BH28_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040914	X										
107	BH28_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040915	X										
108	BH28_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040916	X										
109	BH28_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040917	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	Site# 25079 & 25289

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Order No.:
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Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
110	BH29_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040918	X										
111	BH29_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040919	X										
112	BH29_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040920	X										
113	BH29_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040921	X										
114	SS07	Apr 12, 2024		Soil	M24-Ap0040922	X										
115	SS08	Apr 12, 2024		Soil	M24-Ap0040923	X										
116	SS09	Apr 12, 2024		Soil	M24-Ap0040924	X										
117	SS10	Apr 12, 2024		Soil	M24-Ap0040925	X										
118	SS11	Apr 12, 2024		Soil	M24-Ap0040926	X										
119	SS12	Apr 12, 2024		Soil	M24-Ap0040927	X										
120	SS13	Apr 12, 2024		Soil	M24-Ap0040928	X										
121	SS14	Apr 12, 2024		Soil	M24-Ap0040929	X										
122	SS15	Apr 12, 2024		Soil	M24-Ap0040930	X										
123	QC01	Apr 10, 2024		Soil	M24-Ap0040931	X										
124	QC04	Apr 10, 2024		Soil	M24-Ap0040932	X										
125	QC06	Apr 10, 2024		Soil	M24-Ap0040933	X										

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Contact Name: Angus Robinson

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
126	QC08	Apr 11, 2024		Soil	M24-Ap0040934	X										
127	QC09	Apr 11, 2024		Soil	M24-Ap0040935	X										
128	QC10	Apr 11, 2024		Soil	M24-Ap0040936	X										
129	QC11	Apr 12, 2024		Soil	M24-Ap0040937	X										
Test Counts						69	8	8	1	46	8	47	1	6	8	1

GHD Pty Ltd
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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: **Angus Robinson**

Report **1088156-S**
Project name MFS Christie Downs Supp DSI
Project ID 12639293
Received Date Apr 16, 2024

Client Sample ID			**BH12_0.0-0.1**	**BH12_0.4-0.5**	**BH13_0.0-0.1**	**BH13_0.4-0.5**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M24-Ap0040809**	**M24-Ap0040810**	**M24-Ap0040811**	**M24-Ap0040812**
Date Sampled			**Apr 10, 2024**	**Apr 10, 2024**	**Apr 10, 2024**	**Apr 10, 2024**
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	5.2	8.8	3.5	3.2
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	7.0
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	[N09]7.6	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	5.3	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	102	94	94	95
13C5-PFPeA (surr.)	1	%	112	105	104	100
13C5-PFHxA (surr.)	1	%	115	109	110	108
13C4-PFHpA (surr.)	1	%	114	107	104	107
13C8-PFOA (surr.)	1	%	117	111	112	110
13C5-PFNA (surr.)	1	%	103	99	99	102
13C6-PFDA (surr.)	1	%	77	79	83	80
13C2-PFUnDA (surr.)	1	%	89	106	91	102
13C2-PFDoDA (surr.)	1	%	83	106	84	81
13C2-PFTeDA (surr.)	1	%	58	114	80	89
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			BH12_0.0-0.1	BH12_0.4-0.5	BH13_0.0-0.1	BH13_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040809	M24-Ap0040810	M24-Ap0040811	M24-Ap0040812
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	118	126	120	122
D3-N-MeFOSA (surr.)	1	%	102	119	113	115
D5-N-EtFOSA (surr.)	1	%	101	117	110	115
D7-N-MeFOSE (surr.)	1	%	114	117	112	116
D9-N-EtFOSE (surr.)	1	%	91	109	98	99
D5-N-EtFOSAA (surr.)	1	%	118	114	113	118
D3-N-MeFOSAA (surr.)	1	%	102	120	105	145
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]7.0	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]29	< 5	< 5	[N09]11
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	100	94	94	95
18O2-PFHxS (surr.)	1	%	98	93	93	90
13C8-PFOS (surr.)	1	%	91	83	90	91
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	%	121	107	106	121
13C2-6:2 FTSA (surr.)	1	%	99	95	98	103
13C2-8:2 FTSA (surr.)	1	%	98	94	103	101
13C2-10:2 FTSA (surr.)	1	%	106	135	123	133
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	29	7	< 5	11
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	29	< 5	< 5	11
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	29	7	< 5	11
Sum of WA DWER PFAS (n=10)*	10	ug/kg	29	< 10	< 10	11
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			BH14_0.0-0.1	BH14_0.4-0.5	BH16_0.4-0.5	BH16_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040813	M24-Ap0040814	M24-Ap0040815	M24-Ap0040816
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	4.5	6.0	9.9	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	7.6	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	[N09]18	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	[N09]27	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	[N09]16	[N09]33	[N09]69
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	[N09]8.3	[N09]6.3
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	[N09]17	[N09]6.2	[N09]280	[N09]60
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	5.1	< 5	37	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	94	98	93	77
13C5-PFPeA (surr.)	1	%	100	107	98	81
13C5-PFHxA (surr.)	1	%	108	108	104	88
13C4-PFHpA (surr.)	1	%	105	108	104	92
13C8-PFOA (surr.)	1	%	102	107	103	101
13C5-PFNA (surr.)	1	%	88	102	94	89
13C6-PFDA (surr.)	1	%	74	83	77	77
13C2-PFUnDA (surr.)	1	%	97	103	108	96
13C2-PFDoDA (surr.)	1	%	51	79	89	74
13C2-PFTeDA (surr.)	1	%	64	83	96	80
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	%	61	120	119	124
D3-N-MeFOSA (surr.)	1	%	77	111	115	119
D5-N-EtFOSA (surr.)	1	%	89	112	118	119
D7-N-MeFOSE (surr.)	1	%	85	109	110	119
D9-N-EtFOSE (surr.)	1	%	77	100	107	101
D5-N-EtFOSAA (surr.)	1	%	53	114	100	74
D3-N-MeFOSAA (surr.)	1	%	66	117	89	76
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	[N09]58	[N09]7.4
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			BH14_0.0-0.1	BH14_0.4-0.5	BH16_0.4-0.5	BH16_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040813	M24-Ap0040814	M24-Ap0040815	M24-Ap0040816
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]36	[N09]30	[N09]81	[N09]81
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	96	95	95	88
18O2-PFHxS (surr.)	1	%	96	94	94	96
13C8-PFOS (surr.)	1	%	82	91	91	92
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	9.3	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	113	117	106	87
13C2-6:2 FTSA (surr.)	1	%	93	101	98	88
13C2-8:2 FTSA (surr.)	1	%	90	112	93	88
13C2-10:2 FTSA (surr.)	1	%	50	124	122	111
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	36	30	139	88.4
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	36	30	108	81
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	36	30	166	88.4
Sum of WA DWER PFAS (n=10)*	10	ug/kg	36	30	200.9	88.4
Sum of PFASs (n=30)*	50	ug/kg	58.1	52.2	559.2	223.7

Client Sample ID			BH17_1.0-1.1	BH17_1.5-1.6	BH18_0.4-0.5	BH15_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040817	M24-Ap0040818	M24-Ap0040819	M24-Ap0040820
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	12	10	2.9	23
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	16
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]8.5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]22
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	[N09]39	[N09]120	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	[N09]7.0	< 5	[N09]6.4	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	[N09]18	< 5	[N09]200	< 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	%	85	102	101	102
13C5-PFPeA (surr.)	1	%	89	106	104	114
13C5-PFHxA (surr.)	1	%	93	112	110	115
13C4-PFHpA (surr.)	1	%	96	111	104	113

Client Sample ID			BH17_1.0-1.1	BH17_1.5-1.6	BH18_0.4-0.5	BH15_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040817	M24-Ap0040818	M24-Ap0040819	M24-Ap0040820
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C8-PFOA (surr.)	1	%	97	111	72	116
13C5-PFNA (surr.)	1	%	84	95	71	106
13C6-PFDA (surr.)	1	%	71	83	58	89
13C2-PFUnDA (surr.)	1	%	92	110	56	108
13C2-PFDoDA (surr.)	1	%	73	82	88	82
13C2-PFTeDA (surr.)	1	%	80	85	143	75
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	%	118	125	37	123
D3-N-MeFOSA (surr.)	1	%	107	122	57	104
D5-N-EtFOSA (surr.)	1	%	110	121	66	103
D7-N-MeFOSE (surr.)	1	%	106	116	55	116
D9-N-EtFOSE (surr.)	1	%	98	103	63	98
D5-N-EtFOSAA (surr.)	1	%	71	90	30	101
D3-N-MeFOSAA (surr.)	1	%	74	87	27	105
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	6.2
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	[N09]13
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]6.9	[N09]10	[N09]16	[N09]220
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]180	[N09]110	[N09]850	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	89	96	93	101
18O2-PFHxS (surr.)	1	%	88	100	82	97
13C8-PFOS (surr.)	1	%	80	84	134	101
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 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	%	114	126	144	102
13C2-6:2 FTSA (surr.)	1	%	102	107	81	97
13C2-8:2 FTSA (surr.)	1	%	83	100	65	100
13C2-10:2 FTSA (surr.)	1	%	110	132	20	115

Client Sample ID			BH17_1.0-1.1	BH17_1.5-1.6	BH18_0.4-0.5	BH15_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040817	M24-Ap0040818	M24-Ap0040819	M24-Ap0040820
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	186.9	120	866	220
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	180	110	850	22
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	186.9	120	866	242
Sum of WA DWER PFAS (n=10)*	10	ug/kg	186.9	120	866	272.7
Sum of PFASs (n=30)*	50	ug/kg	250.9	240	1072.4	285.7

Client Sample ID			BH15_1.0-1.1	BH19_0.0-0.1	BH19_0.4-0.5	BH20_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040821	M24-Ap0040823	M24-Ap0040824	M24-Ap0040825
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	12	4.6	8.8	2.0
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	6.2	6.5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	[N09]6.0	[N09]19	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	[N09]100	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	9.5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	110	[N09]5.6	[N09]22
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	[N09]5.6	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	34	< 5	10
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	61	100	104	90
13C5-PFPeA (surr.)	1	%	71	106	110	100
13C5-PFHxA (surr.)	1	%	88	111	120	105
13C4-PFHpA (surr.)	1	%	96	109	115	99
13C8-PFOA (surr.)	1	%	95	87	106	91
13C5-PFNA (surr.)	1	%	87	81	97	81
13C6-PFDA (surr.)	1	%	91	73	83	80
13C2-PFUnDA (surr.)	1	%	106	83	105	87
13C2-PFDoDA (surr.)	1	%	107	57	99	57
13C2-PFTeDA (surr.)	1	%	107	59	86	61
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			BH15_1.0-1.1	BH19_0.0-0.1	BH19_0.4-0.5	BH20_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040821	M24-Ap0040823	M24-Ap0040824	M24-Ap0040825
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	126	63	122	65
D3-N-MeFOSA (surr.)	1	%	119	70	98	69
D5-N-EtFOSA (surr.)	1	%	117	76	104	78
D7-N-MeFOSE (surr.)	1	%	102	80	108	86
D9-N-EtFOSE (surr.)	1	%	94	64	93	68
D5-N-EtFOSAA (surr.)	1	%	62	30	120	35
D3-N-MeFOSAA (surr.)	1	%	74	53	83	76
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	[N09]17	< 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]22	[N09]91	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	[N09]36	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	[N09]970	[N09]6600	[N09]9.4
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	[N09]14	< 5	< 5
13C3-PFBS (surr.)	1	%	86	99	104	87
18O2-PFHxS (surr.)	1	%	98	89	102	84
13C8-PFOS (surr.)	1	%	104	147	126	139
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	10	7.7	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	16	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	90	115	125	126
13C2-6:2 FTSA (surr.)	1	%	103	71	112	90
13C2-8:2 FTSA (surr.)	1	%	107	77	102	91
13C2-10:2 FTSA (surr.)	1	%	43	50	105	42
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	992	6691	9.4
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	976	6619	9.4
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	998	6710	9.4
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	1014.2	6724.2	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	1220.3	6865.8	< 50

Client Sample ID			BH20_0.4-0.5	BH21_0.0-0.1	BH21_0.4-0.5	BH21_1.5-1.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040826	M24-Ap0040827	M24-Ap0040828	M24-Ap0040829
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	9.4	2.2	14	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	[N09]15
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	5.7	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	[N09]10	< 5	[N09]330	[N09]22
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	[N09]27	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	[N09]340	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	47	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	98	104	67	93
13C5-PFPeA (surr.)	1	%	106	112	73	102
13C5-PFHxA (surr.)	1	%	114	122	82	108
13C4-PFHpA (surr.)	1	%	113	115	88	110
13C8-PFOA (surr.)	1	%	107	115	89	107
13C5-PFNA (surr.)	1	%	99	106	74	99
13C6-PFDA (surr.)	1	%	87	89	77	85
13C2-PFUnDA (surr.)	1	%	106	113	94	105
13C2-PFDoDA (surr.)	1	%	98	105	82	94
13C2-PFTeDA (surr.)	1	%	79	92	73	83
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	130	116	120
D3-N-MeFOSA (surr.)	1	%	111	116	107	117
D5-N-EtFOSA (surr.)	1	%	103	122	111	114
D7-N-MeFOSE (surr.)	1	%	104	137	108	109
D9-N-EtFOSE (surr.)	1	%	90	108	100	99
D5-N-EtFOSAA (surr.)	1	%	119	143	69	102
D3-N-MeFOSAA (surr.)	1	%	113	141	58	101
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	[N09]6.9	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			BH20_0.4-0.5	BH21_0.0-0.1	BH21_0.4-0.5	BH21_1.5-1.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040826	M24-Ap0040827	M24-Ap0040828	M24-Ap0040829
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	[N09]57	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	102	98	86	95
18O2-PFHxS (surr.)	1	%	91	100	88	96
13C8-PFOS (surr.)	1	%	89	92	85	94
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	%	111	126	75	106
13C2-6:2 FTSA (surr.)	1	%	94	110	83	92
13C2-8:2 FTSA (surr.)	1	%	105	102	90	104
13C2-10:2 FTSA (surr.)	1	%	137	135	108	139
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	63.9	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	62.7	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	69.6	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	69.6	15
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	813.6	< 50

Client Sample ID			BH22_0.4-0.5	BH22_1.5-1.6	BH23_0.4-0.5	BH23_1.5-1.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040830	M24-Ap0040831	M24-Ap0040832	M24-Ap0040833
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	13	9.5	< 1	11
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	14	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	[N09]15	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	[N09]17	< 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	%	53	98	96	83
13C5-PFPeA (surr.)	1	%	65	102	103	84
13C5-PFHxA (surr.)	1	%	75	110	107	94
13C4-PFHpA (surr.)	1	%	80	117	108	95

Client Sample ID			BH22_0.4-0.5	BH22_1.5-1.6	BH23_0.4-0.5	BH23_1.5-1.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040830	M24-Ap0040831	M24-Ap0040832	M24-Ap0040833
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C8-PFOA (surr.)	1	%	87	113	107	99
13C5-PFNA (surr.)	1	%	75	103	102	93
13C6-PFDA (surr.)	1	%	68	86	81	75
13C2-PFUnDA (surr.)	1	%	77	105	96	92
13C2-PFDoDA (surr.)	1	%	64	86	78	78
13C2-PFTeDA (surr.)	1	%	61	84	75	79
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	%	108	124	118	122
D3-N-MeFOSA (surr.)	1	%	111	121	116	117
D5-N-EtFOSA (surr.)	1	%	111	122	115	117
D7-N-MeFOSE (surr.)	1	%	109	122	111	116
D9-N-EtFOSE (surr.)	1	%	96	105	99	101
D5-N-EtFOSAA (surr.)	1	%	58	108	118	81
D3-N-MeFOSAA (surr.)	1	%	64	98	125	72
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	[N09]8.0	< 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]6.7	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]16	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	[N09]15	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	75	100	98	80
18O2-PFHxS (surr.)	1	%	87	96	93	94
13C8-PFOS (surr.)	1	%	90	93	80	87
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	110	107	106
13C2-6:2 FTSA (surr.)	1	%	77	105	103	101
13C2-8:2 FTSA (surr.)	1	%	83	99	93	88
13C2-10:2 FTSA (surr.)	1	%	81	130	120	118

Client Sample ID			BH22_0.4-0.5	BH22_1.5-1.6	BH23_0.4-0.5	BH23_1.5-1.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040830	M24-Ap0040831	M24-Ap0040832	M24-Ap0040833
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	16	< 5	15	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	15	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	16	< 5	15	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	53	< 10	15	< 10
Sum of PFASs (n=30)*	50	ug/kg	59.7	< 50	< 50	< 50

Client Sample ID			BH24_0.4-0.5	BH24_1.5-1.6	BH25_1.5-1.6	BH25_1.9-2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040834	M24-Ap0040835	M24-Ap0040836	M24-Ap0040837
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	3.1	28	14	11
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 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	[N09]57	< 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	%	93	88	92	92
13C5-PFPeA (surr.)	1	%	102	97	98	105
13C5-PFHxA (surr.)	1	%	105	103	105	106
13C4-PFHpA (surr.)	1	%	105	99	102	104
13C8-PFOA (surr.)	1	%	108	100	108	104
13C5-PFNA (surr.)	1	%	99	91	93	99
13C6-PFDA (surr.)	1	%	75	70	78	76
13C2-PFUnDA (surr.)	1	%	100	90	95	100
13C2-PFDoDA (surr.)	1	%	74	70	78	85
13C2-PFTeDA (surr.)	1	%	64	63	80	85
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			BH24_0.4-0.5	BH24_1.5-1.6	BH25_1.5-1.6	BH25_1.9-2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040834	M24-Ap0040835	M24-Ap0040836	M24-Ap0040837
Date Sampled			Apr 10, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	118	112	120	115
D3-N-MeFOSA (surr.)	1	%	117	95	111	107
D5-N-EtFOSA (surr.)	1	%	109	90	115	106
D7-N-MeFOSE (surr.)	1	%	111	93	115	106
D9-N-EtFOSE (surr.)	1	%	100	82	97	93
D5-N-EtFOSAA (surr.)	1	%	123	99	91	129
D3-N-MeFOSAA (surr.)	1	%	109	100	93	116
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]12	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	[N09]9.8	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	8.2	[N09]710	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	93	91	91	98
18O2-PFHxS (surr.)	1	%	92	88	86	96
13C8-PFOS (surr.)	1	%	81	136	84	83
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	%	105	102	110	107
13C2-6:2 FTSA (surr.)	1	%	97	91	91	97
13C2-8:2 FTSA (surr.)	1	%	86	93	93	89
13C2-10:2 FTSA (surr.)	1	%	121	118	127	132
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	8.2	722	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	8.2	710	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	8.2	722	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	722	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	788.8	< 50	< 50

Client Sample ID			BH26_0.0-0.1	BH26_0.4-0.5	BH27_0.0-0.1	BH27_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040838	M24-Ap0040839	M24-Ap0040840	M24-Ap0040841
Date Sampled			Apr 11, 2024	Apr 11, 2024	Apr 11, 2024	Apr 11, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	5.5	9.1	3.4	11
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	7.3	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	11	< 5	5.0
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	[N09]8.1	< 5	[N09]8.3
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	[N09]12	[N09]8.3	[N09]18
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	[N09]7.0	[N09]5.8	[N09]22
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	12	27	9.0	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	[N09]55	[N09]620	[N09]41	[N09]8.5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	[N09]17	< 5	[N09]8.6	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	170	17	50	8.8
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	64	115	90	92
13C5-PFPeA (surr.)	1	%	69	111	95	101
13C5-PFHxA (surr.)	1	%	81	112	101	102
13C4-PFHpA (surr.)	1	%	84	118	101	105
13C8-PFOA (surr.)	1	%	94	122	99	107
13C5-PFNA (surr.)	1	%	83	115	82	96
13C6-PFDA (surr.)	1	%	74	89	70	71
13C2-PFUnDA (surr.)	1	%	79	145	50	94
13C2-PFDoDA (surr.)	1	%	68	98	52	73
13C2-PFTeDA (surr.)	1	%	69	99	144	75
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	%	119	146	76	112
D3-N-MeFOSA (surr.)	1	%	106	138	73	100
D5-N-EtFOSA (surr.)	1	%	110	138	74	96
D7-N-MeFOSE (surr.)	1	%	118	134	87	112
D9-N-EtFOSE (surr.)	1	%	98	128	73	88
D5-N-EtFOSAA (surr.)	1	%	58	99	60	100
D3-N-MeFOSAA (surr.)	1	%	62	108	58	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	[N09]11	[N09]45
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]6.7	[N09]25	[N09]11	[N09]29
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			BH26_0.0-0.1	BH26_0.4-0.5	BH27_0.0-0.1	BH27_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040838	M24-Ap0040839	M24-Ap0040840	M24-Ap0040841
Date Sampled			Apr 11, 2024	Apr 11, 2024	Apr 11, 2024	Apr 11, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]130	[N09]1600	[N09]560	[N09]3800
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	[N09]12	5.2
13C3-PFBS (surr.)	1	%	78	108	89	91
18O2-PFHxS (surr.)	1	%	85	112	86	93
13C8-PFOS (surr.)	1	%	85	145	137	122
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	19	< 10	< 10
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	10	42	27	63
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	85	14	7.8	< 5
13C2-4:2 FTSA (surr.)	1	%	81	142	110	110
13C2-6:2 FTSA (surr.)	1	%	81	111	100	92
13C2-8:2 FTSA (surr.)	1	%	90	116	88	92
13C2-10:2 FTSA (surr.)	1	%	87	135	145	115
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	136.7	1625	571	3829
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	130	1612	568.3	3818
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	136.7	1637	579.3	3847
Sum of WA DWER PFAS (n=10)*	10	ug/kg	146.7	1724.4	606.3	3923.3
Sum of PFASs (n=30)*	50	ug/kg	485.7	2409.4	751.5	4012.8

Client Sample ID			BH28_0.4-0.5	BH29_0.4-0.5	SED01	SED02
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040842	M24-Ap0040843	M24-Ap0040845	M24-Ap0040847
Date Sampled			Apr 11, 2024	Apr 11, 2024	Apr 12, 2024	Apr 12, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	7.8	9.6	39	26
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	6.1	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	16	22	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	5.2	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	12	7.4	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	12	38	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	6.9	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	7.4	130	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	8.1	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	160	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	99	100	80	37
13C5-PFPeA (surr.)	1	%	107	107	88	49
13C5-PFHxA (surr.)	1	%	115	111	91	60
13C4-PFHpA (surr.)	1	%	106	108	91	67

Client Sample ID			BH28_0.4-0.5	BH29_0.4-0.5	SED01	SED02
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040842	M24-Ap0040843	M24-Ap0040845	M24-Ap0040847
Date Sampled			Apr 11, 2024	Apr 11, 2024	Apr 12, 2024	Apr 12, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C8-PFOA (surr.)	1	%	109	110	93	81
13C5-PFNA (surr.)	1	%	108	105	87	68
13C6-PFDA (surr.)	1	%	82	81	72	58
13C2-PFUnDA (surr.)	1	%	110	110	84	70
13C2-PFDoDA (surr.)	1	%	112	103	74	66
13C2-PFTeDA (surr.)	1	%	99	113	75	60
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	%	102	111	105	105
D3-N-MeFOSA (surr.)	1	%	116	114	95	85
D5-N-EtFOSA (surr.)	1	%	105	105	88	93
D7-N-MeFOSE (surr.)	1	%	120	115	93	81
D9-N-EtFOSE (surr.)	1	%	105	109	87	89
D5-N-EtFOSAA (surr.)	1	%	73	67	84	49
D3-N-MeFOSAA (surr.)	1	%	64	63	86	56
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]< 5	[N09]< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]100	[N09]81	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	10	5.8	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]830	[N09]940	5.9	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	106	110	84	67
18O2-PFHxS (surr.)	1	%	100	104	74	77
13C8-PFOS (surr.)	1	%	139	140	68	72
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	38	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	5.5	< 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	%	118	121	94	59
13C2-6:2 FTSA (surr.)	1	%	123	127	88	76
13C2-8:2 FTSA (surr.)	1	%	113	115	85	74
13C2-10:2 FTSA (surr.)	1	%	84	85	101	103

Client Sample ID			BH28_0.4-0.5	BH29_0.4-0.5	SED01	SED02
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040842	M24-Ap0040843	M24-Ap0040845	M24-Ap0040847
Date Sampled			Apr 11, 2024	Apr 11, 2024	Apr 12, 2024	Apr 12, 2024
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	930	1021	5.9	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	842	947.4	5.9	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	942	1028.4	5.9	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	1012.8	1050.4	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	1042.2	1399.2	< 50	< 50

Client Sample ID			SED03	SED04	SED05	SED06
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040849	M24-Ap0040851	M24-Ap0040853	M24-Ap0040855
Date Sampled			Apr 12, 2024	Apr 12, 2024	Apr 12, 2024	Apr 12, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	22	31	38	30
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	[N09]< 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	51	87	91
13C5-PFPeA (surr.)	1	%	72	76	94	99
13C5-PFHxA (surr.)	1	%	76	81	99	99
13C4-PFHpA (surr.)	1	%	77	88	98	99
13C8-PFOA (surr.)	1	%	77	90	102	104
13C5-PFNA (surr.)	1	%	65	103	93	90
13C6-PFDA (surr.)	1	%	54	107	75	71
13C2-PFUnDA (surr.)	1	%	65	108	88	93
13C2-PFDoDA (surr.)	1	%	58	113	84	77
13C2-PFTeDA (surr.)	1	%	57	101	70	82
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			SED03	SED04	SED05	SED06
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040849	M24-Ap0040851	M24-Ap0040853	M24-Ap0040855
Date Sampled			Apr 12, 2024	Apr 12, 2024	Apr 12, 2024	Apr 12, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	85	87	114	118
D3-N-MeFOSA (surr.)	1	%	78	97	97	96
D5-N-EtFOSA (surr.)	1	%	76	114	95	98
D7-N-MeFOSE (surr.)	1	%	72	112	91	106
D9-N-EtFOSE (surr.)	1	%	67	91	82	95
D5-N-EtFOSAA (surr.)	1	%	65	86	92	86
D3-N-MeFOSAA (surr.)	1	%	59	96	88	79
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	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	65	75	88	84
18O2-PFHxS (surr.)	1	%	66	81	84	90
13C8-PFOS (surr.)	1	%	56	76	87	84
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	%	84	78	108	110
13C2-6:2 FTSA (surr.)	1	%	79	94	96	95
13C2-8:2 FTSA (surr.)	1	%	64	122	93	85
13C2-10:2 FTSA (surr.)	1	%	83	118	112	120
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			SED07	QC02	QC03	QC05
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040857	M24-Ap0040858	M24-Ap0040859	M24-Ap0040860
Date Sampled			Apr 12, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	36	12	12	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	25	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	[N09]12	< 5	[N09]12
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	[N09]28	5.4	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	[N09]140	[N09]23
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	%	60	89	92	86
13C5-PFPeA (surr.)	1	%	62	91	97	97
13C5-PFHxA (surr.)	1	%	66	99	99	102
13C4-PFHpA (surr.)	1	%	67	101	97	102
13C8-PFOA (surr.)	1	%	81	100	104	100
13C5-PFNA (surr.)	1	%	67	90	87	91
13C6-PFDA (surr.)	1	%	57	69	74	79
13C2-PFUnDA (surr.)	1	%	65	89	95	93
13C2-PFDoDA (surr.)	1	%	61	77	79	86
13C2-PFTeDA (surr.)	1	%	66	79	78	80
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	%	97	122	123	120
D3-N-MeFOSA (surr.)	1	%	71	111	111	107
D5-N-EtFOSA (surr.)	1	%	72	111	112	108
D7-N-MeFOSE (surr.)	1	%	82	115	107	110
D9-N-EtFOSE (surr.)	1	%	71	101	103	98
D5-N-EtFOSAA (surr.)	1	%	48	81	83	89
D3-N-MeFOSAA (surr.)	1	%	56	76	83	86
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	[N09]9.7	< 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	[N09]20	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	[N09]310	12	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			SED07	QC02	QC03	QC05
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Ap0040857	M24-Ap0040858	M24-Ap0040859	M24-Ap0040860
Date Sampled			Apr 12, 2024	Apr 10, 2024	Apr 10, 2024	Apr 10, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	[N09]130	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	69	95	89	86
18O2-PFHxS (surr.)	1	%	71	87	97	88
13C8-PFOS (surr.)	1	%	72	81	86	80
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	%	78	103	115	98
13C2-6:2 FTSA (surr.)	1	%	79	86	102	94
13C2-8:2 FTSA (surr.)	1	%	70	89	91	94
13C2-10:2 FTSA (surr.)	1	%	75	118	115	125
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	310	142	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	28	135.4	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	338	147.4	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	384.7	147.4	12
Sum of PFASs (n=30)*	50	ug/kg	< 50	404.7	287.4	< 50

Client Sample ID			QC07	QC12 SOIL
Sample Matrix			Soil	Soil
Eurofins Sample No.			M24-Ap0040861	M24-Ap0040862
Date Sampled			Apr 10, 2024	Apr 12, 2024
Test/Reference	LOR	Unit		
Sample Properties				
% Moisture	1	%	3.2	18
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	[N09]5.9	< 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	%	96	76
13C5-PFPeA (surr.)	1	%	105	77
13C5-PFHxA (surr.)	1	%	106	79
13C4-PFHpA (surr.)	1	%	110	81

Client Sample ID			QC07	QC12 SOIL
Sample Matrix			Soil	Soil
Eurofins Sample No.			M24-Ap0040861	M24-Ap0040862
Date Sampled			Apr 10, 2024	Apr 12, 2024
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
13C8-PFOA (surr.)	1	%	107	66
13C5-PFNA (surr.)	1	%	102	65
13C6-PFDA (surr.)	1	%	75	66
13C2-PFUnDA (surr.)	1	%	101	64
13C2-PFDoDA (surr.)	1	%	87	53
13C2-PFTeDA (surr.)	1	%	79	54
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	%	122	66
D3-N-MeFOSA (surr.)	1	%	116	69
D5-N-EtFOSA (surr.)	1	%	114	71
D7-N-MeFOSE (surr.)	1	%	113	79
D9-N-EtFOSE (surr.)	1	%	97	79
D5-N-EtFOSAA (surr.)	1	%	110	45
D3-N-MeFOSAA (surr.)	1	%	110	55
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]17	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5
13C3-PFBS (surr.)	1	%	94	80
18O2-PFHxS (surr.)	1	%	90	78
13C8-PFOS (surr.)	1	%	78	72
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	%	104	60
13C2-6:2 FTSA (surr.)	1	%	95	76
13C2-8:2 FTSA (surr.)	1	%	90	77
13C2-10:2 FTSA (surr.)	1	%	124	26

Client Sample ID			QC07	QC12 SOIL
Sample Matrix			Soil	Soil
Eurofins Sample No.			M24-Ap0040861	M24-Ap0040862
Date Sampled			Apr 10, 2024	Apr 12, 2024
Test/Reference	LOR	Unit		
PFASs Summations				
Sum (PFHxS + PFOS)*	5	ug/kg	17	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	17	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	17	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	17	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50
Ammonia (as N)	5	mg/kg	-	38
Nitrate & Nitrite (as N)	5	mg/kg	-	< 5
Nitrate (as N)	5	mg/kg	-	< 5
Nitrite (as N)	5	mg/kg	-	< 5
Organic Nitrogen (as N)*	10	mg/kg	-	72
Total Kjeldahl Nitrogen (as N)	10	mg/kg	-	110
Total Nitrogen (as N)*	10	mg/kg	-	110
Phosphorus	5	mg/kg	-	900
Heavy Metals				
Arsenic	2	mg/kg	-	2.8
Cadmium	0.4	mg/kg	-	< 0.4
Chromium	5	mg/kg	-	8.0
Copper	5	mg/kg	-	5.4
Lead	5	mg/kg	-	39
Mercury	0.1	mg/kg	-	0.3
Molybdenum	5	mg/kg	-	< 5
Nickel	5	mg/kg	-	< 5
Selenium	2	mg/kg	-	< 2
Silver	2	mg/kg	-	< 2
Tin	10	mg/kg	-	< 10
Zinc	5	mg/kg	-	29

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	Apr 16, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Apr 18, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Apr 18, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Apr 18, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Apr 18, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Apr 16, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P			
Ammonia (as N)	Melbourne	Apr 17, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrate & Nitrite (as N)	Melbourne	Apr 17, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrate (as N)	Melbourne	Apr 17, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrite (as N)	Melbourne	Apr 17, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Organic Nitrogen (as N)*	Melbourne	Apr 16, 2024	7 Days
- Method: APHA 4500 Organic Nitrogen (N)			
Total Kjeldahl Nitrogen (as N)	Melbourne	Apr 17, 2024	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Phosphorus	Melbourne	Apr 17, 2024	180 Days
- Method: LTM-MET-3010 Alkali Metals Sulfur Silicon and Phosphorus by ICP-AES			
Metals IWRG 621 : Metals M12	Melbourne	Apr 17, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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

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

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	BH12_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040809					X		X				
2	BH12_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040810					X		X				
3	BH13_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040811					X		X				
4	BH13_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040812					X		X				
5	BH14_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040813					X		X				
6	BH14_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040814					X		X				
7	BH16_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040815					X		X				
8	BH16_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040816					X		X				
9	BH17_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040817					X		X				
10	BH17_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040818					X		X				
11	BH18_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040819					X		X				
12	BH15_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040820					X		X				
13	BH15_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040821					X		X				

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
14	BH15_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040822	X										
15	BH19_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040823					X		X				
16	BH19_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040824					X		X				
17	BH20_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040825					X		X				
18	BH20_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040826					X		X				
19	BH21_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040827					X		X				
20	BH21_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040828					X		X				
21	BH21_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040829					X		X				
22	BH22_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040830					X		X				
23	BH22_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040831					X		X				
24	BH23_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040832					X		X				
25	BH23_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040833					X		X				
26	BH24_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040834					X		X				
27	BH24_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040835					X		X				
28	BH25_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040836					X		X				
29	BH25_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040837					X		X				

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Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
30	BH26_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040838					X		X				
31	BH26_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040839					X		X				
32	BH27_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040840					X		X				
33	BH27_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040841					X		X				
34	BH28_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040842					X		X				
35	BH29_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040843					X		X				
36	SW01	Apr 12, 2024		Water	M24-Ap0040844		X	X			X				X	
37	SED01	Apr 12, 2024		Soil	M24-Ap0040845					X		X				
38	SW02	Apr 12, 2024		Water	M24-Ap0040846		X	X			X				X	
39	SED02	Apr 12, 2024		Soil	M24-Ap0040847					X		X				
40	SW03	Apr 12, 2024		Water	M24-Ap0040848		X	X			X				X	
41	SED03	Apr 12, 2024		Soil	M24-Ap0040849					X		X				
42	SW04	Apr 12, 2024		Water	M24-Ap0040850		X	X			X				X	
43	SED04	Apr 12, 2024		Soil	M24-Ap0040851					X		X				
44	SW05	Apr 12, 2024		Water	M24-Ap0040852		X	X			X				X	
45	SED05	Apr 12, 2024		Soil	M24-Ap0040853					X		X				

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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Received: Apr 16, 2024 11:38 AM
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Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
46	SW06	Apr 12, 2024		Water	M24-Ap0040854		X	X			X				X	
47	SED06	Apr 12, 2024		Soil	M24-Ap0040855					X		X				
48	SW07	Apr 12, 2024		Water	M24-Ap0040856		X	X			X				X	
49	SED07	Apr 12, 2024		Soil	M24-Ap0040857					X		X				
50	QC02	Apr 10, 2024		Soil	M24-Ap0040858					X		X				
51	QC03	Apr 10, 2024		Soil	M24-Ap0040859					X		X				
52	QC05	Apr 10, 2024		Soil	M24-Ap0040860					X		X				
53	QC07	Apr 10, 2024		Soil	M24-Ap0040861					X		X				
54	QC12 SOIL	Apr 12, 2024		Soil	M24-Ap0040862			X		X		X	X			X
55	QC12 WATER	Apr 12, 2024		Water	M24-Ap0040863		X		X		X	X			X	
56	RB01	Apr 10, 2024		Water	M24-Ap0040864									X		
57	RB02	Apr 11, 2024		Water	M24-Ap0040865									X		
58	RB03	Apr 12, 2024		Water	M24-Ap0040866									X		
59	FB01	Apr 10, 2024		Water	M24-Ap0040867									X		
60	FB02	Apr 11, 2024		Water	M24-Ap0040868									X		
61	FB03	Apr 12, 2024		Water	M24-Ap0040869									X		

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Amy Meunier

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
62	BH12_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040870	X										
63	BH12_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040871	X										
64	BH12_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040872	X										
65	BH13_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040873	X										
66	BH13_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040874	X										
67	BH13_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040875	X										
68	BH14_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040876	X										
69	BH14_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040877	X										
70	BH14_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040878	X										
71	BH16_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040879	X										
72	BH16_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040880	X										
73	BH16_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040881	X										
74	BH17_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040882	X										
75	BH17_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040883	X										
76	BH17_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040884	X										
77	BH18_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040885	X										

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
78	BH18_0.2-0.3	Apr 10, 2024		Soil	M24-Ap0040886	X										
79	BH15_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040887	X										
80	BH15_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040888	X										
81	BH19_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040889	X										
82	BH19_1.4-1.5	Apr 10, 2024		Soil	M24-Ap0040890	X										
83	BH20_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040891	X										
84	BH20_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040892	X										
85	BH20_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040893	X										
86	BH21_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040894	X										
87	BH21_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040895	X										
88	BH22_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040896	X										
89	BH22_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040897	X										
90	BH22_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040898	X										
91	BH23_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040899	X										
92	BH23_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040900	X										
93	BH23_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040901	X										

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
94	BH24_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040902	X										
95	BH24_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040903	X										
96	BH24_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040904	X										
97	BH25_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040905	X										
98	BH25_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040906	X										
99	BH25_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040907	X										
100	BH26_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040908	X										
101	BH26_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040909	X										
102	BH26_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040910	X										
103	BH27_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040911	X										
104	BH27_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040912	X										
105	BH27_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040913	X										
106	BH28_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040914	X										
107	BH28_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040915	X										
108	BH28_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040916	X										
109	BH28_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040917	X										

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
110	BH29_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040918	X										
111	BH29_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040919	X										
112	BH29_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040920	X										
113	BH29_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040921	X										
114	SS07	Apr 12, 2024		Soil	M24-Ap0040922	X										
115	SS08	Apr 12, 2024		Soil	M24-Ap0040923	X										
116	SS09	Apr 12, 2024		Soil	M24-Ap0040924	X										
117	SS10	Apr 12, 2024		Soil	M24-Ap0040925	X										
118	SS11	Apr 12, 2024		Soil	M24-Ap0040926	X										
119	SS12	Apr 12, 2024		Soil	M24-Ap0040927	X										
120	SS13	Apr 12, 2024		Soil	M24-Ap0040928	X										
121	SS14	Apr 12, 2024		Soil	M24-Ap0040929	X										
122	SS15	Apr 12, 2024		Soil	M24-Ap0040930	X										
123	QC01	Apr 10, 2024		Soil	M24-Ap0040931	X										
124	QC04	Apr 10, 2024		Soil	M24-Ap0040932	X										
125	QC06	Apr 10, 2024		Soil	M24-Ap0040933	X										

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
126	QC08	Apr 11, 2024		Soil	M24-Ap0040934	X										
127	QC09	Apr 11, 2024		Soil	M24-Ap0040935	X										
128	QC10	Apr 11, 2024		Soil	M24-Ap0040936	X										
129	QC11	Apr 12, 2024		Soil	M24-Ap0040937	X										
Test Counts						69	8	8	1	46	8	47	1	6	8	1

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
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)							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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)							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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)							
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)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
Method Blank							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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)							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
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							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Silver	mg/kg	< 2			2	Pass	
Tin	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	104			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	104			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	120			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	116			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	114			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	123			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	107			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	102			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	119			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	105			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	96			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	101			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	90			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	98			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	104			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	106			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	94			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	98			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	120			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	110			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	99			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	96			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	99			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	105			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	115			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	106			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	105			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	112			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	111			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	101			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	102			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	111			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	116			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	122			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	117			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	105			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	120			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	117			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	140			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	98			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	97			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	103			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	95			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	98			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	104			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	97			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	114			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	96			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	108			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	111			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	97			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	94			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	84			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	91			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	111			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	103			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	127			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	102			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	102			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	116			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	117			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	118			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	117			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	106			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	105			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	118			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	98			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	103			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	98			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	111			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	98			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	90			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	101			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	104			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	100			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	106			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	105			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	113			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	97			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	91			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	90			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	97			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	106			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	103			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	107			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	103			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	122			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	79			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	78			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	78			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	92			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	90			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	72			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	81			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	80			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	78			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	80			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	78			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	73			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	78			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	79			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	69			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	74			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	97			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	75			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	80			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	82			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	93			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	74			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	72			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	76			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	78			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	73			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	78			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	77			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	71			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	103			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	99			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	114			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	112			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	119			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	118			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	102			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	109			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	%	121			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	126			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	108			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	101			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	103			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	95			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	97			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	103			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	94			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	105			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	94			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	112			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	106			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	101			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	96			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	89			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	101			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	116			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	103			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)	%	109			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	103			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	100			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	112			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	115			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	116			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	116			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	107			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	102			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	117			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	105			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	93			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	108			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	89			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	92			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	99			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	107			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	109			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	99			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	110			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoropropanesulfonic acid (PFPrS)	%	110			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	101			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	101			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	89			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	94			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	115			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	99			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	118			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	106			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	104			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	120			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	119			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	121			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	121			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	114			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	117			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	121			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	135			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	114			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	97			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	114			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	97			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	89			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	106			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	113			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	114			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	105			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	119			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	115			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	100			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	97			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	103			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	100			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	119			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	108			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	111			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	106			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	120			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	119			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	119			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)	%	117			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	137			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	139			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	116			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	123			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	126			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	116			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	131			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	116			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	122			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	115			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	118			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	127			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	125			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	125			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	122			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	137			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	135			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	110			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	112			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	122			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	120			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	136			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	110			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	119			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	121			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	125			50-150	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	100			80-120	Pass	
Cadmium	%	117			80-120	Pass	
Chromium	%	112			80-120	Pass	
Copper	%	110			80-120	Pass	
Lead	%	113			80-120	Pass	
Mercury	%	106			80-120	Pass	
Molybdenum	%	100			80-120	Pass	
Nickel	%	103			80-120	Pass	
Selenium	%	101			80-120	Pass	
Silver	%	115			80-120	Pass	
Tin	%	97			80-120	Pass	
Zinc	%	102			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Ap0040809	CP	%	97			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Ap0040809	CP	%	101			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Ap0040809	CP	%	108			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanoic acid (PFHpA)	M24-Ap0040809	CP	%	111			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0040809	CP	%	104			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Ap0040809	CP	%	110			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Ap0040809	CP	%	100			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Ap0040809	CP	%	91			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0040809	CP	%	111			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Ap0040809	CP	%	119			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0040809	CP	%	97			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Ap0040809	CP	%	88			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0040809	CP	%	96			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0040809	CP	%	84			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0040809	CP	%	83			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Ap0040809	CP	%	92			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0040809	CP	%	110			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0040809	CP	%	95			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Ap0040809	CP	%	94			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Ap0040809	CP	%	105			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0040809	CP	%	99			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0040809	CP	%	91			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040809	CP	%	89			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0040809	CP	%	91			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Ap0040809	CP	%	70			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0040809	CP	%	110			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-Ap0040809	CP	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040809	CP	%	108			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0040809	CP	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Ap0040809	CP	%	118			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Ap0040830	CP	%	103			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoropentanoic acid (PFPeA)	M24-Ap0040830	CP	%	102			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Ap0040830	CP	%	123			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Ap0040830	CP	%	124			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0040830	CP	%	104			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Ap0040830	CP	%	111			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Ap0040830	CP	%	96			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Ap0040830	CP	%	94			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0040830	CP	%	103			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Ap0040830	CP	%	127			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0040830	CP	%	87			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Ap0040830	CP	%	90			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0040830	CP	%	96			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0040830	CP	%	86			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0040830	CP	%	81			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Ap0040830	CP	%	94			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0040830	CP	%	92			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0040830	CP	%	99			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Ap0040830	CP	%	102			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Ap0040830	CP	%	101			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0040830	CP	%	96			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0040830	CP	%	111			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040830	CP	%	105			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0040830	CP	%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Ap0040830	CP	%	94			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0040830	CP	%	99			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-Ap0040830	CP	%	105			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040830	CP	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0040830	CP	%	94			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Ap0040830	CP	%	122			50-150	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Ap0040840	CP	%	104			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Ap0040840	CP	%	100			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Ap0040840	CP	%	116			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Ap0040840	CP	%	118			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0040840	CP	%	115			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Ap0040840	CP	%	114			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Ap0040840	CP	%	122			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Ap0040840	CP	%	126			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0040840	CP	%	109			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0040840	CP	%	106			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Ap0040840	CP	%	99			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0040840	CP	%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0040840	CP	%	93			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0040840	CP	%	91			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Ap0040840	CP	%	94			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0040840	CP	%	103			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0040840	CP	%	110			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Ap0040840	CP	%	98			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Ap0040840	CP	%	75			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0040840	CP	%	110			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0040840	CP	%	101			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040840	CP	%	97			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0040840	CP	%	95			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0040840	CP	%	80			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-Ap0040840	CP	%	99			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040840	CP	%	96			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0040840	CP	%	100			50-150	Pass	
Spike - % Recovery									
				Result 1					
Nitrate & Nitrite (as N)	M24-Ap0040557	NCP	%	85			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	B24-Ap0039515	NCP	%	77			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M24-Ap0051303	NCP	%	94			75-125	Pass	
Cadmium	M24-Ap0051303	NCP	%	108			75-125	Pass	
Chromium	M24-Ap0051303	NCP	%	101			75-125	Pass	
Copper	M24-Ap0051303	NCP	%	89			75-125	Pass	
Lead	M24-Ap0051303	NCP	%	103			75-125	Pass	
Mercury	M24-Ap0051303	NCP	%	96			75-125	Pass	
Molybdenum	M24-Ap0051303	NCP	%	96			75-125	Pass	
Nickel	M24-Ap0051303	NCP	%	94			75-125	Pass	
Selenium	M24-Ap0051303	NCP	%	97			75-125	Pass	
Silver	M24-Ap0051303	NCP	%	106			75-125	Pass	
Tin	M24-Ap0051303	NCP	%	96			75-125	Pass	
Zinc	M24-Ap0051303	NCP	%	95			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M24-Ap0040812	CP	%	3.2	2.8	15	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0040818	CP	ug/kg	< 5	5.2	20	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Ap0040818	CP	ug/kg	120	140	11	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0040818	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0040818	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040818	CP	ug/kg	10	12	18	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Ap0040818	CP	ug/kg	110	130	14	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0040818	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-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040818	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Ap0040818	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0040821	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0040821	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0040821	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-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040821	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Ap0040821	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M24-Ap0040823	CP	%	4.6	5.2	13	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0040829	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0040829	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0040829	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-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040829	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Ap0040829	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M24-Ap0040833	CP	%	11	12	3.8	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Ap0040839	CP	ug/kg	7.3	8.0	8.7	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Ap0040839	CP	ug/kg	11	12	10	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Ap0040839	CP	ug/kg	8.1	9.8	19	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0040839	CP	ug/kg	12	13	15	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Ap0040839	CP	ug/kg	7.0	8.3	17	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Ap0040839	CP	ug/kg	27	31	14	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0040839	CP	ug/kg	< 5	5.8	17	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0040839	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0040839	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Ap0040839	CP	ug/kg	< 5	5.6	18	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040839	CP	ug/kg	25	31	20	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0040839	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-Ap0040839	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040839	CP	ug/kg	19	21	12	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0040839	CP	ug/kg	42	51	20	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Ap0040839	CP	ug/kg	14	17	18	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M24-Ap0040843	CP	%	9.6	12	21	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorotridecanoic acid (PFTrDA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0040855	CP	ug/kg	< 10	< 10	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0040855	CP	ug/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0040855	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-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040855	CP	ug/kg	< 10	< 10	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Ap0040855	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanoic acid (PFNA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass

Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluoroundecanoic acid (PFUnDA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0040857	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0040857	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0040857	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-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040857	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Ap0040857	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M24-Ap0040860	CP	%	14	14	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	B24-Ap0030835	NCP	mg/kg	2000	2200	9.7	30%	Pass	
Nitrate & Nitrite (as N)	B24-Ap0030835	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Nitrite (as N)	B24-Ap0030835	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M24-Ap0040627	NCP	mg/kg	17000	19000	7.1	30%	Pass	
Phosphorus	B24-Ap0039478	NCP	mg/kg	7800	7300	6.6	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M24-Ap0040803	NCP	mg/kg	7.1	5.0	35	30%	Fail	Q15
Cadmium	M24-Ap0040803	NCP	mg/kg	1.8	2.3	26	30%	Pass	
Chromium	M24-Ap0040803	NCP	mg/kg	31	26	20	30%	Pass	
Copper	M24-Ap0040803	NCP	mg/kg	120	120	3.3	30%	Pass	
Lead	M24-Ap0040803	NCP	mg/kg	1000	870	17	30%	Pass	
Mercury	M24-Ap0040803	NCP	mg/kg	1.3	1.3	2.1	30%	Pass	
Molybdenum	M24-Ap0040803	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	M24-Ap0040803	NCP	mg/kg	33	30	10	30%	Pass	
Selenium	M24-Ap0040803	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M24-Ap0040803	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Tin	M24-Ap0051303	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M24-Ap0040803	NCP	mg/kg	1200	1100	8.2	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).
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Amy Meunier	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal
Joseph Edouard	Senior Analyst-PFAS
Mary Makarios	Senior Analyst-Inorganic



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
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Attention: **Angus Robinson**

Report **1088156-W**
Project name MFS Christie Downs Supp DSI
Project ID 12639293
Received Date Apr 16, 2024

Client Sample ID			**SW01**	**SW02**	**SW03**	**SW04**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M24-Ap0040844**	**M24-Ap0040846**	**M24-Ap0040848**	**M24-Ap0040850**
Date Sampled			**Apr 12, 2024**	**Apr 12, 2024**	**Apr 12, 2024**	**Apr 12, 2024**
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.24	0.26	0.12	1.3
Nitrate & Nitrite (as N)	0.05	mg/L	1.8	1.7	1.8	1.8
Nitrate (as N)	0.02	mg/L	1.8	1.7	1.7	1.8
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Organic Nitrogen (as N)*	0.2	mg/L	0.26	0.74	1.08	0.2
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.5	1.0	1.2	1.5
Total Nitrogen (as N)*	0.2	mg/L	2.3	2.7	3.0	3.3
Phosphate total (as P)	0.01	mg/L	0.16	0.24	0.17	0.04
Heavy Metals						
Arsenic	0.001	mg/L	0.001	0.001	< 0.001	0.001
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	< 0.001	0.001	< 0.001	< 0.001
Copper	0.001	mg/L	0.002	0.002	0.002	0.001
Lead	0.001	mg/L	0.001	0.002	0.001	< 0.001
Mercury	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nickel	0.001	mg/L	< 0.001	0.001	< 0.001	< 0.001
Selenium	0.001	mg/L	0.003	0.003	0.004	0.004
Silver	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Tin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Zinc	0.005	mg/L	0.007	0.010	0.010	0.007
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace						
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	0.010	0.008	< 0.005	0.006
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	0.005	0.006	0.005	0.004
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	0.011	0.010	0.008	0.008
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	0.002	0.003	0.003	< 0.001
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	0.009	0.009	0.007	[N09]0.009
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	0.013	0.017	0.006	0.009
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	53	52	62	51
13C5-PFPeA (surr.)	1	%	79	77	90	54

Client Sample ID			SW01	SW02	SW03	SW04
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ap0040844	M24-Ap0040846	M24-Ap0040848	M24-Ap0040850
Date Sampled			Apr 12, 2024	Apr 12, 2024	Apr 12, 2024	Apr 12, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace						
13C5-PFHxA (surr.)	1	%	55	54	62	55
13C4-PFHpA (surr.)	1	%	34	32	36	55
13C8-PFOA (surr.)	1	%	62	60	70	59
13C5-PFNA (surr.)	1	%	59	56	64	75
13C6-PFDA (surr.)	1	%	43	40	43	57
13C2-PFUnDA (surr.)	1	%	61	55	54	60
13C2-PFDoDA (surr.)	1	%	77	72	68	93
13C2-PFTeDA (surr.)	1	%	157	154	121	193
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	0.003	0.003	0.003	[N09]0.002
Perfluorononanesulfonic acid (PFNS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.001	ug/L	0.001	0.001	0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	0.014	0.014	0.014	[N09]0.004
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.0001	ug/L	0.015	0.018	0.017	0.0042
Perfluorodecanesulfonic acid (PFDS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	65	62	70	59
18O2-PFHxS (surr.)	1	%	89	85	92	55
13C8-PFOS (surr.)	1	%	84	78	83	69
Perfluoroalkyl sulfonamido substances- Ultra Trace						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
13C8-FOSA (surr.)	1	%	57	55	58	78
D3-N-MeFOSA (surr.)	1	%	30	34	33	165
D5-N-EtFOSA (surr.)	1	%	26	31	30	181
D7-N-MeFOSE (surr.)	1	%	35	33	28	175
D9-N-EtFOSE (surr.)	1	%	31	32	29	170
D5-N-EtFOSAA (surr.)	1	%	111	108	93	107
D3-N-MeFOSAA (surr.)	1	%	89	83	86	89
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	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	49	48	51	53
13C2-6:2 FTSA (surr.)	1	%	92	83	94	69
13C2-8:2 FTSA (surr.)	1	%	102	96	104	96
13C2-10:2 FTSA (surr.)	1	%	118	115	104	135

Client Sample ID			SW01	SW02	SW03	SW04
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ap0040844	M24-Ap0040846	M24-Ap0040848	M24-Ap0040850
Date Sampled			Apr 12, 2024	Apr 12, 2024	Apr 12, 2024	Apr 12, 2024
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.029	0.032	0.031	0.0082
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.024	0.027	0.024	0.0132
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.038	0.041	0.038	0.0172
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.08	0.085	0.06	0.0462
Sum of PFASs (n=30)*	0.005	ug/L	0.083	0.089	0.064	0.0462

Client Sample ID			SW05	SW06	SW07	QC12 WATER
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ap0040852	M24-Ap0040854	M24-Ap0040856	M24-Ap0040863
Date Sampled			Apr 12, 2024	Apr 12, 2024	Apr 12, 2024	Apr 12, 2024
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.60	0.17	0.12	0.14
Nitrate & Nitrite (as N)	0.05	mg/L	0.97	1.1	1.1	0.42
Nitrate (as N)	0.02	mg/L	0.97	1.1	1.1	0.42
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Organic Nitrogen (as N)*	0.2	mg/L	0.5	0.83	1.78	1.76
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.1	1.0	1.9	1.9
Total Nitrogen (as N)*	0.2	mg/L	2.1	2.1	3.0	2.3
Phosphate total (as P)	0.01	mg/L	0.06	0.09	0.26	0.15
Heavy Metals						
Arsenic	0.001	mg/L	0.001	0.002	0.001	-
Arsenic (filtered)	0.001	mg/L	-	-	-	< 0.001
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	-
Cadmium (filtered)	0.0002	mg/L	-	-	-	< 0.0002
Chromium	0.001	mg/L	< 0.001	0.001	< 0.001	-
Chromium (filtered)	0.001	mg/L	-	-	-	< 0.001
Copper	0.001	mg/L	0.002	0.003	0.001	-
Copper (filtered)	0.001	mg/L	-	-	-	< 0.001
Lead	0.001	mg/L	0.001	0.004	0.002	-
Lead (filtered)	0.001	mg/L	-	-	-	< 0.001
Mercury	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Mercury (filtered)	0.0001	mg/L	-	-	-	< 0.0001
Molybdenum	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Molybdenum (filtered)	0.005	mg/L	-	-	-	< 0.005
Nickel	0.001	mg/L	< 0.001	0.002	0.001	-
Nickel (filtered)	0.001	mg/L	-	-	-	< 0.001
Selenium	0.001	mg/L	0.004	0.004	0.003	-
Selenium (filtered)	0.001	mg/L	-	-	-	0.003
Silver	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Silver (filtered)	0.005	mg/L	-	-	-	< 0.005
Tin	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Tin (filtered)	0.005	mg/L	-	-	-	< 0.005
Zinc	0.005	mg/L	0.009	0.034	0.016	-
Zinc (filtered)	0.005	mg/L	-	-	-	< 0.005

Client Sample ID			SW05	SW06	SW07	QC12 WATER
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ap0040852	M24-Ap0040854	M24-Ap0040856	M24-Ap0040863
Date Sampled			Apr 12, 2024	Apr 12, 2024	Apr 12, 2024	Apr 12, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace						
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	0.003	0.003	0.001	0.003
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	0.005	0.005	0.003	0.006
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	[N09]0.003
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	[N09]0.006	[N09]0.007	[N09]0.004	[N09]0.006
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	0.008	0.010	0.007	0.009
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	61	57	59	65
13C5-PFPeA (surr.)	1	%	64	60	64	72
13C5-PFHxA (surr.)	1	%	63	59	65	69
13C4-PFHpA (surr.)	1	%	64	61	65	71
13C8-PFOA (surr.)	1	%	67	61	63	74
13C5-PFNA (surr.)	1	%	52	75	52	61
13C6-PFDA (surr.)	1	%	55	55	69	62
13C2-PFUnDA (surr.)	1	%	58	55	50	64
13C2-PFDoDA (surr.)	1	%	77	79	83	94
13C2-PFTeDA (surr.)	1	%	136	132	125	166
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	[N09]0.003	[N09]0.002	[N09]0.002	[N09]0.003
Perfluorononanesulfonic acid (PFNS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	[N09]0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	[N09]0.004	[N09]0.004	[N09]0.005	[N09]0.016
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.0001	ug/L	0.0041	0.0052	0.0042	0.019
Perfluorodecanesulfonic acid (PFDS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	54	60	66	65
18O2-PFHxS (surr.)	1	%	54	54	55	62
13C8-PFOS (surr.)	1	%	66	61	63	67
Perfluoroalkyl sulfonamido substances- Ultra Trace						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
13C8-FOSA (surr.)	1	%	74	80	71	88
D3-N-MeFOSA (surr.)	1	%	126	188	95	137
D5-N-EtFOSA (surr.)	1	%	128	192	123	147
D7-N-MeFOSE (surr.)	1	%	156	169	133	162

Client Sample ID			SW05	SW06	SW07	QC12 WATER
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ap0040852	M24-Ap0040854	M24-Ap0040856	M24-Ap0040863
Date Sampled			Apr 12, 2024	Apr 12, 2024	Apr 12, 2024	Apr 12, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances- Ultra Trace						
D9-N-EtFOSE (surr.)	1	%	136	142	134	156
D5-N-EtFOSAA (surr.)	1	%	94	106	90	106
D3-N-MeFOSAA (surr.)	1	%	82	81	71	91
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	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	57	56	54	66
13C2-6:2 FTSA (surr.)	1	%	69	68	75	85
13C2-8:2 FTSA (surr.)	1	%	94	91	87	103
13C2-10:2 FTSA (surr.)	1	%	113	114	119	132
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.0081	0.0092	0.0092	0.035
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.0101	0.0122	0.0082	0.025
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.0141	0.0162	0.0132	0.041
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.0331	0.0362	0.0262	0.062
Sum of PFASs (n=30)*	0.005	ug/L	0.0331	0.0362	0.0262	0.066

Client Sample ID			RB01	RB02	RB03	FB01
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ap0040864	M24-Ap0040865	M24-Ap0040866	M24-Ap0040867
Date Sampled			Apr 10, 2024	Apr 11, 2024	Apr 12, 2024	Apr 10, 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	%	70	75	66	72
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	%	107	108	103	111
13C8-PFOS (surr.)	1	%	112	117	107	118
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C8-PFOA (surr.)	1	%	104	107	95	101
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			FB02	FB03
Sample Matrix			Water	Water
Eurofins Sample No.			M24-Ap0040868	M24-Ap0040869
Date Sampled			Apr 11, 2024	Apr 12, 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	%	69	78
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	%	110	111
13C8-PFOS (surr.)	1	%	118	123
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	< 0.01	< 0.01
13C8-PFOA (surr.)	1	%	115	114
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
Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P			
Ammonia (as N)	Melbourne	Apr 17, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrate & Nitrite (as N)	Melbourne	Apr 17, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrate (as N)	Melbourne	Apr 17, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrite (as N)	Melbourne	Apr 17, 2024	2 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Organic Nitrogen (as N)*	Melbourne	Apr 16, 2024	7 Days
- Method: APHA 4500 Organic Nitrogen (N)			
Total Kjeldahl Nitrogen (as N)	Melbourne	Apr 17, 2024	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Phosphate total (as P)	Melbourne	Apr 23, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Metals IWRG 621 : Metals M12	Melbourne	Apr 17, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Metals IWRG 621 : Metals M12 filtered	Melbourne	Apr 17, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Melbourne	Apr 23, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace	Melbourne	Apr 19, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace	Melbourne	Apr 19, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			
Perfluoroalkyl sulfonamido substances- Ultra Trace	Melbourne	Apr 19, 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	Apr 19, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			

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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	Site# 25079 & 25289

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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

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	BH12_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040809					X		X				
2	BH12_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040810					X		X				
3	BH13_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040811					X		X				
4	BH13_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040812					X		X				
5	BH14_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040813					X		X				
6	BH14_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040814					X		X				
7	BH16_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040815					X		X				
8	BH16_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040816					X		X				
9	BH17_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040817					X		X				
10	BH17_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040818					X		X				
11	BH18_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040819					X		X				
12	BH15_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040820					X		X				
13	BH15_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040821					X		X				

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
14	BH15_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040822	X										
15	BH19_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040823					X		X				
16	BH19_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040824					X		X				
17	BH20_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040825					X		X				
18	BH20_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040826					X		X				
19	BH21_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040827					X		X				
20	BH21_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040828					X		X				
21	BH21_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040829					X		X				
22	BH22_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040830					X		X				
23	BH22_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040831					X		X				
24	BH23_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040832					X		X				
25	BH23_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040833					X		X				
26	BH24_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040834					X		X				
27	BH24_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040835					X		X				
28	BH25_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040836					X		X				
29	BH25_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040837					X		X				

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
30	BH26_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040838					X		X				
31	BH26_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040839					X		X				
32	BH27_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040840					X		X				
33	BH27_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040841					X		X				
34	BH28_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040842					X		X				
35	BH29_0.4-0.5	Apr 11, 2024		Soil	M24-Ap0040843					X		X				
36	SW01	Apr 12, 2024		Water	M24-Ap0040844		X	X			X				X	
37	SED01	Apr 12, 2024		Soil	M24-Ap0040845					X		X				
38	SW02	Apr 12, 2024		Water	M24-Ap0040846		X	X			X				X	
39	SED02	Apr 12, 2024		Soil	M24-Ap0040847					X		X				
40	SW03	Apr 12, 2024		Water	M24-Ap0040848		X	X			X				X	
41	SED03	Apr 12, 2024		Soil	M24-Ap0040849					X		X				
42	SW04	Apr 12, 2024		Water	M24-Ap0040850		X	X			X				X	
43	SED04	Apr 12, 2024		Soil	M24-Ap0040851					X		X				
44	SW05	Apr 12, 2024		Water	M24-Ap0040852		X	X			X				X	
45	SED05	Apr 12, 2024		Soil	M24-Ap0040853					X		X				

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
46	SW06	Apr 12, 2024		Water	M24-Ap0040854		X	X			X				X	
47	SED06	Apr 12, 2024		Soil	M24-Ap0040855					X		X				
48	SW07	Apr 12, 2024		Water	M24-Ap0040856		X	X			X				X	
49	SED07	Apr 12, 2024		Soil	M24-Ap0040857					X		X				
50	QC02	Apr 10, 2024		Soil	M24-Ap0040858					X		X				
51	QC03	Apr 10, 2024		Soil	M24-Ap0040859					X		X				
52	QC05	Apr 10, 2024		Soil	M24-Ap0040860					X		X				
53	QC07	Apr 10, 2024		Soil	M24-Ap0040861					X		X				
54	QC12 SOIL	Apr 12, 2024		Soil	M24-Ap0040862			X		X		X	X			X
55	QC12 WATER	Apr 12, 2024		Water	M24-Ap0040863		X		X		X	X			X	
56	RB01	Apr 10, 2024		Water	M24-Ap0040864									X		
57	RB02	Apr 11, 2024		Water	M24-Ap0040865									X		
58	RB03	Apr 12, 2024		Water	M24-Ap0040866									X		
59	FB01	Apr 10, 2024		Water	M24-Ap0040867									X		
60	FB02	Apr 11, 2024		Water	M24-Ap0040868									X		
61	FB03	Apr 12, 2024		Water	M24-Ap0040869									X		

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Order No.:
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Phone: 08 8111 6600
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Received: Apr 16, 2024 11:38 AM
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Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Amy Meunier

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
62	BH12_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040870	X										
63	BH12_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040871	X										
64	BH12_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040872	X										
65	BH13_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040873	X										
66	BH13_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040874	X										
67	BH13_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040875	X										
68	BH14_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040876	X										
69	BH14_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040877	X										
70	BH14_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040878	X										
71	BH16_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040879	X										
72	BH16_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040880	X										
73	BH16_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040881	X										
74	BH17_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040882	X										
75	BH17_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040883	X										
76	BH17_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040884	X										
77	BH18_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040885	X										

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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: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1088156
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Apr 16, 2024 11:38 AM
Due: Apr 23, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						HOLD	Phosphate total (as P)	Metals IWRG 621 : Metals M12	Metals IWRG 621 : Metals M12 filtered	Moisture Set	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs) - Short	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
78	BH18_0.2-0.3	Apr 10, 2024		Soil	M24-Ap0040886	X										
79	BH15_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040887	X										
80	BH15_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040888	X										
81	BH19_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040889	X										
82	BH19_1.4-1.5	Apr 10, 2024		Soil	M24-Ap0040890	X										
83	BH20_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040891	X										
84	BH20_1.5-1.6	Apr 10, 2024		Soil	M24-Ap0040892	X										
85	BH20_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040893	X										
86	BH21_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040894	X										
87	BH21_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040895	X										
88	BH22_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040896	X										
89	BH22_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040897	X										
90	BH22_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040898	X										
91	BH23_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040899	X										
92	BH23_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040900	X										
93	BH23_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040901	X										

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
94	BH24_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040902	X										
95	BH24_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040903	X										
96	BH24_1.9-2.0	Apr 10, 2024		Soil	M24-Ap0040904	X										
97	BH25_0.0-0.1	Apr 10, 2024		Soil	M24-Ap0040905	X										
98	BH25_0.4-0.5	Apr 10, 2024		Soil	M24-Ap0040906	X										
99	BH25_1.0-1.1	Apr 10, 2024		Soil	M24-Ap0040907	X										
100	BH26_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040908	X										
101	BH26_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040909	X										
102	BH26_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040910	X										
103	BH27_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040911	X										
104	BH27_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040912	X										
105	BH27_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040913	X										
106	BH28_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040914	X										
107	BH28_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040915	X										
108	BH28_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040916	X										
109	BH28_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040917	X										

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
110	BH29_0.0-0.1	Apr 11, 2024		Soil	M24-Ap0040918	X										
111	BH29_1.0-1.1	Apr 11, 2024		Soil	M24-Ap0040919	X										
112	BH29_1.5-1.6	Apr 11, 2024		Soil	M24-Ap0040920	X										
113	BH29_1.9-2.0	Apr 11, 2024		Soil	M24-Ap0040921	X										
114	SS07	Apr 12, 2024		Soil	M24-Ap0040922	X										
115	SS08	Apr 12, 2024		Soil	M24-Ap0040923	X										
116	SS09	Apr 12, 2024		Soil	M24-Ap0040924	X										
117	SS10	Apr 12, 2024		Soil	M24-Ap0040925	X										
118	SS11	Apr 12, 2024		Soil	M24-Ap0040926	X										
119	SS12	Apr 12, 2024		Soil	M24-Ap0040927	X										
120	SS13	Apr 12, 2024		Soil	M24-Ap0040928	X										
121	SS14	Apr 12, 2024		Soil	M24-Ap0040929	X										
122	SS15	Apr 12, 2024		Soil	M24-Ap0040930	X										
123	QC01	Apr 10, 2024		Soil	M24-Ap0040931	X										
124	QC04	Apr 10, 2024		Soil	M24-Ap0040932	X										
125	QC06	Apr 10, 2024		Soil	M24-Ap0040933	X										

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
126	QC08	Apr 11, 2024		Soil	M24-Ap0040934	X										
127	QC09	Apr 11, 2024		Soil	M24-Ap0040935	X										
128	QC10	Apr 11, 2024		Soil	M24-Ap0040936	X										
129	QC11	Apr 12, 2024		Soil	M24-Ap0040937	X										
Test Counts						69	8	8	1	46	8	47	1	6	8	1

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
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	
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	
Method Blank							
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Molybdenum	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Silver	mg/L	< 0.005			0.005	Pass	
Tin	mg/L	< 0.005			0.005	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
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	
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	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Method Blank							
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Molybdenum (filtered)	mg/L	< 0.005			0.005	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Silver (filtered)	mg/L	< 0.005			0.005	Pass	
Tin (filtered)	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
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	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Ammonia (as N)	%	109			70-130	Pass	
Nitrate & Nitrite (as N)	%	112			70-130	Pass	
Nitrite (as N)	%	96			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	130			70-130	Pass	
Phosphate total (as P)	%	98			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	84			80-120	Pass	
Cadmium	%	87			80-120	Pass	
Chromium	%	83			80-120	Pass	
Copper	%	83			80-120	Pass	
Lead	%	84			80-120	Pass	
Mercury	%	90			80-120	Pass	
Molybdenum	%	84			80-120	Pass	
Nickel	%	85			80-120	Pass	
Selenium	%	85			80-120	Pass	
Silver	%	87			80-120	Pass	
Tin	%	85			80-120	Pass	
Zinc	%	87			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace							
Perfluorobutanoic acid (PFBA)	%	98			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	98			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	85			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	125			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	95			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	125			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoropentanoic acid (PFPeA)	%	97			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	104			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	82			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	102			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace							
Perfluorobutanesulfonic acid (PFBS)	%	106			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	87			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	106			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	94			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	94			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	96			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	58			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Ultra Trace							
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	86			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	68			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	95			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	84			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	106			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	68			50-150	Pass	
Perfluorooctane sulfonamide (FOSA)	%	83			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	99			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	83			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace							
Perfluorobutanoic acid (PFBA)	%	97			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	97			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	121			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	92			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	92			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	119			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	95			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	112			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	61			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	98			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace							
Perfluorobutanesulfonic acid (PFBS)	%	96			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	88			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	109			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	91			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	102			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	98			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	73			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Ultra Trace							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	101			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	91			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	104			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	107			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	107			50-150	Pass	
Perfluorooctane sulfonamide (FOSA)	%	94			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	96			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	99			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	99			50-150	Pass	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	96			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	91			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	119			50-150	Pass	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	80			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	86			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	114			50-150	Pass	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
Perfluorooctanesulfonic acid (PFOS)	%	108			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Nitrate & Nitrite (as N)	M24-Ap0030669	NCP	%	125			70-130	Pass	
Nitrite (as N)	M24-Ap0030669	NCP	%	130			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M24-Ap0041540	NCP	%	101			70-130	Pass	
Phosphate total (as P)	M24-Ap0038957	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M24-Ap0048128	NCP	%	90			75-125	Pass	
Cadmium	M24-Ap0048128	NCP	%	92			75-125	Pass	
Chromium	G24-Ap0047541	NCP	%	84			75-125	Pass	
Copper	G24-Ap0047541	NCP	%	83			75-125	Pass	
Lead	M24-Ap0048128	NCP	%	88			75-125	Pass	
Mercury	M24-Ap0048128	NCP	%	92			75-125	Pass	
Molybdenum	M24-Ap0048128	NCP	%	88			75-125	Pass	
Nickel	M24-Ap0048128	NCP	%	86			75-125	Pass	
Selenium	M24-Ap0048128	NCP	%	89			75-125	Pass	
Silver	M24-Ap0048128	NCP	%	94			75-125	Pass	
Tin	M24-Ap0048128	NCP	%	87			75-125	Pass	
Zinc	M24-Ap0048128	NCP	%	89			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M24-Ap0036522	NCP	%	93			75-125	Pass	
Cadmium (filtered)	M24-Ap0036522	NCP	%	87			75-125	Pass	
Chromium (filtered)	M24-Ap0036522	NCP	%	86			75-125	Pass	
Copper (filtered)	M24-Ap0036522	NCP	%	84			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead (filtered)	M24-Ap0036522	NCP	%	84			75-125	Pass	
Mercury (filtered)	M24-Ap0036522	NCP	%	90			75-125	Pass	
Molybdenum (filtered)	M24-Ap0036522	NCP	%	77			75-125	Pass	
Nickel (filtered)	M24-Ap0036522	NCP	%	85			75-125	Pass	
Selenium (filtered)	M24-Ap0036522	NCP	%	87			75-125	Pass	
Silver (filtered)	M24-Ap0036522	NCP	%	84			75-125	Pass	
Tin (filtered)	M24-Ap0036522	NCP	%	85			75-125	Pass	
Zinc (filtered)	M24-Ap0036522	NCP	%	90			75-125	Pass	
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1					
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0026924	NCP	%	88			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0026924	NCP	%	84			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0026924	NCP	%	111			50-150	Pass	
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1					
Perfluorooctanesulfonic acid (PFOS)	M24-Ap0049684	NCP	%	117			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Phosphate total (as P)	M24-Ap0040844	CP	mg/L	0.16	0.17	5.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M24-Ap0048128	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M24-Ap0048128	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	G24-Ap0047541	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M24-Ap0048128	NCP	mg/L	0.26	0.26	<1	30%	Pass	
Lead	M24-Ap0048128	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M24-Ap0048128	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Molybdenum	M24-Ap0048128	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Nickel	M24-Ap0048128	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Selenium	M24-Ap0048128	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Silver	M24-Ap0048128	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Tin	M24-Ap0048128	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Zinc	M24-Ap0048128	NCP	mg/L	0.014	0.014	1.0	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Ap0049881	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Ap0049881	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)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0049881	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)	M24-Ap0049881	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0049881	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0049881	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0049881	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0049881	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0049881	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluorooctane sulfonamide (FOSA)	M24-Ap0049881	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)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0049881	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Ap0049881	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Kjeldahl Nitrogen (as N)	M24-Ap0040846	CP	mg/L	1.0	1.2	18	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M24-Ap0040850	CP	mg/L	1.3	0.56	79	30%	Fail	Q15
Nitrate & Nitrite (as N)	M24-Ap0040850	CP	mg/L	1.8	1.8	1.1	30%	Pass	
Nitrite (as N)	M24-Ap0040850	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Ap0040852	CP	ug/L	< 0.005	0.006	25	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Ap0040852	CP	ug/L	0.003	0.003	12	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Ap0040852	CP	ug/L	0.005	0.007	21	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace				Result 1	Result 2	RPD		
Perfluorononanoic acid (PFNA)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	M24-Ap0040852	CP	ug/L	0.006	0.008	24	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	M24-Ap0040852	CP	ug/L	0.003	0.002	8.4	30%	Pass
Perfluorononanesulfonic acid (PFNS)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040852	CP	ug/L	0.004	0.004	2.2	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	M24-Ap0040852	CP	ug/L	0.0041	0.0041	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	M24-Ap0040852	CP	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)	M24-Ap0040852	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Ap0040852	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Ap0040852	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Ap0040852	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Ap0040852	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Ap0040852	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
Perfluorooctane sulfonamide (FOSA)	M24-Ap0040852	CP	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)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040852	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Ap0040852	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0040852	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0040852	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	M24-Ap0040852	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M24-Ap0038642	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M24-Ap0038642	NCP	mg/L	0.0012	0.0011	2.7	30%	Pass	
Chromium (filtered)	M24-Ap0038642	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M24-Ap0038642	NCP	mg/L	0.072	0.071	1.1	30%	Pass	
Lead (filtered)	M24-Ap0038642	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	M24-Ap0038642	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Molybdenum (filtered)	M24-Ap0038642	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Nickel (filtered)	M24-Ap0038642	NCP	mg/L	0.15	0.15	1.3	30%	Pass	
Selenium (filtered)	M24-Ap0038642	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Silver (filtered)	M24-Ap0038642	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Tin (filtered)	M24-Ap0038642	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Zinc (filtered)	M24-Ap0038642	NCP	mg/L	0.18	0.18	<1	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Ap0026923	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Ap0026923	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Ap0026923	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
Perfluorooctanesulfonic acid (PFOS)	M24-Ap0049606	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
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).
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Amy Meunier	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal
Joseph Edouard	Senior Analyst-PFAS
Mary Makarios	Senior Analyst-Inorganic
Mary Makarios	Senior Analyst-Metal



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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eurofins | Environment Testing

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

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
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+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

NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
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Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name: GHD Pty Ltd SA
Contact name: Angus Robinson
Project name: Chritie Downs Supp DSI
Project ID: 12639293
Turnaround time: 2 Day
Date/Time received Jul 12, 2024 11:42 AM
Eurofins reference 1117313

Sample Information

✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

✓ All samples have been received as described on the above COC.

✓ COC has been completed correctly.

✓ Attempt to chill was evident.

✓ Appropriately preserved sample containers have been used.

✓ All samples were received in good condition.

✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

✓ Appropriate sample containers have been used.

✓ Sample containers for volatile analysis received with zero headspace.

✓ Split sample sent to requested external lab.

✗ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

EXTRA:
SW08 9/7
SW08 11/7
SED08
QC01

Contact

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

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

Results will be delivered electronically via email to Angus Robinson - angus.robinson@ghd.com.

Note: A copy of these results will also be delivered to the general GHD Pty Ltd SA email address.

Global Leader - Results you can trust

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 №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	Chrille Downs Supp DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Joshua Anderson				
Phone №	08 8111 6710				
Special Directions	3 day TAT.				
Purchase Order	12639293				
Quote ID №					

Sampler(s)	Joshua Anderson, Terrence Wilson, Louise Wright
Handed over by	Joshua Anderson
Email for Invoice	accountspayableAU@ghd.com ben.petticrev
Email for Results	joshua.anderson2@ghd.com, davide.me

Analyses — Volatile 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 (short suite)	PFAS Extended Suite - 30 PFAS	Nitrate, nitrite, ammonia	Total Metals (Standard 8)	HOLD	Containers — Change container type & size if necessary. 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
	SW09	9/7/24	W					X			2			1			
	SW10	9/7/24	W					X			2			1			
	SW11	9/7/24	W					X			2			1			
	SW12	9/7/24	W					X			2			1			
	SW13	9/7/24	W					X			2			1			
	SW14	9/7/24	W					X			2			1			
	SED09	9/7/24	S					X							1		
	SED10	9/7/24	S					X							1		
	SED11	9/7/24	S					X							1		
	SED12	9/7/24	S					X							1		
	SED13	9/7/24	S					X							1		
	SED14	9/7/24	S					X							1		
	QC03	9/7/24	W/S					X			2			1	1		
	QC03A	9/7/24	W/S					X			2			1	1		Forward to ALS
	Total Counts							14			16			8	8		

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 days♦
- ☐ 5 days (Standard)
- ☐ Other( )

12/7/24
TB/11-733

Method of Shipment: ☐ Courier (#) ☐ Hand Delivered ☐ Postal | Name | Signature | Date | Time

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

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03 8564 5000 EnviroSampleVic@eurofins.com

Company	GHD	Project №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	Chrittie Downs Supp DSI	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Joshua Anderson				
Phone №	08 8111 6710				
Special Directions	3 day TAT				
Purchase Order	12639293				
Quote ID №					

Sampler(s)	Joshua Anderson, Terrence Wilson, Louise Wright
Handed over by	Joshua Anderson
Email for Invoice	accountspayableAU@ghd.com ben.petticrev
Email for Results	joshua.anderson2@ghd.com, davide.me

Analyses (Where metals are requested, please specify "Total" or "Filtered". Suite code must be listed 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 days+ ☐ 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	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
	SS07	9/7/24	S	X							1		
	SS08	9/7/24	S	X							1		
	SS09	9/7/24	S	X							1		
	SS10	9/7/24	S	X							1		
	SS11	9/7/24	S	X							1		
	SS12	9/7/24	S	X							1		
	SS13	9/7/24	S	X							1		
	SS14	9/7/24	S	X							1		
	SS15	9/7/24	S	X							1		
	BH19_1.0-1.1	9/7/24	S	X							1		
	BH26_1.0-1.1	9/7/24	S	X							1		
	BH27_1.0-1.1	9/7/24	S	X							1		
	BH29_1.0-1.1	9/7/24	S	X							1		
	Total Counts			13							13		

Method of Shipment ☐ Courier (#) ☐ Hand Delivered ☐ Postal Name Signature Date Time

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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☐ **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 №	12539293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	Chrtie Downs Supp DSI	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Joshua Anderson				
Phone №	08 8111 6710				
Special Directions	3 day TAT				
Purchase Order					
Quote ID №					

Sampler(s)	Joshua Anderson, Terrence Wilson, Louise Wright
Handed over by	Joshua Anderson
Email for Invoice	accountspayableAU@ghd.com ben.petticrev
Email for Results	joshua.anderson2@ghd.com, davide.mer

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 days♦
☐ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time (dd/mm/yy hh:mm)	Matrix Soil (S) Water (W)	PFAS Extended Suite - 30 PFAS with ultra trace	Nitrate, nitrite, ammonia	Total Metals (Standard 8)	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
	SW09	11/7/24	W	X	X	X				2			1			
	SW10	11/7/24	W	X	X	X				2			1			
	SW11	11/7/24	W	X	X	X				2			1			
	SW12	11/7/24	W	X	X	X				2			1			
	SW13	11/7/24	W	X	X	X				2			1			
	SW14	11/7/24	W	X	X	X				2			1			
	STMWTR_01	11/7/24	W	X	X	X				2			1			
	STMWTR_02	11/7/24	W	X	X	X				2			1			
	STMWTR_03	11/7/24	W	X	X	X				2			1			
	QC03	11/7/24	W	X	X	X				2			1			
	QC03A	11/7/24	W	X	X	X				2			1			Forward to ALS
	Total Counts			11	11	11				22			11			

Method of Shipment: ☐ Courier (#) ☐ Hand Delivered ☐ Postal Name Signature Date Time

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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03 8564 5000 EnviroSampleVic@eurofins.com

Company	GHD	Project №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	Chrtie Downs Supp DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Joshua Anderson				
Phone №	08 8111 6710				
Special Directions	3 day TAT				
Purchase Order	12639293				
Quote ID №					

Sampler(s)	Joshua Anderson, Terrence Wilson, Louise Wright	
Handed over by	Joshua Anderson	
Email for Invoice	accountspayableAU@ghd.com ben.petticrev	
Email for Results	joshua.anderson2@ghd.com, davide.me	

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 days♦
- ☐ 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 Short suite with ultra trace	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
	RB01	9/7/24	W		X						1			
	RB02	9/7/24	W	X							1			
	RB03	11/7/24	W	X							1			
	FB01	9/7/24	W		X						1			
	FB02	11/7/24	W		X						1			
	Total Counts			2	3						5			

Method of Shipment: ☐ Courier (#) ☐ Hand Delivered ☐ Postal | Name | Signature | Date | Time

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: Harry Bacalis
Sent: Friday, 12 July 2024 11:42 AM
To: Angus Robinson
Cc: karl.bulow@eurofinsanz.com; Ben Petticrew; Eloise Ivy Garcia; Parimal Acharya; Joshua Anderson; #AU_CAU001_EnviroSampleVic
Subject: RE: 12639293 - Christie Downs MFS Supp DSI - Eurofins COC
Attachments: Eurofins COC Christie Downs Supp DSI.pdf

Follow Up Flag: Follow up
Flag Status: Completed

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 Angus

Jess – See attached, I'll speak to you regarding this one.

Kind regards,

Harry Bacalis
Phone: +61 3 8564 5064
Mobile: +61 438 858 924
Email: HarryBacalis@eurofins.com



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From: Angus Robinson <Angus.Robinson@ghd.com>
Sent: Friday, July 12, 2024 11:29 AM
To: Harry Bacalis <HarryBacalis@eurofins.com>
Cc: karl.bulow@eurofinsanz.com; Ben Petticrew <Ben.Petticrew@ghd.com>; Eloise Ivy Garcia <EloiseIvy.Garcia@ghd.com>; Parimal Acharya <ParimalAcharya@eurofins.com>; Joshua Anderson <Joshua.Anderson2@ghd.com>
Subject: 12639293 - Christie Downs MFS Supp DSI - Eurofins COC
Importance: High

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 Harry,

Environment Testing

PROJECT INFORMATION

Date Received: 10/07/24 & 11/07

Company: GHD

Contact person: ANGUS ROBINSON

Contact Number: 0431 177 498

Contact E-mail: Angus.Robinson@ghd.com

Project Name/site: MFS CHRISTIE DOWNS SUPP DSI

Project Number: 12639293

COC:

- **Attached** ☐
- **E-mailed** ☑ TO BE EMAILED on 1B.
- **Not received** ☐

Jessica Sheppard

From: Joshua Anderson <joshua.anderson2@ghd.com>
Sent: Friday, 12 July 2024 4:03 PM
To: #AU_CAU001_EnviroSampleVic; Amy Meunier
Cc: GHD Lab Reports; Ben Petticrew; Terrence Wilson; Angus Robinson
Subject: RE: Eurofins Sample Receipt Advice - Report 1117313 : Site Chritie Downs Supp DSI (12639293)

Follow Up Flag: Follow up
Flag Status: Flagged

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

Hi Amy,

As discussed on the phone could we please have the following:

Sample	Action
SW08 (9/7)	Please place on hold
SW08 (11/7)	Analysis (PFAS Extended Suite – Ultra trace, nitrate/nitrite/ammonia, Metals standard 8)
SED08	Please place on hold

Thank you for sorting that out for us, please if you have any questions just reach out,

Cheers,

Josh

From: EnviroSampleVic@eurofins.com <EnviroSampleVic@eurofins.com>
Sent: Friday, July 12, 2024 3:03 PM
To: Angus Robinson <angus.robinson@ghd.com>
Cc: GHD Lab Reports <GHDLabReports@ghd.com>; Ben Petticrew <ben.petticrew@ghd.com>; Joshua Anderson <joshua.anderson2@ghd.com>; Terrence Wilson <Terrence.Wilson@ghd.com>
Subject: Eurofins Sample Receipt Advice - Report 1117313 : Site Chritie Downs Supp DSI (12639293)

Dear Valued Client,

EXTRA:
SW08 9/7
SW08 11/7
SED08
QC01
QC01A
QC02
QC02A

MISSING:

Jessica Sheppard

From: Amy Meunier <Amy.Meunier@eurofinsanz.com>
Sent: Friday, 12 July 2024 4:35 PM
To: #AU_CAU001_EnviroSampleVic
Cc: Karl Bulow
Subject: RE: Eurofins Sample Receipt Advice - Report 1117313 : Site Chritie Downs Supp DSI (12639293)

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

Hi Jess,

Joshua has also confirmed the QC03 & QC03A samples from the 11th are only meant to be water samples. Please organise to send out QC03A to secondary lab.

Kind regards,

Amy Meunier

Analytical Services Manager
Mobile : +61 477 574 867
Email : Amy.Meunier@eurofinsanz.com

Eurofins
6 Monterey Road,
Dandenong VIC 3175
Australia

My office hours are 9am to 5:30pm (Monday to Friday)
If you require sample receipt outside these hours please email envirosamplevic@eurofins.com

From: Joshua Anderson <joshua.anderson2@ghd.com>
Sent: Friday, July 12, 2024 4:03 PM
To: EnviroSampleVic@eurofins.com; Amy Meunier <Amy.Meunier@eurofinsanz.com>
Cc: GHD Lab Reports <GHDLabReports@ghd.com>; Ben Petticrew <Ben.Petticrew@ghd.com>; Terrence Wilson <Terrence.Wilson@ghd.com>; Angus Robinson <Angus.Robinson@ghd.com>
Subject: RE: Eurofins Sample Receipt Advice - Report 1117313 : Site Chritie Downs Supp DSI (12639293)

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Hi Amy,

As discussed on the phone could we please have the following:

Sample	Action

CHAIN OF CUSTODY RECORD

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☐ **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

WK 10

Company	GHD	Project №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	Christie Downs Supp DSI	EDD Format (ESdat, EQuIS etc)	Esdat
Contact Name	Joshua Anderson			Sampler(s)	Joshua Anderson, Terrence Wilson, Louise Wright
Phone №	08 8111 6710			Handed over by	Joshua Anderson
Special Directions	3 day TAT			Email for Invoice	accountspayableAU@ghd.com ben.petitcrev
Purchase Order				Email for Results	joshua.anderson2@ghd.com, davide.me
Quote ID №					

Analyses — Where suites are requested, please specify 'Metals' or 'Filtered'. Suite code must be specified on the COC

Containers — Choose container type & size if necessary

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

№	Client Sample ID	Sampled Date/Time (dd:mm:yy hh:mm)	Matrix (Solid: S, Water: W)	PFAS Extended Suite - 30 PFAS with ultra trace	Nitrate, nitrite, ammonia	Total Metals (Standard 8)	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)
	SW09	11/7/24	W	X	X	X				2			1		
	SW10	11/7/24	W	X	X	X				2			1		
	SW11	11/7/24	W	X	X	X				2			1		
	SW12	11/7/24	W	X	X	X				2			1		
	SW13	11/7/24	W	X	X	X				2			1		
	SW14	11/7/24	W	X	X	X				2			1		
	STMWTR_01	11/7/24	W	X	X	X				2			1		
	STMWTR_02	11/7/24	W	X	X	X				2			1		
	STMWTR_03	11/7/24	W	X	X	X				2			1		
	QC03	11/7/24	W	X	X	X				2			1		
	QC03A	11/7/24	W	X	X	X				2			1		
	Total Counts			11	11	11				22			11		

COPY

Required Turnaround Time (TAT)

*Surcharge will apply

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

Sample Comments / Dangerous Goods Hazard Warning

Forward to ALS

Method of Shipment ☐ Courier (#) ☐ Hand Delivered ☐ Postal Name Signature Date Time

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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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

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

Project Name: Chritie Downs Supp DSI
Project ID: 12639293

Order No.: 12639293
Report #: 1117313
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Jul 12, 2024 11:42 AM
Due: Jul 16, 2024
Priority: 2 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail	Ammonia (as N)	HOLD*	Nitrate (as N)	Nitrite (as N)	Metals M8 filtered	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Short (Ultra trace)
Melbourne Laboratory - NATA # 1261 Site # 1254	X	X	X	X	X	X	X	X	X
External Laboratory									

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	SS07	Jul 09, 2024		Soil	M24-Jl0031805						X	X		
2	SS08	Jul 09, 2024		Soil	M24-Jl0031806						X	X		
3	SS09	Jul 09, 2024		Soil	M24-Jl0031807						X	X		
4	SS10	Jul 09, 2024		Soil	M24-Jl0031808						X	X		
5	SS11	Jul 09, 2024		Soil	M24-Jl0031809						X	X		
6	SS12	Jul 09, 2024		Soil	M24-Jl0031810						X	X		
7	SS13	Jul 09, 2024		Soil	M24-Jl0031811						X	X		
8	SS14	Jul 09, 2024		Soil	M24-Jl0031812						X	X		
9	SS15	Jul 09, 2024		Soil	M24-Jl0031813						X	X		
10	BH19_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031814						X	X		
11	BH26_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031815						X	X		
12	BH27_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031816						X	X		
13	BH29_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031817						X	X		
14	SW09	Jul 11, 2024		Water	M24-Jl0031818	X		X	X	X			X	

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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NATA# 2377
Site# 2370

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Site# 2554

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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: Chritie Downs Supp DSI
Project ID: 12639293

Order No.: 12639293
Report #: 1117313
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Jul 12, 2024 11:42 AM
Due: Jul 16, 2024
Priority: 2 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Ammonia (as N)	HOLD*	Nitrate (as N)	Nitrite (as N)	Metals M8 filtered	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Short (Ultra trace)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
15	SW10	Jul 11, 2024		Water	M24-Jl0031819	X		X	X	X			X	
16	SW11	Jul 11, 2024		Water	M24-Jl0031820	X		X	X	X			X	
17	SW12	Jul 11, 2024		Water	M24-Jl0031821	X		X	X	X			X	
18	SW13	Jul 11, 2024		Water	M24-Jl0031822	X		X	X	X			X	
19	SW14	Jul 11, 2024		Water	M24-Jl0031823	X		X	X	X			X	
20	STMWTR_01	Jul 11, 2024		Water	M24-Jl0031824	X		X	X	X			X	
21	STMWTR_02	Jul 11, 2024		Water	M24-Jl0031825	X		X	X	X			X	
22	STMWTR_03	Jul 11, 2024		Water	M24-Jl0031826	X		X	X	X			X	
23	QC03	Jul 11, 2024		Water	M24-Jl0031827		X							
24	QC03A	Jul 11, 2024		Water	M24-Jl0031828		X							
25	RB02	Jul 11, 2024		Water	M24-Jl0031829									X
26	RB03	Jul 11, 2024		Water	M24-Jl0031830									X
27	SW09	Jul 09, 2024		Water	M24-Jl0031831		X							
28	SW10	Jul 09, 2024		Water	M24-Jl0031832		X							
29	SW11	Jul 09, 2024		Water	M24-Jl0031833		X							
30	SW12	Jul 09, 2024		Water	M24-Jl0031834		X							
31	SW12 PFAS	Jul 09, 2024		Soil	M24-Jl0031835		X							

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

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

Project Name: Chritie Downs Supp DSI
Project ID: 12639293

Order No.: 12639293
Report #: 1117313
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Jul 12, 2024 11:42 AM
Due: Jul 16, 2024
Priority: 2 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Ammonia (as N)	HOLD*	Nitrate (as N)	Nitrite (as N)	Metals M8 filtered	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Short (Ultra trace)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
31	SW12 PFAS SOIL	Jul 09, 2024		Soil	M24-Jl0031835									
32	SW13	Jul 09, 2024		Water	M24-Jl0031836		X							
33	SW14	Jul 09, 2024		Water	M24-Jl0031837		X							
34	SED09	Jul 09, 2024		Soil	M24-Jl0031838		X							
35	SED10	Jul 09, 2024		Soil	M24-Jl0031839		X							
36	SED11	Jul 09, 2024		Soil	M24-Jl0031840		X							
37	SED12	Jul 09, 2024		Soil	M24-Jl0031841		X							
38	SED14	Jul 09, 2024		Soil	M24-Jl0031842		X							
39	QC03	Jul 09, 2024		Water	M24-Jl0031843		X							
40	QC03A	Jul 09, 2024		Water	M24-Jl0031844		X							
41	RB01	Jul 11, 2024		Water	M24-Jl0031845		X							
42	FB01	Jul 11, 2024		Water	M24-Jl0031846		X							
43	FB02	Jul 11, 2024		Water	M24-Jl0031847		X							
44	SW08	Jul 09, 2024		Water	M24-Jl0031848		X							
45	SW08	Jul 11, 2024		Water	M24-Jl0031849	X		X	X	X			X	
46	SED08	Jul 09, 2024		Soil	M24-Jl0031850		X							

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

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Project Name: Chritie Downs Supp DSI
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Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Ammonia (as N)	HOLD*	Nitrate (as N)	Nitrite (as N)	Metals M8 filtered	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Short (Ultra trace)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
47	QC01	Jul 09, 2024		Soil	M24-Jl0031851		X							
48	QC01A	Jul 09, 2024		Soil	M24-Jl0031852		X							
49	QC02	Jul 09, 2024		Soil	M24-Jl0031853		X							
50	QC02A	Jul 09, 2024		Soil	M24-Jl0031854		X							
Test Counts						10	25	10	10	10	13	13	10	2

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
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Attention: **Angus Robinson**

Report **1117313-S**
Project name Chritie Downs Supp DSI
Project ID 12639293
Received Date Jul 12, 2024

Client Sample ID			**SS07**	**SS08**	**SS09**	**SS10**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M24-JI0031805**	**M24-JI0031806**	**M24-JI0031807**	**M24-JI0031808**
Date Sampled			**Jul 09, 2024**	**Jul 09, 2024**	**Jul 09, 2024**	**Jul 09, 2024**
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	6.9	15	19	12
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	12
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	11
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	46
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]7.8
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]37
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	12	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	13	18	6.3
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	[N09]13	[N09]100	[N09]340	[N09]230
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	11	13
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	21	130	200
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	102	109	102	77
13C5-PFPeA (surr.)	1	%	109	107	105	86
13C5-PFHxA (surr.)	1	%	101	100	99	79
13C4-PFHpA (surr.)	1	%	93	100	92	79
13C8-PFOA (surr.)	1	%	64	78	83	55
13C5-PFNA (surr.)	1	%	64	77	83	55
13C6-PFDA (surr.)	1	%	84	97	100	74
13C2-PFUnDA (surr.)	1	%	68	95	99	69
13C2-PFDoDA (surr.)	1	%	64	85	86	68
13C2-PFTeDA (surr.)	1	%	103	62	87	78
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]36
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	[N09]< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	88	100	95	89

Client Sample ID			SS07	SS08	SS09	SS10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-JI0031805	M24-JI0031806	M24-JI0031807	M24-JI0031808
Date Sampled			Jul 09, 2024	Jul 09, 2024	Jul 09, 2024	Jul 09, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D3-N-MeFOSA (surr.)	1	%	115	118	117	103
D5-N-EtFOSA (surr.)	1	%	98	104	105	100
D7-N-MeFOSE (surr.)	1	%	102	120	97	109
D9-N-EtFOSE (surr.)	1	%	76	95	101	73
D5-N-EtFOSAA (surr.)	1	%	70	83	100	62
D3-N-MeFOSAA (surr.)	1	%	103	114	118	89
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]21
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	[N09]27	[N09]7.5	98
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	26
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5	[N09]17
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	[N09]14	[N09]9.1	[N09]160
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	[N09]< 15
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]140	[N09]420	[N09]310	[N09]11000
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	[N09]16	[N09]8.9	21
13C3-PFBS (surr.)	1	%	95	96	95	80
18O2-PFHxS (surr.)	1	%	65	70	78	59
13C8-PFOS (surr.)	1	%	119	133	79	113
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	8.4
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	6.7	42	26
13C2-4:2 FTSA (surr.)	1	%	147	122	115	149
13C2-6:2 FTSA (surr.)	1	%	103	128	126	52
13C2-8:2 FTSA (surr.)	1	%	82	116	137	118
13C2-10:2 FTSA (surr.)	1	%	31	92	102	56
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	140	434	319.1	11160
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	140	420	310	11037
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	140	434	319.1	11197
Sum of WA DWER PFAS (n=10)*	10	ug/kg	140	434	319.1	11303.2
Sum of PFASs (n=30)*	50	ug/kg	153	629.7	876.5	11976.5

Client Sample ID			SS11	SS12	SS13	SS14
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-JI0031809	M24-JI0031810	M24-JI0031811	M24-JI0031812
Date Sampled			Jul 09, 2024	Jul 09, 2024	Jul 09, 2024	Jul 09, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	8.0	18	16	11

Client Sample ID			SS11	SS12	SS13	SS14
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-JI0031809	M24-JI0031810	M24-JI0031811	M24-JI0031812
Date Sampled			Jul 09, 2024	Jul 09, 2024	Jul 09, 2024	Jul 09, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	12	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	11	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	43	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	[N09]7.4	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	[N09]35	< 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	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	[N09]210	< 5	[N09]15	28
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	11	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	170	< 5	< 5	32
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	77	106	101	76
13C5-PFPeA (surr.)	1	%	85	102	101	74
13C5-PFHxA (surr.)	1	%	80	98	97	73
13C4-PFHpA (surr.)	1	%	79	96	95	74
13C8-PFOA (surr.)	1	%	54	82	84	76
13C5-PFNA (surr.)	1	%	54	84	83	73
13C6-PFDA (surr.)	1	%	78	99	97	85
13C2-PFUnDA (surr.)	1	%	70	97	89	91
13C2-PFDoDA (surr.)	1	%	72	90	98	82
13C2-PFTeDA (surr.)	1	%	67	74	99	105
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	[N09]36	< 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	5.6
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	[N09]< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	85	96	94	97
D3-N-MeFOSA (surr.)	1	%	103	106	101	85
D5-N-EtFOSA (surr.)	1	%	96	107	106	82
D7-N-MeFOSE (surr.)	1	%	110	120	111	88
D9-N-EtFOSE (surr.)	1	%	71	101	101	82
D5-N-EtFOSAA (surr.)	1	%	64	112	99	95
D3-N-MeFOSAA (surr.)	1	%	89	135	113	81
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	[N09]20	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	100	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	24	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	[N09]16	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]150	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	[N09]< 15	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]11000	[N09]36	95	[N09]22
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	23	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	82	89	84	73

Client Sample ID			SS11	SS12	SS13	SS14
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-JI0031809	M24-JI0031810	M24-JI0031811	M24-JI0031812
Date Sampled			Jul 09, 2024	Jul 09, 2024	Jul 09, 2024	Jul 09, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
18O2-PFHxS (surr.)	1	%	59	71	71	58
13C8-PFOS (surr.)	1	%	116	94	85	77
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	8.3	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	29	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	140	99	110	104
13C2-6:2 FTSA (surr.)	1	%	43	131	132	112
13C2-8:2 FTSA (surr.)	1	%	110	142	132	93
13C2-10:2 FTSA (surr.)	1	%	148	114	109	107
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	11150	36	95	22
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	11035	36	95	22
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	11185	36	95	22
Sum of WA DWER PFAS (n=10)*	10	ug/kg	11286.7	36	95	22
Sum of PFASs (n=30)*	50	ug/kg	11911.2	< 50	110	87.6

Client Sample ID			SS15	BH19_1.0-1.1	BH26_1.0-1.1	BH27_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-JI0031813	M24-JI0031814	M24-JI0031815	M24-JI0031816
Date Sampled			Jul 09, 2024	Jul 09, 2024	Jul 09, 2024	Jul 09, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	13	12	13	29
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	9.5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	[N09]7.5	12	6.7	[N09]6.8
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	14	8.8	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	[N09]47	[N09]15	[N09]7.9
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	68	150	20	18
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	16	< 5	34	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	450	8.6	390	5.3
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	5.5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	190	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	71	81	81	81
13C5-PFPeA (surr.)	1	%	72	78	83	77
13C5-PFHxA (surr.)	1	%	73	81	82	78
13C4-PFHpA (surr.)	1	%	73	82	83	78
13C8-PFOA (surr.)	1	%	66	79	81	77
13C5-PFNA (surr.)	1	%	60	72	78	70
13C6-PFDA (surr.)	1	%	70	82	85	74
13C2-PFUnDA (surr.)	1	%	107	88	96	89

Client Sample ID			SS15	BH19_1.0-1.1	BH26_1.0-1.1	BH27_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-JI0031813	M24-JI0031814	M24-JI0031815	M24-JI0031816
Date Sampled			Jul 09, 2024	Jul 09, 2024	Jul 09, 2024	Jul 09, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C2-PFDoDA (surr.)	1	%	115	88	99	93
13C2-PFTeDA (surr.)	1	%	56	53	116	113
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	%	49	91	106	101
D3-N-MeFOSA (surr.)	1	%	54	38	88	93
D5-N-EtFOSA (surr.)	1	%	47	42	90	93
D7-N-MeFOSE (surr.)	1	%	51	47	90	111
D9-N-EtFOSE (surr.)	1	%	44	32	85	89
D5-N-EtFOSAA (surr.)	1	%	45	93	93	110
D3-N-MeFOSAA (surr.)	1	%	24	92	87	100
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	9.6	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	5.6	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	66	[N09]230	[N09]24	100
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	5.7	[N09]6.3	66
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]740	[N09]92	[N09]400	800
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	71	75	80	76
18O2-PFHxS (surr.)	1	%	54	61	65	51
13C8-PFOS (surr.)	1	%	126	83	75	133
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	25	15	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	64	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	9.9	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	110	91	105	83
13C2-6:2 FTSA (surr.)	1	%	94	114	128	120
13C2-8:2 FTSA (surr.)	1	%	66	94	101	88
13C2-10:2 FTSA (surr.)	1	%	60	119	124	124
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	806	322	424	900
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	740	139	415	807.9
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	806	369	439	907.9
Sum of WA DWER PFAS (n=10)*	10	ug/kg	813.5	429.5	533.5	914.7
Sum of PFASs (n=30)*	50	ug/kg	1562.5	599.4	983.8	1004

Client Sample ID			BH29_1.0-1.1
Sample Matrix			Soil
Eurofins Sample No.			M24-Jl0031817
Date Sampled			Jul 09, 2024
Test/Reference	LOR	Unit	
Sample Properties			
% Moisture	1	%	12
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	[N09]5.8
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	35
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	98
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	25
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5
13C4-PFBA (surr.)	1	%	77
13C5-PFPeA (surr.)	1	%	75
13C5-PFHxA (surr.)	1	%	78
13C4-PFHpA (surr.)	1	%	82
13C8-PFOA (surr.)	1	%	80
13C5-PFNA (surr.)	1	%	73
13C6-PFDA (surr.)	1	%	82
13C2-PFUnDA (surr.)	1	%	94
13C2-PFDoDA (surr.)	1	%	94
13C2-PFTeDA (surr.)	1	%	116
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10
13C8-FOSA (surr.)	1	%	104
D3-N-MeFOSA (surr.)	1	%	96
D5-N-EtFOSA (surr.)	1	%	100
D7-N-MeFOSE (surr.)	1	%	119
D9-N-EtFOSE (surr.)	1	%	97
D5-N-EtFOSAA (surr.)	1	%	92
D3-N-MeFOSAA (surr.)	1	%	91
Perfluoroalkyl sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	5.4
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	38
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	7.2
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	430

Client Sample ID			BH29_1.0-1.1
Sample Matrix			**Soil**
Eurofins Sample No.			**M24-Jl0031817**
Date Sampled			**Jul 09, 2024**
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonic acids (PFSAs)			
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5
13C3-PFBS (surr.)	1	%	74
18O2-PFHxS (surr.)	1	%	58
13C8-PFOS (surr.)	1	%	79
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5
13C2-4:2 FTSA (surr.)	1	%	94
13C2-6:2 FTSA (surr.)	1	%	116
13C2-8:2 FTSA (surr.)	1	%	92
13C2-10:2 FTSA (surr.)	1	%	125
PFASs Summations			
Sum (PFHxS + PFOS)*	5	ug/kg	468
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	430
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	468
Sum of WA DWER PFAS (n=10)*	10	ug/kg	473.8
Sum of PFASs (n=30)*	50	ug/kg	644.4

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	Jul 12, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Jul 12, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Jul 12, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Jul 12, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Jul 12, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Jul 12, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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

Project Name: Chritie Downs Supp DSI
Project ID: 12639293

Order No.: 12639293
Report #: 1117313
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Jul 12, 2024 11:42 AM
Due: Jul 16, 2024
Priority: 2 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Karl Bulow

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Melbourne Laboratory - NATA # 1261 Site # 1254	X	X	X	X	X	X	X	X	X
External Laboratory									

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	SS07	Jul 09, 2024		Soil	M24-Jl0031805						X	X		
2	SS08	Jul 09, 2024		Soil	M24-Jl0031806						X	X		
3	SS09	Jul 09, 2024		Soil	M24-Jl0031807						X	X		
4	SS10	Jul 09, 2024		Soil	M24-Jl0031808						X	X		
5	SS11	Jul 09, 2024		Soil	M24-Jl0031809						X	X		
6	SS12	Jul 09, 2024		Soil	M24-Jl0031810						X	X		
7	SS13	Jul 09, 2024		Soil	M24-Jl0031811						X	X		
8	SS14	Jul 09, 2024		Soil	M24-Jl0031812						X	X		
9	SS15	Jul 09, 2024		Soil	M24-Jl0031813						X	X		
10	BH19_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031814						X	X		
11	BH26_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031815						X	X		
12	BH27_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031816						X	X		
13	BH29_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031817						X	X		
14	SW09	Jul 11, 2024		Water	M24-Jl0031818	X		X	X	X			X	

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
15	SW10	Jul 11, 2024		Water	M24-Jl0031819	X		X	X	X			X	
16	SW11	Jul 11, 2024		Water	M24-Jl0031820	X		X	X	X			X	
17	SW12	Jul 11, 2024		Water	M24-Jl0031821	X		X	X	X			X	
18	SW13	Jul 11, 2024		Water	M24-Jl0031822	X		X	X	X			X	
19	SW14	Jul 11, 2024		Water	M24-Jl0031823	X		X	X	X			X	
20	STMWTR_01	Jul 11, 2024		Water	M24-Jl0031824	X		X	X	X			X	
21	STMWTR_02	Jul 11, 2024		Water	M24-Jl0031825	X		X	X	X			X	
22	STMWTR_03	Jul 11, 2024		Water	M24-Jl0031826	X		X	X	X			X	
23	QC03	Jul 11, 2024		Water	M24-Jl0031827		X							
24	QC03A	Jul 11, 2024		Water	M24-Jl0031828		X							
25	RB02	Jul 11, 2024		Water	M24-Jl0031829									X
26	RB03	Jul 11, 2024		Water	M24-Jl0031830									X
27	SW09	Jul 09, 2024		Water	M24-Jl0031831		X							
28	SW10	Jul 09, 2024		Water	M24-Jl0031832		X							
29	SW11	Jul 09, 2024		Water	M24-Jl0031833		X							
30	SW12	Jul 09, 2024		Water	M24-Jl0031834		X							
31	SW12 PFAS	Jul 09, 2024		Soil	M24-Jl0031835		X							

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
31	SW12 PFAS SOIL	Jul 09, 2024		Soil	M24-Jl0031835									
32	SW13	Jul 09, 2024		Water	M24-Jl0031836		X							
33	SW14	Jul 09, 2024		Water	M24-Jl0031837		X							
34	SED09	Jul 09, 2024		Soil	M24-Jl0031838		X							
35	SED10	Jul 09, 2024		Soil	M24-Jl0031839		X							
36	SED11	Jul 09, 2024		Soil	M24-Jl0031840		X							
37	SED12	Jul 09, 2024		Soil	M24-Jl0031841		X							
38	SED14	Jul 09, 2024		Soil	M24-Jl0031842		X							
39	QC03	Jul 09, 2024		Water	M24-Jl0031843		X							
40	QC03A	Jul 09, 2024		Water	M24-Jl0031844		X							
41	RB01	Jul 11, 2024		Water	M24-Jl0031845		X							
42	FB01	Jul 11, 2024		Water	M24-Jl0031846		X							
43	FB02	Jul 11, 2024		Water	M24-Jl0031847		X							
44	SW08	Jul 09, 2024		Water	M24-Jl0031848		X							
45	SW08	Jul 11, 2024		Water	M24-Jl0031849	X		X	X	X			X	
46	SED08	Jul 09, 2024		Soil	M24-Jl0031850		X							

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
47	QC01	Jul 09, 2024		Soil	M24-Jl0031851		X							
48	QC01A	Jul 09, 2024		Soil	M24-Jl0031852		X							
49	QC02	Jul 09, 2024		Soil	M24-Jl0031853		X							
50	QC02A	Jul 09, 2024		Soil	M24-Jl0031854		X							
Test Counts						10	25	10	10	10	13	13	10	2

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
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							
PFASs Summations							
Sum (PFHxS + PFOS)*	ug/kg	< 5			5	Pass	
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	ug/kg	< 5			5	Pass	
Sum of WA DWER PFAS (n=10)*	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	82			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	78			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	79			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	82			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	82			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	88			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	95			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	93			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	95			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	101			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	96			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	81			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	85			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	76			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	90			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	89			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	80			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	87			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	78			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	89			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	94			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	74			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	78			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	75			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	89			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	85			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	84			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	81			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	102			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorooctanoic acid (PFOA)	%	89			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorohexanesulfonic acid (PFHxS)	%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	88			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	109			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorooctanoic acid (PFOA)	%	97			50-150	Pass	
LCS - % Recovery							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl sulfonic acids (PFSAs)									
Perfluorohexanesulfonic acid (PFHxS)			%	99			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	98			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)									
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	104			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-JI0034359	NCP	%	92			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-JI0031806	CP	%	93			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-JI0031806	CP	%	91			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-JI0031806	CP	%	95			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-JI0031806	CP	%	95			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-JI0031806	CP	%	100			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-JI0031806	CP	%	102			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-JI0031806	CP	%	98			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-JI0031806	CP	%	88			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-JI0031806	CP	%	103			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-JI0031806	CP	%	129			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-JI0031806	CP	%	106			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-JI0031806	CP	%	101			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-JI0031806	CP	%	98			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-JI0031806	CP	%	96			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-JI0031806	CP	%	104			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-JI0031806	CP	%	112			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-JI0031806	CP	%	95			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-JI0031806	CP	%	100			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-JI0031806	CP	%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-JI0031806	CP	%	83			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-JI0031806	CP	%	103			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-JI0031806	CP	%	117			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-JI0031806	CP	%	95			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-JI0031806	CP	%	105			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorodecanesulfonic acid (PFDS)	M24-JI0031806	CP	%	104			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-JI0031806	CP	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-JI0031806	CP	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-JI0031806	CP	%	87			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-JI0031806	CP	%	97			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-JI0031805	CP	%	6.9	7.4	7.7	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-JI0031805	CP	ug/kg	13	10	25	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-JI0031805	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-JI0031805	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-JI0031805	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-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-JI0031805	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-JI0031805	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M24-JI0031815	CP	%	13	14	6.2	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-JI0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-JI0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-JI0031815	CP	ug/kg	6.7	6.2	7.8	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-JI0031815	CP	ug/kg	8.8	8.6	2.1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-JI0031815	CP	ug/kg	15	13	15	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-JI0031815	CP	ug/kg	20	18	12	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-JI0031815	CP	ug/kg	34	33	1.9	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-JI0031815	CP	ug/kg	390	360	7.3	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-JI0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-JI0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-JI0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-JI0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-JI0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-JI0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-JI0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-JI0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-JI0031815	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-JI0031815	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Jl0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Jl0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Jl0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Jl0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Jl0031815	CP	ug/kg	24	22	6.3	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Jl0031815	CP	ug/kg	6.3	5.9	5.7	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Jl0031815	CP	ug/kg	400	410	2.7	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Jl0031815	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-Jl0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Jl0031815	CP	ug/kg	15	14	2.3	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Jl0031815	CP	ug/kg	64	63	1.1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Jl0031815	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Catherine Wilson	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS
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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Accreditation Number 1261
Site Number 1254

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Attention: **Angus Robinson**

Report **1117313-W**
Project name Chritie Downs Supp DSI
Project ID 12639293
Received Date Jul 12, 2024

Client Sample ID			**SW09**	**SW10**	**SW11**	**SW12**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M24-JI0031818**	**M24-JI0031819**	**M24-JI0031820**	**M24-JI0031821**
Date Sampled			**Jul 11, 2024**	**Jul 11, 2024**	**Jul 11, 2024**	**Jul 11, 2024**
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.03	< 0.01	0.04	0.10
Nitrate (as N)	0.02	mg/L	0.34	0.18	0.11	0.38
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	0.003	0.002	0.002	0.002
Copper (filtered)	0.001	mg/L	0.003	0.003	0.004	0.004
Lead (filtered)	0.001	mg/L	0.005	0.002	0.003	0.003
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001	0.001	0.001
Zinc (filtered)	0.005	mg/L	0.031	0.031	0.046	0.039
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace						
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	0.001
Perfluorododecanoic acid (PFDoDA)[N11]	0.001	ug/L	< 0.001	0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	[N09]0.001	0.001	[N09]0.002	0.002
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	[N09]0.001	0.001	[N09]0.001	[N09]0.001
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	0.002	0.001	0.002	0.002
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	114	108	114	106
13C5-PFPeA (surr.)	1	%	80	63	70	66
13C5-PFHxA (surr.)	1	%	106	64	101	65
13C4-PFHpA (surr.)	1	%	91	73	88	75
13C8-PFOA (surr.)	1	%	92	62	85	65
13C5-PFNA (surr.)	1	%	92	69	79	72
13C6-PFDA (surr.)	1	%	87	79	78	78
13C2-PFUnDA (surr.)	1	%	78	59	63	54
13C2-PFDoDA (surr.)	1	%	74	130	60	50
13C2-PFTeDA (surr.)	1	%	68	69	45	63

Client Sample ID			SW09	SW10	SW11	SW12
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-JI0031818	M24-JI0031819	M24-JI0031820	M24-JI0031821
Date Sampled			Jul 11, 2024	Jul 11, 2024	Jul 11, 2024	Jul 11, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	< 0.001	0.001	< 0.001	0.001
Perfluorononanesulfonic acid (PFNS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	< 0.001	[N09]0.001	[N09]0.001	[N09]0.001
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.0001	ug/L	0.0026	0.0030	0.0034	0.0040
Perfluorodecanesulfonic acid (PFDS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	85	82	79	85
18O2-PFHxS (surr.)	1	%	81	84	74	87
13C8-PFOS (surr.)	1	%	69	98	62	92
Perfluoroalkyl sulfonamido substances- Ultra Trace						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
13C8-FOSA (surr.)	1	%	106	53	84	65
D3-N-MeFOSA (surr.)	1	%	132	92	71	89
D5-N-EtFOSA (surr.)	1	%	138	85	74	84
D7-N-MeFOSE (surr.)	1	%	51	103	35	100
D9-N-EtFOSE (surr.)	1	%	57	96	43	95
D5-N-EtFOSAA (surr.)	1	%	65	82	51	76
D3-N-MeFOSAA (surr.)	1	%	64	82	52	76
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	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	106	108	99	130
13C2-6:2 FTSA (surr.)	1	%	116	97	97	104
13C2-8:2 FTSA (surr.)	1	%	111	135	106	132
13C2-10:2 FTSA (surr.)	1	%	62	93	51	88
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.0026	0.004	0.0044	0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.0036	0.004	0.0044	0.005
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.0036	0.005	0.0054	0.006
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.0066	0.008	0.0094	0.011
Sum of PFASs (n=30)*	0.005	ug/L	0.0066	0.009	0.0094	0.012

Client Sample ID			SW13	SW14	STMWTR_01	STMWTR_02
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-JI0031822	M24-JI0031823	M24-JI0031824	M24-JI0031825
Date Sampled			Jul 11, 2024	Jul 11, 2024	Jul 11, 2024	Jul 11, 2024
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.05	< 0.01	< 0.01	0.09
Nitrate (as N)	0.02	mg/L	0.20	0.37	0.06	0.24
Nitrite (as N)	0.02	mg/L	< 0.02	0.10	< 0.02	0.07
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	0.002	0.002	< 0.001	0.001
Copper (filtered)	0.001	mg/L	0.004	0.004	0.006	0.016
Lead (filtered)	0.001	mg/L	0.003	0.003	0.002	0.009
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001	0.001	< 0.001	0.001
Zinc (filtered)	0.005	mg/L	0.033	0.034	0.053	0.12
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace						
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	< 0.005	< 0.005	0.005	< 0.005
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	< 0.001	< 0.001	0.001	0.002
Perfluorododecanoic acid (PFDoDA)[N11]	0.001	ug/L	0.001	0.001	0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	< 0.001	< 0.001	[N09]0.003	0.006
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	0.002	0.002	[N09]0.038	[N09]0.002
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	< 0.001	< 0.001	0.002	< 0.001
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	[N09]0.001	[N09]0.001	[N09]0.003	[N09]0.002
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	0.002	0.002	0.012	0.022
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)[N15]	0.001	ug/L	< 0.001	< 0.001	0.002	< 0.001
Perfluoroundecanoic acid (PFUnDA)[N11]	0.001	ug/L	< 0.001	< 0.001	0.008	< 0.001
13C4-PFBA (surr.)	1	%	97	106	96	115
13C5-PFPeA (surr.)	1	%	62	65	107	135
13C5-PFHxA (surr.)	1	%	62	65	104	53
13C4-PFHpA (surr.)	1	%	72	75	59	52
13C8-PFOA (surr.)	1	%	54	61	98	56
13C5-PFNA (surr.)	1	%	57	66	52	58
13C6-PFDA (surr.)	1	%	60	76	128	64
13C2-PFUnDA (surr.)	1	%	51	54	105	53
13C2-PFDoDA (surr.)	1	%	122	128	117	66
13C2-PFTeDA (surr.)	1	%	67	80	54	47
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	0.001	0.001	0.007	< 0.001
Perfluorononanesulfonic acid (PFNS)[N15]	0.001	ug/L	< 0.001	< 0.001	0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.001	ug/L	< 0.001	< 0.001	0.006	< 0.001
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.001	ug/L	< 0.001	< 0.001	[N09]0.005	< 0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	[N09]0.001	[N09]0.001	[N09]0.029	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.001	ug/L	< 0.001	< 0.001	[N09]0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.0001	ug/L	0.0040	0.0040	0.051	0.0022
Perfluorodecanesulfonic acid (PFDS)[N15]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	78	86	75	66
18O2-PFHxS (surr.)	1	%	79	85	74	67
13C8-PFOS (surr.)	1	%	74	91	58	62

Client Sample ID			SW13	SW14	STMWTR_01	STMWTR_02
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-JI0031822	M24-JI0031823	M24-JI0031824	M24-JI0031825
Date Sampled			Jul 11, 2024	Jul 11, 2024	Jul 11, 2024	Jul 11, 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	< 0.005	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
13C8-FOSA (surr.)	1	%	104	52	88	49
D3-N-MeFOSA (surr.)	1	%	80	89	77	128
D5-N-EtFOSA (surr.)	1	%	79	88	63	100
D7-N-MeFOSE (surr.)	1	%	93	105	85	43
D9-N-EtFOSE (surr.)	1	%	90	104	78	42
D5-N-EtFOSAA (surr.)	1	%	78	81	123	38
D3-N-MeFOSAA (surr.)	1	%	77	82	83	28
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	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.005	ug/L	< 0.005	< 0.005	0.007	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.001	ug/L	< 0.001	< 0.001	0.004	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.001	ug/L	< 0.001	< 0.001	0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	119	117	96	65
13C2-6:2 FTSA (surr.)	1	%	89	107	76	87
13C2-8:2 FTSA (surr.)	1	%	106	136	83	110
13C2-10:2 FTSA (surr.)	1	%	88	97	188	66
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.005	0.005	0.08	0.0022
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.005	0.005	0.054	0.0042
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.006	0.006	0.083	0.0042
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.011	0.011	0.159	0.0342
Sum of PFASs (n=30)*	0.005	ug/L	0.012	0.012	0.187	0.0362

Client Sample ID			STMWTR_03	RB02	RB03	SW08
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-JI0031826	M24-JI0031829	M24-JI0031830	M24-JI0031849
Date Sampled			Jul 11, 2024	Jul 11, 2024	Jul 11, 2024	Jul 11, 2024
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.02	-	-	0.04
Nitrate (as N)	0.02	mg/L	0.18	-	-	0.61
Nitrite (as N)	0.02	mg/L	< 0.02	-	-	0.30

Client Sample ID			STMWTR_03	RB02	RB03	SW08
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-JI0031826	M24-JI0031829	M24-JI0031830	M24-JI0031849
Date Sampled			Jul 11, 2024	Jul 11, 2024	Jul 11, 2024	Jul 11, 2024
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	-	-	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	-	-	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	-	-	0.002
Copper (filtered)	0.001	mg/L	0.004	-	-	0.003
Lead (filtered)	0.001	mg/L	0.002	-	-	0.002
Mercury (filtered)	0.0001	mg/L	< 0.0001	-	-	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	-	-	< 0.001
Zinc (filtered)	0.005	mg/L	0.11	-	-	0.027
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace						
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	< 0.005	-	-	< 0.005
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	0.001	-	-	< 0.001
Perfluorododecanoic acid (PFDoDA)[N11]	0.001	ug/L	< 0.001	-	-	< 0.001
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	< 0.001	-	-	< 0.001
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	0.001	-	-	< 0.001
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	0.001	-	-	< 0.001
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	[N09]0.001	-	-	[N09]0.001
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	< 0.001	-	-	0.004
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001	-	-	< 0.001
Perfluorotridecanoic acid (PFTrDA)[N15]	0.001	ug/L	< 0.001	-	-	< 0.001
Perfluoroundecanoic acid (PFUnDA)[N11]	0.001	ug/L	< 0.001	-	-	< 0.001
13C4-PFBA (surr.)	1	%	100	-	-	119
13C5-PFPeA (surr.)	1	%	56	-	-	82
13C5-PFHxA (surr.)	1	%	54	-	-	113
13C4-PFHpA (surr.)	1	%	66	-	-	101
13C8-PFOA (surr.)	1	%	97	-	-	97
13C5-PFNA (surr.)	1	%	58	-	-	98
13C6-PFDA (surr.)	1	%	55	-	-	94
13C2-PFUnDA (surr.)	1	%	110	-	-	87
13C2-PFDoDA (surr.)	1	%	117	-	-	81
13C2-PFTeDA (surr.)	1	%	60	-	-	78
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	0.001	-	-	< 0.001
Perfluorononanesulfonic acid (PFNS)[N15]	0.001	ug/L	< 0.001	-	-	< 0.001
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.001	ug/L	< 0.001	-	-	< 0.001
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.001	ug/L	< 0.001	-	-	< 0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	[N09]0.002	-	-	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.001	ug/L	< 0.001	-	-	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.0001	ug/L	0.0040	-	-	0.0025
Perfluorodecanesulfonic acid (PFDS)[N15]	0.001	ug/L	< 0.001	-	-	< 0.001
13C3-PFBS (surr.)	1	%	77	-	-	95
18O2-PFHxS (surr.)	1	%	81	-	-	88
13C8-PFOS (surr.)	1	%	88	-	-	74

Client Sample ID			STMWTR_03	RB02	RB03	SW08
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-JI0031826	M24-JI0031829	M24-JI0031830	M24-JI0031849
Date Sampled			Jul 11, 2024	Jul 11, 2024	Jul 11, 2024	Jul 11, 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	-	-	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.005	ug/L	< 0.005	-	-	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	< 0.005	-	-	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	< 0.005	-	-	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	< 0.005	-	-	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	< 0.005	-	-	< 0.005
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	< 0.005	-	-	< 0.005
13C8-FOSA (surr.)	1	%	105	-	-	99
D3-N-MeFOSA (surr.)	1	%	79	-	-	104
D5-N-EtFOSA (surr.)	1	%	76	-	-	123
D7-N-MeFOSE (surr.)	1	%	82	-	-	51
D9-N-EtFOSE (surr.)	1	%	81	-	-	61
D5-N-EtFOSAA (surr.)	1	%	65	-	-	72
D3-N-MeFOSAA (surr.)	1	%	115	-	-	70
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	-	-	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.005	ug/L	< 0.005	-	-	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.001	ug/L	< 0.001	-	-	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.001	ug/L	< 0.001	-	-	< 0.001
13C2-4:2 FTSA (surr.)	1	%	106	-	-	145
13C2-6:2 FTSA (surr.)	1	%	95	-	-	124
13C2-8:2 FTSA (surr.)	1	%	112	-	-	117
13C2-10:2 FTSA (surr.)	1	%	78	-	-	67
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.006	-	-	0.0025
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.005	-	-	0.0035
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.007	-	-	0.0035
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.009	-	-	0.0075
Sum of PFASs (n=30)*	0.005	ug/L	0.011	-	-	0.0075
Per- and Polyfluoroalkyl Substances (PFASs) - Short (Ultra trace)						
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.005	ug/L	-	< 0.005	< 0.005	-
Perfluorooctanesulfonic acid (PFOS)[N11]	0.0001	ug/L	-	< 0.0001	< 0.0001	-
13C2-6:2 FTSA (surr.)	1	%	-	76	92	-
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	-	< 0.001	< 0.001	-
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	-	< 0.001	< 0.001	-
18O2-PFHxS (surr.)	1	%	-	111	52	-
13C8-PFOS (surr.)	1	%	-	113	57	-
13C8-PFOA (surr.)	1	%	-	100	51	-
Sum (PFHxS + PFOS)*	0.001	ug/L	-	< 0.001	< 0.001	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	< 0.001	< 0.001	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	< 0.001	< 0.001	-

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
Ammonia (as N)	Melbourne	Jul 12, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrate (as N)	Melbourne	Jul 12, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrite (as N)	Melbourne	Jul 12, 2024	2 Days
- Method: LTM-INO-4450 Nitrogens by Discrete Analyser			
Metals M8 filtered	Melbourne	Jul 12, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Per- and Polyfluoroalkyl Substances (PFASs) - Short (Ultra trace)	Melbourne	Jul 12, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace	Melbourne	Jul 12, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace	Melbourne	Jul 12, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			
Perfluoroalkyl sulfonamido substances- Ultra Trace	Melbourne	Jul 12, 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	Jul 12, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - ultra trace			

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

Project Name: Chritie Downs Supp DSI
Project ID: 12639293

Order No.: 12639293
Report #: 1117313
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Jul 12, 2024 11:42 AM
Due: Jul 16, 2024
Priority: 2 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail	Ammonia (as N)	HOLD*	Nitrate (as N)	Nitrite (as N)	Metals M8 filtered	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Short (Ultra trace)
Melbourne Laboratory - NATA # 1261 Site # 1254	X	X	X	X	X	X	X	X	X
External Laboratory									

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	SS07	Jul 09, 2024		Soil	M24-Jl0031805						X	X		
2	SS08	Jul 09, 2024		Soil	M24-Jl0031806						X	X		
3	SS09	Jul 09, 2024		Soil	M24-Jl0031807						X	X		
4	SS10	Jul 09, 2024		Soil	M24-Jl0031808						X	X		
5	SS11	Jul 09, 2024		Soil	M24-Jl0031809						X	X		
6	SS12	Jul 09, 2024		Soil	M24-Jl0031810						X	X		
7	SS13	Jul 09, 2024		Soil	M24-Jl0031811						X	X		
8	SS14	Jul 09, 2024		Soil	M24-Jl0031812						X	X		
9	SS15	Jul 09, 2024		Soil	M24-Jl0031813						X	X		
10	BH19_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031814						X	X		
11	BH26_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031815						X	X		
12	BH27_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031816						X	X		
13	BH29_1.0-1.1	Jul 09, 2024		Soil	M24-Jl0031817						X	X		
14	SW09	Jul 11, 2024		Water	M24-Jl0031818	X		X	X	X			X	

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
15	SW10	Jul 11, 2024		Water	M24-Jl0031819	X		X	X	X			X	
16	SW11	Jul 11, 2024		Water	M24-Jl0031820	X		X	X	X			X	
17	SW12	Jul 11, 2024		Water	M24-Jl0031821	X		X	X	X			X	
18	SW13	Jul 11, 2024		Water	M24-Jl0031822	X		X	X	X			X	
19	SW14	Jul 11, 2024		Water	M24-Jl0031823	X		X	X	X			X	
20	STMWTR_01	Jul 11, 2024		Water	M24-Jl0031824	X		X	X	X			X	
21	STMWTR_02	Jul 11, 2024		Water	M24-Jl0031825	X		X	X	X			X	
22	STMWTR_03	Jul 11, 2024		Water	M24-Jl0031826	X		X	X	X			X	
23	QC03	Jul 11, 2024		Water	M24-Jl0031827		X							
24	QC03A	Jul 11, 2024		Water	M24-Jl0031828		X							
25	RB02	Jul 11, 2024		Water	M24-Jl0031829									X
26	RB03	Jul 11, 2024		Water	M24-Jl0031830									X
27	SW09	Jul 09, 2024		Water	M24-Jl0031831		X							
28	SW10	Jul 09, 2024		Water	M24-Jl0031832		X							
29	SW11	Jul 09, 2024		Water	M24-Jl0031833		X							
30	SW12	Jul 09, 2024		Water	M24-Jl0031834		X							
31	SW12 PFAS	Jul 09, 2024		Soil	M24-Jl0031835		X							

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Project ID: 12639293

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Fax: 08 8111 6699

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
31	SW12 PFAS SOIL	Jul 09, 2024		Soil	M24-Jl0031835									
32	SW13	Jul 09, 2024		Water	M24-Jl0031836		X							
33	SW14	Jul 09, 2024		Water	M24-Jl0031837		X							
34	SED09	Jul 09, 2024		Soil	M24-Jl0031838		X							
35	SED10	Jul 09, 2024		Soil	M24-Jl0031839		X							
36	SED11	Jul 09, 2024		Soil	M24-Jl0031840		X							
37	SED12	Jul 09, 2024		Soil	M24-Jl0031841		X							
38	SED14	Jul 09, 2024		Soil	M24-Jl0031842		X							
39	QC03	Jul 09, 2024		Water	M24-Jl0031843		X							
40	QC03A	Jul 09, 2024		Water	M24-Jl0031844		X							
41	RB01	Jul 11, 2024		Water	M24-Jl0031845		X							
42	FB01	Jul 11, 2024		Water	M24-Jl0031846		X							
43	FB02	Jul 11, 2024		Water	M24-Jl0031847		X							
44	SW08	Jul 09, 2024		Water	M24-Jl0031848		X							
45	SW08	Jul 11, 2024		Water	M24-Jl0031849	X		X	X	X			X	
46	SED08	Jul 09, 2024		Soil	M24-Jl0031850		X							

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
47	QC01	Jul 09, 2024		Soil	M24-Jl0031851		X							
48	QC01A	Jul 09, 2024		Soil	M24-Jl0031852		X							
49	QC02	Jul 09, 2024		Soil	M24-Jl0031853		X							
50	QC02A	Jul 09, 2024		Soil	M24-Jl0031854		X							
Test Counts						10	25	10	10	10	13	13	10	2

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
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							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
Method Blank							
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
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	
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							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ammonia (as N)	%	77			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	100			80-120	Pass	
Cadmium (filtered)	%	98			80-120	Pass	
Chromium (filtered)	%	102			80-120	Pass	
Copper (filtered)	%	100			80-120	Pass	
Lead (filtered)	%	97			80-120	Pass	
Mercury (filtered)	%	98			80-120	Pass	
Nickel (filtered)	%	101			80-120	Pass	
Zinc (filtered)	%	106			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace							
Perfluorodecanesulfonic acid (PFDS)	%	51			50-150	Pass	
LCS - % Recovery							
Nitrite (as N)	%	108			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	86			70-130	Pass	
LCS - % Recovery							
Nitrite (as N)	%	108			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	82			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	86			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	84			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	86			70-130	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace							
Perfluorobutanoic acid (PFBA)	%	95			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	95			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	95			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	95			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	95			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	95			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	95			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	95			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	127			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	63			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	95			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace							
Perfluorobutanesulfonic acid (PFBS)	%	95			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	76			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	95			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	95			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	95			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	114			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	114			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Ultra Trace							
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	132			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	127			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	95			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	132			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	95			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	127			50-150	Pass	
Perfluorooctane sulfonamide (FOSA)	%	95			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	95			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)	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	95			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Nitrite (as N)	M24-JI0033114	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M24-JI0028001	NCP	%	112			75-125	Pass	
Cadmium (filtered)	M24-JI0028001	NCP	%	106			75-125	Pass	
Chromium (filtered)	M24-JI0028001	NCP	%	112			75-125	Pass	
Copper (filtered)	M24-JI0028001	NCP	%	105			75-125	Pass	
Lead (filtered)	M24-JI0028001	NCP	%	103			75-125	Pass	
Mercury (filtered)	M24-JI0028001	NCP	%	77			75-125	Pass	
Nickel (filtered)	M24-JI0028001	NCP	%	107			75-125	Pass	
Zinc (filtered)	M24-JI0028001	NCP	%	106			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M24-JI0031818	CP	mg/L	0.03	0.03	6.0	30%	Pass	
Nitrite (as N)	M24-JI0031818	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M24-JI0028001	NCP	mg/L	0.001	0.001	10	30%	Pass	
Cadmium (filtered)	M24-JI0028001	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M24-JI0028001	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M24-JI0028001	NCP	mg/L	0.003	0.003	5.0	30%	Pass	
Lead (filtered)	M24-JI0028001	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	M24-JI0028001	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M24-JI0028001	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	M24-JI0028001	NCP	mg/L	0.020	0.022	8.2	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M24-JI0031819	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Nitrite (as N)	M24-JI0031819	CP	mg/L	< 0.02	< 0.02	<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
Caitlin Breeze	Senior Analyst-Inorganic
Carroll Lee	Senior Analyst-PFAS
Emily Rosenberg	Senior Analyst-Metal
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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Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

Sample Receipt Advice

Company name: GHD Pty Ltd SA
Contact name: Terrance Wilson
Project name: MFS Christie Downs Supp DSI
Project ID: 12639293
Turnaround time: 5 Day
Date/Time received Aug 15, 2024 2:39 PM
Eurofins reference 1129117

Sample Information

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

Notes

Contact

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

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

Results will be delivered electronically via email to Terrance Wilson - Terrence.Wilson@ghd.com.

Note: A copy of these results will also be delivered to the general GHD Pty Ltd SA email address.

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing | ABN 50 005 085 521

- ☐ Sydney Laboratory — Unit F8 B&F 16 Mars Road Lane Cove West NSW 2066
- ☐ Brisbane Laboratory — Unit 1 21 Smallwood Place Murarrie QLD 4172
- ☐ Perth Laboratory — Unit 2 51 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 №	12639293	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format	Esdat
Contact Name	Terrence Wilson				
Phone №	0467034756				
Special Directions	Standard TAT				
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson (AR)	
Handed over by	Terrence Wilson	
Email for Invoice	accountspayableAU@ghd.com ben.petticrew@ghd.com.au	
Email for Results	GHDLabReports@ghd.com Angus.Robinson@ghd.com Terrence.Wilson@ghd.com angelicamaria.villadameza@ghd.com	

Analytes — PFAS - Extended 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)

Required Turnaround Time (TAT) — *Surcharge will apply
- ☐ Overnight (reporting by 9am)*
- ☐ Same day* ☐ 1 day*
- ☐ 2 days* ☐ 3 days*
- ☑ 5 days (Standard)
- ☐ Other( )

№	Client Sample ID	Sampled Date/Time	Matrix	PFAS - Extended 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
	BH30_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH30_0.4-0.5	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH30_0.6-0.7	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH31_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH31_0.4-0.5	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH31_0.7-0.8	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH32_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH32_0.4-0.5	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH33_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH33_0.4-0.5	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH33_0.9-1.0	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH34_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH34_0.4-0.5	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH34_0.9-1.0	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH35_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH35_0.4-0.5	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH36_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH36_0.4-0.5	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH36_0.9-1.0	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH37_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH37_0.4-0.5	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH37_0.9-1.0	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH38_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH38_0.4-0.5	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH38_0.7-0.8	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH39_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH39_0.4-0.5	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH39_0.9-1.0	13/8/24	S									1		1 sample (1 PFAS plastic jar)
	BH40_0.0-0.1	13/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH40_0.2-0.3	13/8/24	S									1		1 sample (1 PFAS plastic jar)
			Total Counts	11								30		

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Terrence Wilson	Signature	Date	14/08/2024	Time	3:00:00 PM

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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#1129117

Modified by Dr. P Sarojam

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing Australia Pty Ltd

Sydney Laboratory
Unit F3 Dilf 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 51 Leach Highway Kewdale WA 6105
08 6251 9600 EnviroSampleWA@eurofins.com

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

Company	GHD	Project No	12639293
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MF6 Christie Downs Supp DSI
Contact Name	Terrence Wilson	Project Manager	Terrence Wilson
Phone No	0467034758	EDD Format (Excel Default)	Esdat
Special Directions	Standard TAT	Sampler(s)	Angus Robinson (AR)
Purchase Order		Handed over by	Terrence Wilson
Quote ID No		Email for Invoice	accountspayableAU@ghd.com, ben.petticrew@ghd.com.au
		Email for Results	GHDLabReports@ghd.com, Angus.Robinson@ghd.com, Terrence.Wilson@ghd.com, angelicamaria.villaSerrano@ghd.com

Analyses (Please mark as appropriate in the boxes below)

Containers

Required Turnaround Time (TAT)

* Saturdays will apply

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

No	Client Sample ID	Sampled Date/Time (dd/mm/yy 24 hr)	Matrix Solid (S) Water (W)	PFAS - Extended 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
	SS10/BH41_0.0-0.1	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	SS10/BH41_0.4-0.5	14/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	SS10/BH41_0.6-0.7	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	SS11/BH42_0.0-0.1	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	SS11/BH42_0.4-0.5	14/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	SS11/BH42_0.6-0.7	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH43_0.0-0.1	14/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH43_0.4-0.5	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH44_0.0-0.1	14/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH44_0.4-0.5	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH45_0.0-0.1	14/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH45_0.4-0.5	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH48_0.0-0.1	14/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH48_0.2-0.3	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH48_0.4-0.5	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH47_0.0-0.1	14/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH47_0.2-0.3	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH47_0.4-0.5	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH48_0.0-0.1	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH49_0.2-0.3	14/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH48_0.4-0.5	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH49_0.0-0.1	14/8/24	S	X								1		1 sample (1 PFAS plastic jar)
	BH49_0.2-0.3	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
	BH49_0.4-0.5	14/8/24	S		X							1		1 sample (1 PFAS plastic jar)
		Total Counts		9	15							24		

Method of Shipment: ☐ Courier ☒ Hand Delivered ☐ Postal

Name: Terrence Wilson Signature: Date: 14/08/2024 Time: 3:50:00 PM

Laboratory Use Only

Received By: STD | BNE | MEL | PER | ADL | NTL | DRW Signature: Date: Time: Temperature:

Received By: STD | BNE | MEL | PER | ADL | NTL | DRW Signature: Date: Time: Report №

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Authorised by: Unless otherwise agreed in writing, all laboratory work will be carried out subject to the standard terms and conditions of Eurofins | Environment Testing, also Lab Terms and Conditions which can be viewed at www.eurofins.com.au/terms-and-conditions.pdf. A copy is available on request.

CHAIN OF CUSTODY RECORD

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☐ 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 No	12639293	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (Excel, ESDAT etc)	Esdat
Contact Name	Terrence Wilson				
Phone No	0467034756				
Special Directions	Standard TAT				
Purchase Order					
Quote ID No					

Sampler(s)	Angus Robinson (AR)
Handed over by	Terrence Wilson
Email for Invoice	accountspayableAU@ghd.com ben.petticrew@ghd.com.au
Email for Results	GHDLabReports@ghd.com Angus.Robinson@ghd.com Terrence.Wilson@ghd.com angelicamaria.villadameza@ghd.com

Analyses (When multiple analyses per sample apply, mark "X" under SUITE code must be added to ensure all tests are run)

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 days♦
☑ 5 days (Standard)
☐ Other(

No	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS - Extended 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
	QC1	13/8/24	S	X								1		
	QC1A	13/8/24	S	X								1		Please forward to ALS
	QC2	13/8/24	S		X							1		
	QC2A	13/8/24	S		X							1		Please forward to ALS
	QC3	14/8/24	S	X								1		
	QC3A	14/8/24	S	X								1		Please forward to ALS
	R01	13/8/24	W	X			1							
	R2	14/8/24	W	X			1							
	Total Counts			6	2		2					6		

Method of Shipment	☐ Courier (#	☑ Hand Delivered	☐ Postal	Name	Terrence Wilson	Signature		Date	14/08/2024	Time	3:00:00 PM
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.

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PROJECT INFORMATION

Date Received: 14/08/2024

Company: GHD

Contact person: ANGUS ROBINSON

Contact Number:

Contact E-mail: Angus.Robinson@ghd.com

Project Name/site: MFS CHRISTIE DOWNS SUPP. DSI

Project Number: 12639293

COC:
Attached ☐
E-mailed ☑ TO BE EMAILED
Not received ☐

16.7°C
+0.1°C
16.8°C
on 13.

Jessica Sheppard

From: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Sent: Thursday, 15 August 2024 2:39 PM
To: #AU_CAU001_EnviroSampleVic
Cc: Angus Robinson
Subject: Fw: CoC Soil Sampling Christie Downs Project 12639293

Follow Up Flag: Follow up
Flag Status: Flagged

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

Hi Jess,

Please see below updated request to place all samples without analysis on hold. Send QC2A to ALS in addition to the two samples already requested.

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

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From: Angus Robinson <Angus.Robinson@ghd.com>
Sent: Thursday, August 15, 2024 2:27 PM
To: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Cc: Terrence Wilson <Terrence.Wilson@ghd.com>; Angelica Maria Villada Meza <AngelicaMaria.VilladaMeza@ghd.com>; parimalacharya@eurofins.com <ParimalAcharya@eurofins.com>
Subject: RE: CoC Soil Sampling Christie Downs Project 12639293

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 keep all samples not selected for analysis on hold – we will likely have some additional analysis requests following the receipt of these results.

Please also forward sample QC2A to ALS in addition to QC1A and QC3A.

Cheers

Angus Robinson
BHSc, GDipEnvHlth
Senior Environmental Scientist

GHD
Proudly employee-owned | ghd.com
Level 4 211 Victoria Square Adelaide SA 5000 Australia
D +61 8 8111 6688 M +61 431 177 498 E Angus.Robinson@ghd.com

→ **The Power of Commitment**

Connect

Please consider the environment before printing this email

From: Angelica Maria Villada Meza <AngelicaMaria.VilladaMeza@ghd.com>
Sent: Thursday, August 15, 2024 1:31 PM
To: parimalacharya@eurofins.com
Cc: karl.bulow@eurofinsanz.com; Angus Robinson <Angus.Robinson@ghd.com>; Terrence Wilson <Terrence.Wilson@ghd.com>
Subject: CoC Soil Sampling Christie Downs Project 12639293

Hi Parimal!

Please find attached CoC for soil samples relinquished yesterday (standard TAT).

As per CoC, please forward the following duplicate samples to ALS:

- QC01A
- QC03A

Please let me know if there are any queries.

Thanks,

Angelica Villada (she/her)
Bachelor of Environmental Management
Environmental Scientist

GHD
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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

12

COPY

Company	GHD	Project No	12639293	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (Excel, EQuIS etc)	Eedat
Contact Name	Terrence Wilson				
Phone No	0467034756				
Special Directions	Standard TAT				
Purchase Order					
Quote ID No					

Sampler(s)	Angus Robinson (AR)
Handed over by	Terrence Wilson
Email for Invoice	accountspayableAU@ghd.com ben.petticrew@ghd.com.au
Email for Results	GHDLabReports@ghd.com Angus.Robinson@ghd.com Terrence.Wilson@ghd.com angelicamaria.villadameza@ghd.com

Analytes (where results are requested please mark "Y/ref" or "Filtered" in the cell that matches client's labels and DATE please)

Containers (Charge 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 days•
☑ 5 days (Standard)
☐ Other( )

No	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS - Extended Suite (Standard LOR)	HOLD	500mL Plastic	250mL Plastic	125mL Plastic	250mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
	QC1	13/8/24	S	X								1		
	QC1A	13/8/24	S	X								1		Please forward to ALS
	QC2	13/8/24	S		X							1		
	QC2A	13/8/24	S		X							1		Please forward to ALS
	QC3	14/8/24	S	X								1		
	QC3A	14/8/24	S	X								1		Please forward to ALS
	R01	13/8/24	W	X			1							
	R2	14/8/24	W	X			1							
	Total Counts			6	2		2					6		

Method of Shipment	☐ Courier (#	☑ Hand Delivered	☐ Postal	Name	Terrence Wilson	Signature		Date	14/08/2024	Time	3:00:00 PM
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.

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email: EnviroSales@eurofins.com

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ABN: 50 005 085 521

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

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

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

Eurofins ProMicro Pty Ltd
ABN: 47 009 120 549

Perth ProMicro
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2561
Site# 2554

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

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

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1129117
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 15, 2024 2:39 PM
Due: Aug 22, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	BH30_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042893		X	X
2	BH31_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042894		X	X
3	BH32_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042895		X	X
4	BH33_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042896		X	X
5	BH34_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042897		X	X
6	BH35_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042898		X	X
7	BH36_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042899		X	X
8	BH37_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042900		X	X
9	BH38_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042901		X	X
10	BH39_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042902		X	X
11	BH40_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042903		X	X
12	SS10/BH41_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042904		X	X
13	SS10/BH42_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042905		X	X

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email: EnviroSales@eurofins.com

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

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

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

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

Eurofins ProMicro Pty Ltd
ABN: 47 009 120 549

Perth ProMicro
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2561
Site# 2554

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

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

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1129117
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 15, 2024 2:39 PM
Due: Aug 22, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
14	BH43_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042906		X	X
15	BH44_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042907		X	X
16	BH45_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042908		X	X
17	BH46_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042909		X	X
18	BH47_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042910		X	X
19	BH48_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042911		X	X
20	BH49_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042912		X	X
21	QC1	Aug 13, 2024		Soil	M24-Au0042913		X	X
22	QC3	Aug 13, 2024		Soil	M24-Au0042914		X	X
23	R01	Aug 13, 2024		Water	M24-Au0042915			X
24	R2	Aug 13, 2024		Water	M24-Au0042916			X
25	BH30_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042917	X		
26	BH30_0.6-0.7	Aug 13, 2024		Soil	M24-Au0042918	X		
27	BH31_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042919	X		
28	BH31_0.7-0.8	Aug 13, 2024		Soil	M24-Au0042920	X		
29	BH32_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042921	X		
30	BH33_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042922	X		

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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: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1129117
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 15, 2024 2:39 PM
Due: Aug 22, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
31	BH33_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042923	X		
32	BH34_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042924	X		
33	BH34_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042925	X		
34	BH35_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042926	X		
35	BH36_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042927	X		
36	BH36_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042928	X		
37	BH37_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042929	X		
38	BH37_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042930	X		
39	BH38_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042931	X		
40	BH38_0.7-0.8	Aug 13, 2024		Soil	M24-Au0042932	X		
41	BH39_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042933	X		
42	BH39_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042934	X		
43	BH40_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042935	X		
44	SS10/BH41_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042936	X		
45	SS10/BH41_0.6-0.7	Aug 13, 2024		Soil	M24-Au0042937	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
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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35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
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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: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1129117
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 15, 2024 2:39 PM
Due: Aug 22, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
46	SS10/BH42_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042938	X		
47	SS10/BH42_0.6-0.7	Aug 13, 2024		Soil	M24-Au0042939	X		
48	BH43_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042940	X		
49	BH44_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042941	X		
50	BH45_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042942	X		
51	BH46_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042943	X		
52	BH46_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042944	X		
53	BH47_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042945	X		
54	BH47_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042946	X		
55	BH48_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042947	X		
56	BH48_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042948	X		
57	BH49_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042949	X		
58	BH49_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042950	X		
59	QC2	Aug 13, 2024		Soil	M24-Au0042951	X		
Test Counts						35	22	24

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 **1129117-S**
Project name MFS Christie Downs Supp DSI
Project ID 12639293
Received Date Aug 15, 2024

Client Sample ID			**BH30_0.0-0.1**	**BH31_0.0-0.1**	**BH32_0.0-0.1**	**BH33_0.0-0.1**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M24-Au0042893**	**M24-Au0042894**	**M24-Au0042895**	**M24-Au0042896**
Date Sampled			**Aug 13, 2024**	**Aug 13, 2024**	**Aug 13, 2024**	**Aug 13, 2024**
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	14	8.2	7.9	15
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	[N09]26	< 5	< 5	[N09]6.7
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	[N09]11	< 5	< 5	[N09]10
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	[N09]130	< 5	< 5	[N09]63
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	[N09]47	< 5	< 5	[N09]32
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	82	86	67	70
13C5-PFPeA (surr.)	1	%	84	85	68	65
13C5-PFHxA (surr.)	1	%	100	101	73	74
13C4-PFHpA (surr.)	1	%	95	104	72	74
13C8-PFOA (surr.)	1	%	73	78	54	56
13C5-PFNA (surr.)	1	%	69	76	48	52
13C6-PFDA (surr.)	1	%	67	77	53	53
13C2-PFUnDA (surr.)	1	%	54	81	48	100
13C2-PFDoDA (surr.)	1	%	51	92	38	43
13C2-PFTeDA (surr.)	1	%	66	102	45	127
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			BH30_0.0-0.1	BH31_0.0-0.1	BH32_0.0-0.1	BH33_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0042893	M24-Au0042894	M24-Au0042895	M24-Au0042896
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	49	80	38	32
D3-N-MeFOSA (surr.)	1	%	75	91	44	45
D5-N-EtFOSA (surr.)	1	%	78	96	50	51
D7-N-MeFOSE (surr.)	1	%	73	90	45	47
D9-N-EtFOSE (surr.)	1	%	64	79	46	44
D5-N-EtFOSAA (surr.)	1	%	38	83	46	38
D3-N-MeFOSAA (surr.)	1	%	55	102	62	50
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	[N09]35
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]10
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]340	[N09]25	[N09]120	[N09]1300
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	[N09]15
13C3-PFBS (surr.)	1	%	83	91	65	71
18O2-PFHxS (surr.)	1	%	70	77	51	55
13C8-PFOS (surr.)	1	%	69	97	58	111
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	%	78	70	58	76
13C2-6:2 FTSA (surr.)	1	%	58	56	44	44
13C2-8:2 FTSA (surr.)	1	%	98	125	79	71
13C2-10:2 FTSA (surr.)	1	%	34	91	44	41
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	340	25	120	1310
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	340	25	120	1300
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	340	25	120	1310
Sum of WA DWER PFAS (n=10)*	10	ug/kg	340	25	120	1310
Sum of PFASs (n=30)*	50	ug/kg	554	< 50	120	1471.7

Client Sample ID			BH34_0.0-0.1	BH35_0.0-0.1	BH36_0.0-0.1	BH37_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0042897	M24-Au0042898	M24-Au0042899	M24-Au0042900
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	18	11	16	13
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	22	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	[N09]28	5.8	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	[N09]9.0	[N09]58	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	[N09]17	[N09]21	10.0	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	[N09]110	[N09]270	[N09]130	[N09]16
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	5.2	[N09]10	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	[N09]30	[N09]100	[N09]180	[N09]6.3
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	97	87	123	63
13C5-PFPeA (surr.)	1	%	100	91	126	60
13C5-PFHxA (surr.)	1	%	120	109	136	67
13C4-PFHpA (surr.)	1	%	110	113	128	72
13C8-PFOA (surr.)	1	%	86	91	108	40
13C5-PFNA (surr.)	1	%	85	79	116	40
13C6-PFDA (surr.)	1	%	88	81	121	41
13C2-PFUnDA (surr.)	1	%	94	63	64	98
13C2-PFDoDA (surr.)	1	%	71	66	87	31
13C2-PFTeDA (surr.)	1	%	89	93	76	91
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	[N09]13	< 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	%	72	55	80	26
D3-N-MeFOSA (surr.)	1	%	99	91	92	34
D5-N-EtFOSA (surr.)	1	%	105	105	100	34
D7-N-MeFOSE (surr.)	1	%	90	90	94	37
D9-N-EtFOSE (surr.)	1	%	92	92	86	30
D5-N-EtFOSAA (surr.)	1	%	78	59	77	32
D3-N-MeFOSAA (surr.)	1	%	96	66	83	44
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	[N09]8.5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	[N09]64	[N09]66	[N09]9.2	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	6.7	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	5.2	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]14	[N09]83	[N09]11	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	[N09]41	< 5	< 5

Client Sample ID			BH34_0.0-0.1	BH35_0.0-0.1	BH36_0.0-0.1	BH37_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0042897	M24-Au0042898	M24-Au0042899	M24-Au0042900
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]1400	[N09]7600	[N09]320	[N09]100
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	[N09]17	[N09]15	[N09]7.3	< 5
13C3-PFBS (surr.)	1	%	102	107	137	60
18O2-PFHxS (surr.)	1	%	92	88	115	41
13C8-PFOS (surr.)	1	%	117	94	107	113
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	28	11	< 5
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	18	35	< 5
13C2-4:2 FTSA (surr.)	1	%	106	104	143	60
13C2-6:2 FTSA (surr.)	1	%	72	138	91	30
13C2-8:2 FTSA (surr.)	1	%	134	117	65	58
13C2-10:2 FTSA (surr.)	1	%	84	61	57	32
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	1414	7683	331	100
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	1400	7628	325.8	100
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	1414	7711	336.8	100
Sum of WA DWER PFAS (n=10)*	10	ug/kg	1414	7769.5	347.8	100
Sum of PFASs (n=30)*	50	ug/kg	1661	8388.6	729.3	122.3

Client Sample ID			BH38_0.0-0.1	BH39_0.0-0.1	BH40_0.0-0.1	SS10/BH41_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0042901	M24-Au0042902	M24-Au0042903	M24-Au0042904
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	12	10	12	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	9.1
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]8.5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	[N09]9.1	< 5	[N09]39
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	[N09]75	250	240
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	[N09]12	7.1	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	[N09]6.3	[N09]110	100	28
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	[N09]23	29	5.5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	53	93	86	87
13C5-PFPeA (surr.)	1	%	52	101	86	86
13C5-PFHxA (surr.)	1	%	54	115	76	76

Client Sample ID			BH38_0.0-0.1	BH39_0.0-0.1	BH40_0.0-0.1	SS10/BH41_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0042901	M24-Au0042902	M24-Au0042903	M24-Au0042904
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C4-PFHpA (surr.)	1	%	55	117	69	74
13C8-PFOA (surr.)	1	%	32	85	74	74
13C5-PFNA (surr.)	1	%	28	76	68	79
13C6-PFDA (surr.)	1	%	135	81	82	90
13C2-PFUnDA (surr.)	1	%	88	55	52	99
13C2-PFDoDA (surr.)	1	%	21	74	79	110
13C2-PFTeDA (surr.)	1	%	16	80	64	89
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	%	19	57	60	84
D3-N-MeFOSA (surr.)	1	%	25	88	79	111
D5-N-EtFOSA (surr.)	1	%	27	93	73	94
D7-N-MeFOSE (surr.)	1	%	29	83	86	99
D9-N-EtFOSE (surr.)	1	%	20	74	65	97
D5-N-EtFOSAA (surr.)	1	%	20	57	44	78
D3-N-MeFOSAA (surr.)	1	%	26	81	38	80
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]140
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	[N09]8.5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]61	[N09]230	[N09]90	[N09]190
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	52	103	77	72
18O2-PFHxS (surr.)	1	%	34	79	79	77
13C8-PFOS (surr.)	1	%	119	92	86	95
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	18	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	6.2	5.3	< 5
13C2-4:2 FTSA (surr.)	1	%	62	119	92	91
13C2-6:2 FTSA (surr.)	1	%	25	64	76	91
13C2-8:2 FTSA (surr.)	1	%	37	103	97	114
13C2-10:2 FTSA (surr.)	1	%	19	64	55	102

Client Sample ID			BH38_0.0-0.1	BH39_0.0-0.1	BH40_0.0-0.1	SS10/BH41_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0042901	M24-Au0042902	M24-Au0042903	M24-Au0042904
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	61	230	90	330
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	61	239.1	90	229
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	61	239.1	90	369
Sum of WA DWER PFAS (n=10)*	10	ug/kg	61	257.1	90	386.6
Sum of PFASs (n=30)*	50	ug/kg	67.3	483.3	481.4	668.6

Client Sample ID			SS10/BH42_0.4-0.5	BH43_0.0-0.1	BH44_0.0-0.1	BH45_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0042905	M24-Au0042906	M24-Au0042907	M24-Au0042908
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	13	10	11	7.5
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	34	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	[N09]11	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	[N09]82	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	[N09]260	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	[N09]41	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	[N09]18	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	74	94	48	77
13C5-PFPeA (surr.)	1	%	76	95	48	78
13C5-PFHxA (surr.)	1	%	86	107	47	68
13C4-PFHpA (surr.)	1	%	88	101	42	62
13C8-PFOA (surr.)	1	%	64	84	30	68
13C5-PFNA (surr.)	1	%	59	82	28	62
13C6-PFDA (surr.)	1	%	67	96	27	74
13C2-PFUnDA (surr.)	1	%	52	98	29	62
13C2-PFDoDA (surr.)	1	%	65	124	22	76
13C2-PFTeDA (surr.)	1	%	61	128	26	58
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

Client Sample ID			SS10/BH42_0.4-0.5	BH43_0.0-0.1	BH44_0.0-0.1	BH45_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0042905	M24-Au0042906	M24-Au0042907	M24-Au0042908
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	47	97	23	55
D3-N-MeFOSA (surr.)	1	%	70	105	24	84
D5-N-EtFOSA (surr.)	1	%	74	112	25	65
D7-N-MeFOSE (surr.)	1	%	68	99	25	71
D9-N-EtFOSE (surr.)	1	%	66	94	23	63
D5-N-EtFOSAA (surr.)	1	%	53	108	27	58
D3-N-MeFOSAA (surr.)	1	%	75	128	39	56
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	[N09]14	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	[N09]6.6	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	[N09]20	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]440	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	[N09]34	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]730	[N09]7.3	[N09]10	[N09]23
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	83	104	41	61
18O2-PFHxS (surr.)	1	%	121	85	30	67
13C8-PFOS (surr.)	1	%	123	104	124	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	11	< 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	%	89	75	34	72
13C2-6:2 FTSA (surr.)	1	%	58	65	27	68
13C2-8:2 FTSA (surr.)	1	%	90	141	41	81
13C2-10:2 FTSA (surr.)	1	%	62	124	21	60
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	1170	7.3	10	23
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	812	7.3	10	23
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	1252	7.3	10	23
Sum of WA DWER PFAS (n=10)*	10	ug/kg	1322	< 10	10	23
Sum of PFASs (n=30)*	50	ug/kg	1701.6	< 50	< 50	< 50

Client Sample ID			BH46_0.0-0.1	BH47_0.0-0.1	BH48_0.2-0.3	BH49_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0042909	M24-Au0042910	M24-Au0042911	M24-Au0042912
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	14	17	17	16
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	38	130	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	15	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	810	19	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	12	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	190	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	86	83	89	88
13C5-PFPeA (surr.)	1	%	91	85	92	93
13C5-PFHxA (surr.)	1	%	78	77	82	80
13C4-PFHpA (surr.)	1	%	73	71	77	73
13C8-PFOA (surr.)	1	%	79	73	88	78
13C5-PFNA (surr.)	1	%	81	75	86	73
13C6-PFDA (surr.)	1	%	95	75	101	91
13C2-PFUnDA (surr.)	1	%	77	104	107	59
13C2-PFDoDA (surr.)	1	%	103	86	109	91
13C2-PFTeDA (surr.)	1	%	75	76	86	69
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	80	68	82	63
D3-N-MeFOSA (surr.)	1	%	101	95	117	91
D5-N-EtFOSA (surr.)	1	%	94	81	103	79
D7-N-MeFOSE (surr.)	1	%	94	92	100	91
D9-N-EtFOSE (surr.)	1	%	88	73	102	69
D5-N-EtFOSAA (surr.)	1	%	72	51	93	49
D3-N-MeFOSAA (surr.)	1	%	61	38	108	49
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	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			BH46_0.0-0.1	BH47_0.0-0.1	BH48_0.2-0.3	BH49_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M24-Au0042909	M24-Au0042910	M24-Au0042911	M24-Au0042912
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]9.5	[N09]110	< 5	[N09]63
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	73	69	75	72
18O2-PFHxS (surr.)	1	%	83	76	82	84
13C8-PFOS (surr.)	1	%	93	85	98	91
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	%	82	79	83	87
13C2-6:2 FTSA (surr.)	1	%	82	74	84	102
13C2-8:2 FTSA (surr.)	1	%	101	102	114	101
13C2-10:2 FTSA (surr.)	1	%	77	62	114	62
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	9.5	110	< 5	63
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	9.5	110	< 5	63
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	9.5	110	< 5	63
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	110	< 10	63
Sum of PFASs (n=30)*	50	ug/kg	< 50	1175	149	63

Client Sample ID			QC1	QC3
Sample Matrix			Soil	Soil
Eurofins Sample No.			M24-Au0042913	M24-Au0042914
Date Sampled			Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit		
Sample Properties				
% Moisture	1	%	14	16
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	25	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	10	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	160	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	36	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5
13C4-PFBA (surr.)	1	%	82	76
13C5-PFPeA (surr.)	1	%	81	77
13C5-PFHxA (surr.)	1	%	71	69
13C4-PFHpA (surr.)	1	%	66	63

Client Sample ID			QC1	QC3
Sample Matrix			Soil	Soil
Eurofins Sample No.			M24-Au0042913	M24-Au0042914
Date Sampled			Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
13C8-PFOA (surr.)	1	%	73	67
13C5-PFNA (surr.)	1	%	73	62
13C6-PFDA (surr.)	1	%	79	78
13C2-PFUnDA (surr.)	1	%	63	57
13C2-PFDoDA (surr.)	1	%	84	72
13C2-PFTeDA (surr.)	1	%	70	50
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	%	65	55
D3-N-MeFOSA (surr.)	1	%	92	73
D5-N-EtFOSA (surr.)	1	%	79	69
D7-N-MeFOSE (surr.)	1	%	82	69
D9-N-EtFOSE (surr.)	1	%	73	60
D5-N-EtFOSAA (surr.)	1	%	55	51
D3-N-MeFOSAA (surr.)	1	%	46	47
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]270	[N09]63
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5
13C3-PFBS (surr.)	1	%	65	62
18O2-PFHxS (surr.)	1	%	73	67
13C8-PFOS (surr.)	1	%	79	70
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	%	84	75
13C2-6:2 FTSA (surr.)	1	%	69	74
13C2-8:2 FTSA (surr.)	1	%	90	93
13C2-10:2 FTSA (surr.)	1	%	68	55

Client Sample ID			QC1	QC3
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**M24-Au0042913**	**M24-Au0042914**
Date Sampled			**Aug 13, 2024**	**Aug 13, 2024**
Test/Reference	LOR	Unit		
PFASs Summations				
Sum (PFHxS + PFOS)*	5	ug/kg	270	63
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	270	63
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	270	63
Sum of WA DWER PFAS (n=10)*	10	ug/kg	270	63
Sum of PFASs (n=30)*	50	ug/kg	501	63

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
% Moisture	Melbourne	Aug 16, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Aug 19, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Aug 19, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Aug 19, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Aug 19, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Aug 16, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1129117
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 15, 2024 2:39 PM
Due: Aug 22, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	BH30_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042893		X	X
2	BH31_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042894		X	X
3	BH32_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042895		X	X
4	BH33_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042896		X	X
5	BH34_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042897		X	X
6	BH35_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042898		X	X
7	BH36_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042899		X	X
8	BH37_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042900		X	X
9	BH38_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042901		X	X
10	BH39_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042902		X	X
11	BH40_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042903		X	X
12	SS10/BH41_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042904		X	X
13	SS10/BH42_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042905		X	X

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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)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
14	BH43_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042906		X	X
15	BH44_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042907		X	X
16	BH45_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042908		X	X
17	BH46_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042909		X	X
18	BH47_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042910		X	X
19	BH48_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042911		X	X
20	BH49_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042912		X	X
21	QC1	Aug 13, 2024		Soil	M24-Au0042913		X	X
22	QC3	Aug 13, 2024		Soil	M24-Au0042914		X	X
23	R01	Aug 13, 2024		Water	M24-Au0042915			X
24	R2	Aug 13, 2024		Water	M24-Au0042916			X
25	BH30_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042917	X		
26	BH30_0.6-0.7	Aug 13, 2024		Soil	M24-Au0042918	X		
27	BH31_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042919	X		
28	BH31_0.7-0.8	Aug 13, 2024		Soil	M24-Au0042920	X		
29	BH32_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042921	X		
30	BH33_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042922	X		

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Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
31	BH33_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042923	X		
32	BH34_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042924	X		
33	BH34_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042925	X		
34	BH35_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042926	X		
35	BH36_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042927	X		
36	BH36_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042928	X		
37	BH37_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042929	X		
38	BH37_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042930	X		
39	BH38_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042931	X		
40	BH38_0.7-0.8	Aug 13, 2024		Soil	M24-Au0042932	X		
41	BH39_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042933	X		
42	BH39_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042934	X		
43	BH40_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042935	X		
44	SS10/BH41_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042936	X		
45	SS10/BH41_0.6-0.7	Aug 13, 2024		Soil	M24-Au0042937	X		

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Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
46	SS10/BH42_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042938	X		
47	SS10/BH42_0.6-0.7	Aug 13, 2024		Soil	M24-Au0042939	X		
48	BH43_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042940	X		
49	BH44_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042941	X		
50	BH45_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042942	X		
51	BH46_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042943	X		
52	BH46_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042944	X		
53	BH47_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042945	X		
54	BH47_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042946	X		
55	BH48_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042947	X		
56	BH48_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042948	X		
57	BH49_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042949	X		
58	BH49_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042950	X		
59	QC2	Aug 13, 2024		Soil	M24-Au0042951	X		
Test Counts						35	22	24

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)							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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)							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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)							
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)							
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctanesulfonic acid (PFOS)	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	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	92			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	75			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	94			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	89			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	90			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	96			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	100			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	98			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	102			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	103			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	88			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	95			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	101			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	92			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	103			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	88			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	81			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	95			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	81			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	73			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	88			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	72			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	100			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	99			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	94			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	116			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	96			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	86			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	72			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	90			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	73			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	90			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	94			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	90			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	94			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	90			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	90			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorotetradecanoic acid (PFTeDA)	%	88			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	93			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	90			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	93			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	88			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	78			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	94			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	78			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	80			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	76			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	82			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	77			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	81			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	70			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	98			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	91			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	81			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	85			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	69			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	84			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	73			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	66			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	88			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	117			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	96			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	102			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	125			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	97			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	123			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	93			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	91			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	98			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	98			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	95			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	87			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	89			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	94			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	76			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	90			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	66			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoropentanesulfonic acid (PFPeS)	%	67			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	96			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	77			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	99			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)	%	89			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	76			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	82			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	93			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	81			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	90			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	90			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	90			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	90			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	92			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	96			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	100			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	87			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	97			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	83			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	87			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	61			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	75			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	85			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	91			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	93			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	86			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	71			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	90			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	90			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	88			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	67			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	68			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	67			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	100			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorooctanoic acid (PFOA)	%	103			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanesulfonic acid (PFHxS)			%	93			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	91			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)									
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	109			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Au0042904	CP	%	93			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0042904	CP	%	108			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0042904	CP	%	109			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0042904	CP	%	117			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0042904	CP	%	115			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0042904	CP	%	115			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0042904	CP	%	111			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0042904	CP	%	113			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0042904	CP	%	111			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0042904	CP	%	82			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0042904	CP	%	101			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Au0042904	CP	%	98			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0042904	CP	%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0042904	CP	%	74			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0042904	CP	%	87			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0042904	CP	%	98			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0042904	CP	%	91			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0042904	CP	%	107			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Au0042904	CP	%	96			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0042904	CP	%	75			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0042904	CP	%	103			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0042904	CP	%	102			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0042904	CP	%	81			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0042904	CP	%	74			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-Au0042904	CP	%	94			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0042904	CP	%	112			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0042904	CP	%	108			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0042904	CP	%	107			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Au0042906	CP	%	89			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0042906	CP	%	81			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0042906	CP	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0042906	CP	%	86			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0042906	CP	%	102			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0042906	CP	%	100			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0042906	CP	%	100			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0042906	CP	%	106			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0042906	CP	%	102			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0042906	CP	%	103			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0042906	CP	%	105			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Au0042906	CP	%	95			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0042906	CP	%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0042906	CP	%	93			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0042906	CP	%	93			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0042906	CP	%	87			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0042906	CP	%	113			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0042906	CP	%	93			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Au0042906	CP	%	83			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0042906	CP	%	93			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0042906	CP	%	84			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0042906	CP	%	81			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0042906	CP	%	91			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0042906	CP	%	80			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0042906	CP	%	149			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0042906	CP	%	100			50-150	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-Au0042906	CP	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0042906	CP	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0042906	CP	%	94			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0042906	CP	%	96			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Au0042913	CP	%	90			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0042913	CP	%	100			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0042913	CP	%	108			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0042913	CP	%	98			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0042913	CP	%	108			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0042913	CP	%	140			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0042913	CP	%	129			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0042913	CP	%	131			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0042913	CP	%	112			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0042913	CP	%	134			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0042913	CP	%	113			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Au0042913	CP	%	97			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0042913	CP	%	98			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0042913	CP	%	68			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0042913	CP	%	83			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0042913	CP	%	98			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0042913	CP	%	94			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0042913	CP	%	99			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Au0042913	CP	%	98			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0042913	CP	%	93			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0042913	CP	%	106			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0042913	CP	%	96			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0042913	CP	%	97			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0042913	CP	%	93			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0042913	CP	%	86			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-Au0042913	CP	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0042913	CP	%	109			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0042913	CP	%	110			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0042913	CP	%	118			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Au0042914	CP	%	86			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0042914	CP	%	96			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0042914	CP	%	105			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0042914	CP	%	94			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0042914	CP	%	110			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0042914	CP	%	96			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0042914	CP	%	111			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0042914	CP	%	109			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0042914	CP	%	101			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0042914	CP	%	82			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0042914	CP	%	113			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Au0042914	CP	%	91			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0042914	CP	%	97			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0042914	CP	%	67			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0042914	CP	%	82			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0042914	CP	%	90			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0042914	CP	%	100			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0042914	CP	%	92			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Au0042914	CP	%	93			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0042914	CP	%	80			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0042914	CP	%	102			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0042914	CP	%	94			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0042914	CP	%	87			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0042914	CP	%	88			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctanesulfonic acid (PFOS)	M24-Au0042914	CP	%	112			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0042914	CP	%	79			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-Au0042914	CP	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0042914	CP	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0042914	CP	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0042914	CP	%	93			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0042894	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0042894	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0042894	CP	ug/kg	25	24	5.0	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0042894	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-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0042894	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0042894	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M24-Au0042897	CP	%	18	17	5.0	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0042903	CP	ug/kg	250	260	5.0	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0042903	CP	ug/kg	7.1	6.5	9.0	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0042903	CP	ug/kg	100	94	7.0	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0042903	CP	ug/kg	29	29	1.0	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0042903	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0042903	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0042903	CP	ug/kg	90	92	3.0	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0042903	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-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0042903	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0042903	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M24-Au0042907	CP	%	11	11	2.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
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:

Mary Makarios	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS
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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GPO Box 2052
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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 **1129117-W**
Project name MFS Christie Downs Supp DSI
Project ID 12639293
Received Date Aug 15, 2024

Client Sample ID			**R01**	**R2**
Sample Matrix			**Water**	**Water**
Eurofins Sample No.			**M24-Au0042915**	**M24-Au0042916**
Date Sampled			**Aug 13, 2024**	**Aug 13, 2024**
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	91	98
13C5-PFPeA (surr.)	1	%	105	113
13C5-PFHxA (surr.)	1	%	113	124
13C4-PFHpA (surr.)	1	%	109	115
13C8-PFOA (surr.)	1	%	134	145
13C5-PFNA (surr.)	1	%	109	117
13C6-PFDA (surr.)	1	%	94	103
13C2-PFUnDA (surr.)	1	%	92	102
13C2-PFDoDA (surr.)	1	%	100	106
13C2-PFTeDA (surr.)	1	%	89	92
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	127	95
D3-N-MeFOSA (surr.)	1	%	22	26

Client Sample ID			R01	R2
Sample Matrix			Water	Water
Eurofins Sample No.			M24-Au0042915	M24-Au0042916
Date Sampled			Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonamido substances				
D5-N-EtFOSA (surr.)	1	%	141	28
D7-N-MeFOSE (surr.)	1	%	101	49
D9-N-EtFOSE (surr.)	1	%	85	58
D5-N-EtFOSAA (surr.)	1	%	72	77
D3-N-MeFOSAA (surr.)	1	%	81	83
Perfluoroalkyl sulfonic acids (PFSAs)				
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	121	127
18O2-PFHxS (surr.)	1	%	119	127
13C8-PFOS (surr.)	1	%	117	127
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	55	61
13C2-6:2 FTSA (surr.)	1	%	108	113
13C2-8:2 FTSA (surr.)	1	%	57	64
13C2-10:2 FTSA (surr.)	1	%	85	101
PFASs Summations				
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1	< 0.1

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Aug 16, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Aug 16, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Aug 16, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Aug 16, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Aug 16, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1129117
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 15, 2024 2:39 PM
Due: Aug 22, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	BH30_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042893		X	X
2	BH31_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042894		X	X
3	BH32_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042895		X	X
4	BH33_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042896		X	X
5	BH34_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042897		X	X
6	BH35_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042898		X	X
7	BH36_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042899		X	X
8	BH37_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042900		X	X
9	BH38_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042901		X	X
10	BH39_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042902		X	X
11	BH40_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042903		X	X
12	SS10/BH41_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042904		X	X
13	SS10/BH42_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042905		X	X

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1129117
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 15, 2024 2:39 PM
Due: Aug 22, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
14	BH43_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042906		X	X
15	BH44_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042907		X	X
16	BH45_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042908		X	X
17	BH46_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042909		X	X
18	BH47_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042910		X	X
19	BH48_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042911		X	X
20	BH49_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042912		X	X
21	QC1	Aug 13, 2024		Soil	M24-Au0042913		X	X
22	QC3	Aug 13, 2024		Soil	M24-Au0042914		X	X
23	R01	Aug 13, 2024		Water	M24-Au0042915			X
24	R2	Aug 13, 2024		Water	M24-Au0042916			X
25	BH30_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042917	X		
26	BH30_0.6-0.7	Aug 13, 2024		Soil	M24-Au0042918	X		
27	BH31_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042919	X		
28	BH31_0.7-0.8	Aug 13, 2024		Soil	M24-Au0042920	X		
29	BH32_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042921	X		
30	BH33_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042922	X		

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Phone: 08 8111 6600
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Received: Aug 15, 2024 2:39 PM
Due: Aug 22, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
31	BH33_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042923	X		
32	BH34_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042924	X		
33	BH34_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042925	X		
34	BH35_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042926	X		
35	BH36_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042927	X		
36	BH36_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042928	X		
37	BH37_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042929	X		
38	BH37_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042930	X		
39	BH38_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042931	X		
40	BH38_0.7-0.8	Aug 13, 2024		Soil	M24-Au0042932	X		
41	BH39_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042933	X		
42	BH39_0.9-1.0	Aug 13, 2024		Soil	M24-Au0042934	X		
43	BH40_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042935	X		
44	SS10/BH41_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042936	X		
45	SS10/BH41_0.6-0.7	Aug 13, 2024		Soil	M24-Au0042937	X		

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Project ID: 12639293

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Received: Aug 15, 2024 2:39 PM
Due: Aug 22, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						HOLD*	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
46	SS10/BH42_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042938	X		
47	SS10/BH42_0.6-0.7	Aug 13, 2024		Soil	M24-Au0042939	X		
48	BH43_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042940	X		
49	BH44_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042941	X		
50	BH45_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042942	X		
51	BH46_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042943	X		
52	BH46_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042944	X		
53	BH47_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042945	X		
54	BH47_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042946	X		
55	BH48_0.0-0.1	Aug 13, 2024		Soil	M24-Au0042947	X		
56	BH48_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042948	X		
57	BH49_0.2-0.3	Aug 13, 2024		Soil	M24-Au0042949	X		
58	BH49_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042950	X		
59	QC2	Aug 13, 2024		Soil	M24-Au0042951	X		
Test Counts						35	22	24

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	79			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	76			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	89			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	77			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	74			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	75			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	73			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	81			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	83			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	51			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	81			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	77			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	76			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	71			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	70			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	76			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	79			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	76			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	73			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	76			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	72			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	70			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	72			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	77			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	74			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	60			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	78			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	75			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	74			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	69			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Au0038144	NCP	%	97			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0038144	NCP	%	92			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0038144	NCP	%	109			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0038144	NCP	%	94			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0038144	NCP	%	93			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0038144	NCP	%	93			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0038144	NCP	%	91			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0038144	NCP	%	97			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0038144	NCP	%	97			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0038144	NCP	%	73			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0038144	NCP	%	106			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Au0038144	NCP	%	94			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0038144	NCP	%	101			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0038144	NCP	%	86			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0038144	NCP	%	94			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0038144	NCP	%	93			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0038144	NCP	%	92			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0038144	NCP	%	100			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Au0038144	NCP	%	87			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0038144	NCP	%	90			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0038144	NCP	%	78			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0038144	NCP	%	82			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0038144	NCP	%	86			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0038144	NCP	%	80			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0038144	NCP	%	89			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0038144	NCP	%	69			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-Au0038144	NCP	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0038144	NCP	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0038144	NCP	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0038144	NCP	%	84			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Au0042915	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Au0042915	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0042915	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0042915	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0042915	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0042915	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0042915	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0042915	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0042915	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0042915	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0042915	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.
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:

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

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

Sample Receipt Advice

Company name: GHD Pty Ltd SA
Contact name: Terrance Wilson
Project name: MFS Christie Downs Supp DSI
Project ID: 12639293
Turnaround time: 5 Day
Date/Time received Aug 23, 2024 12:53 PM
Eurofins reference 1132369

Sample Information

✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

✓ All samples have been received as described on the above COC.

✓ COC has been completed correctly.

✓ Attempt to chill was evident.

✓ Appropriately preserved sample containers have been used.

✓ All samples were received in good condition.

✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

✓ Appropriate sample containers have been used.

✓ Sample containers for volatile analysis received with zero headspace.

X Split sample sent to requested external lab.

X Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Contact

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

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

Results will be delivered electronically via email to Terrance Wilson - Terrence.Wilson@ghd.com.

Note: A copy of these results will also be delivered to the general GHD Pty Ltd SA email address.

Global Leader - Results you can trust

Jessica Sheppard

From: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Sent: Monday, 26 August 2024 4:22 PM
To: #AU_CAU001_EnviroSampleVic
Subject: Fw: Eurofins Test Results, Invoice - Report 1129117 : Site MFS Christie Downs Supp DSI (12639293)

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: ADDITIONALS

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

Hi Jess,

See additional analysis request from Friday - standard Tat.

As requested, log in BH35_0.0-0.1 (M24-Au0042898) separately.

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

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From: Terrence Wilson <Terrence.Wilson@ghd.com>
Sent: Friday, August 23, 2024 12:53 PM
To: marymakarios <marymakarios@eurofins.com>; Karl Bulow <Karl.Bulow@eurofinsanz.com>
Cc: Ben Petticrew <Ben.Petticrew@ghd.com>; Angelica Maria Villada Meza <AngelicaMaria.VilladaMeza@ghd.com>
Subject: RE: Eurofins Test Results, Invoice - Report 1129117 : Site MFS Christie Downs Supp DSI (12639293)

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 Mary/Karl,

Thanks for the results.

Please could you arrange for the following additional samples (currently on hold) to be analysed:

- BH33_0.4-0.5 (M24-Au0042922) – PFAS Full Suite; Standard LOR; Standard TAT
- BH34_0.4-0.5 (M24-Au0042924) – PFAS Full Suite; Standard LOR; Standard TAT
- BH35_0.4-0.5 (M24-Au0042926) – PFAS Full Suite; Standard LOR; Standard TAT
- BH35_0.0-0.1 (M24-Au0042898) – US EPA Method 1320 (Multiple Extraction Procedure) + PFAS Short Suite [in accordance with the SA EPA's landfill disposal criteria for PFAS-contaminated waste] – Due to the difference in analyses turnaround times from above, these results can be reported separately.

Please could you also just amend the sample ID in the lab reports assigned to the following sample:

13	SS10/BH42_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042905		X	X

This particular sample ID should be "SS11/BH42_0.4-0.5"

In the next round of results, please could you also report the dry weight concentrations in mg/kg (instead of ug/kg) – just for consistency.

Please let me know if there are any questions.

Thanks and regards,

Terrence Wilson
Environmental Scientist

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Connect

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From: MaryMakarios@eurofins.com <MaryMakarios@eurofins.com>
Sent: Wednesday, August 21, 2024 3:21 PM
To: Terrence Wilson <Terrence.Wilson@ghd.com>
Cc: GHD Lab Reports <GHDLabReports@ghd.com>; Angus Robinson <angus.robinson@ghd.com>; Ben Petticrew <ben.petticrew@ghd.com>; Terrence Wilson <Terrence.Wilson@ghd.com>
Subject: Eurofins Test Results, Invoice - Report 1129117 : Site MFS Christie Downs Supp DSI (12639293)

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email: EnviroSales@eurofins.com

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1132369
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 23, 2024 12:53 PM
Due: Aug 30, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH33_0.4-0.5	Aug 13, 2024		Soil	M24-Au0068489	X	X
2	BH34_0.4-0.5	Aug 13, 2024		Soil	M24-Au0068490	X	X
3	BH35_0.4-0.5	Aug 13, 2024		Soil	M24-Au0068491	X	X
Test Counts						3	3

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 **1132369-S**
Project name MFS Christie Downs Supp DSI
Project ID 12639293
Received Date Aug 23, 2024

Client Sample ID			**BH33_0.4-0.5**	**BH34_0.4-0.5**	**BH35_0.4-0.5**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M24-Au0068489**	**M24-Au0068490**	**M24-Au0068491**
Date Sampled			**Aug 13, 2024**	**Aug 13, 2024**	**Aug 13, 2024**
Test/Reference	LOR	Unit			
Sample Properties					
% Moisture	1	%	14	17	13
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	7.4
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	9.8
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	62
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	[N09]11
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	5.8	[N09]14	160
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	[N09]22	[N09]150	750
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	16
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	20	26	120
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	7.7	8.8	42
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	104	100	54
13C5-PFPeA (surr.)	1	%	116	113	69
13C5-PFHxA (surr.)	1	%	105	100	70
13C4-PFHpA (surr.)	1	%	81	80	58
13C8-PFOA (surr.)	1	%	75	72	148
13C5-PFNA (surr.)	1	%	69	63	148
13C6-PFDA (surr.)	1	%	72	65	149
13C2-PFUnDA (surr.)	1	%	65	65	58
13C2-PFDoDA (surr.)	1	%	68	66	58
13C2-PFTeDA (surr.)	1	%	71	71	66
Perfluoroalkyl sulfonamido substances					
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	[N09]6.1
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10

Client Sample ID			BH33_0.4-0.5	BH34_0.4-0.5	BH35_0.4-0.5
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M24-Au0068489	M24-Au0068490	M24-Au0068491
Date Sampled			Aug 13, 2024	Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit			
Perfluoroalkyl sulfonamido substances					
13C8-FOSA (surr.)	1	%	73	71	72
D3-N-MeFOSA (surr.)	1	%	129	122	120
D5-N-EtFOSA (surr.)	1	%	130	119	121
D7-N-MeFOSE (surr.)	1	%	65	60	68
D9-N-EtFOSE (surr.)	1	%	75	67	74
D5-N-EtFOSAA (surr.)	1	%	78	85	52
D3-N-MeFOSAA (surr.)	1	%	73	79	51
Perfluoroalkyl sulfonic acids (PFSAs)					
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	[N09]20
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	[N09]21	[N09]11	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	10
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	27
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]25	[N09]83	1100
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	[N09]43	170
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]1700	[N09]2400	[N09]8800
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	[N09]12	< 5	< 5
13C3-PFBS (surr.)	1	%	85	82	67
18O2-PFHxS (surr.)	1	%	69	66	114
13C8-PFOS (surr.)	1	%	111	101	120
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	14
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	88	81	75
13C2-6:2 FTSA (surr.)	1	%	73	67	69
13C2-8:2 FTSA (surr.)	1	%	78	76	52
13C2-10:2 FTSA (surr.)	1	%	66	65	57
PFASs Summations					
Sum (PFHxS + PFOS)*	5	ug/kg	1725	2483	9900
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	1705.8	2414	8960
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	1730.8	2497	10060
Sum of WA DWER PFAS (n=10)*	10	ug/kg	1730.8	2497	10184.2
Sum of PFASs (n=30)*	50	ug/kg	1813.5	2735.8	11325.3

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
% Moisture	Melbourne	Aug 26, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Aug 26, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Aug 26, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Aug 26, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Aug 26, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Aug 26, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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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: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1132369
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 23, 2024 12:53 PM
Due: Aug 30, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH33_0.4-0.5	Aug 13, 2024		Soil	M24-Au0068489	X	X
2	BH34_0.4-0.5	Aug 13, 2024		Soil	M24-Au0068490	X	X
3	BH35_0.4-0.5	Aug 13, 2024		Soil	M24-Au0068491	X	X
Test Counts						3	3

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	88			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	90			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	90			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	85			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	87			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	87			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	92			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	92			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	93			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	110			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	95			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	96			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	93			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	90			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	98			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	89			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	86			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	92			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	90			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	120			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	94			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	77			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	81			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	146			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	79			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	104			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	85			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	84			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	82			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	95			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Au0065245	NCP	%	88			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0065245	NCP	%	89			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0065245	NCP	%	86			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0065245	NCP	%	85			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0065245	NCP	%	87			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0065245	NCP	%	85			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0065245	NCP	%	94			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0065245	NCP	%	102			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0065245	NCP	%	95			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0065245	NCP	%	109			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0065245	NCP	%	96			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Au0065245	NCP	%	93			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0065245	NCP	%	87			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0065245	NCP	%	93			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0065245	NCP	%	100			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0065245	NCP	%	89			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0065245	NCP	%	77			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0065245	NCP	%	89			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Au0065245	NCP	%	87			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0065245	NCP	%	126			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0065245	NCP	%	92			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0065245	NCP	%	79			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0065245	NCP	%	84			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0065245	NCP	%	145			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0065010	NCP	%	102			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0065245	NCP	%	109			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-Au0065245	NCP	%	87			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0065245	NCP	%	81			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0065245	NCP	%	84			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0065245	NCP	%	90			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-Au0068510	NCP	%	18	16	12	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0067510	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0067510	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0081526	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0067510	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0067510	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Harry Bacalis	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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

Sample Receipt Advice

Company name: GHD Pty Ltd SA
Contact name: Terrance Wilson
Project name: MFS Christie Downs Supp DSI
Project ID: 12639293
Turnaround time: 5 Day
Date/Time received Sep 2, 2024 5:28 PM
Eurofins reference 1134925

Sample Information

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

Notes

Contact

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

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

Results will be delivered electronically via email to Terrance Wilson - Terrence.Wilson@ghd.com.

Note: A copy of these results will also be delivered to the general GHD Pty Ltd SA email address.

#1134925

Jessica Sheppard

219124

From: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Sent: Monday, 2 September 2024 5:33 PM
To: #AU_CAU001_EnviroSampleVic
Cc: Terrence Wilson
Subject: Fw: Eurofins Test Results, Invoice - Report 1132369 : Site MFS Christie Downs Supp DSI (12639293)
Attachments: 1129117_summary.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: ADDITIONALS

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

Hi Terrence,

We will get that organised for you.

Jess - See additional analyse request for samples currently on hold - **standard tat**.

Kind Regards,

Karl Bulow
Analytical Services Manager SA

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

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

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

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From: Terrence Wilson <Terrence.Wilson@ghd.com>
Sent: Monday, September 2, 2024 5:28 PM
To: Harry Bacalis <harrybacalis@eurofins.com>; Karl Bulow <Karl.Bulow@eurofinsanz.com>
Subject: RE: Eurofins Test Results, Invoice - Report 1132369 : Site MFS Christie Downs Supp DSI (12639293)

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Hi Harry/Karl

Thanks again for the results.

Please could you arrange for the following additional samples (currently on hold) to be analysed:

- BH33_0.9-1.0 (M24-Au0042923) – PFAS Full Suite; Standard LOR; Standard TAT
- BH34_0.9-1.0 (M24-Au0042925) – PFAS Full Suite; Standard LOR; Standard TAT

Thanks and regards,

Terrence Wilson
Environmental Scientist

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From: HarryBacalis@eurofins.com <HarryBacalis@eurofins.com>
Sent: Monday, September 2, 2024 4:33 PM
To: Terrence Wilson <Terrence.Wilson@ghd.com>
Cc: GHD Lab Reports <GHDLabReports@ghd.com>; Ben Petticrew <ben.petticrew@ghd.com>
Subject: Eurofins Test Results, Invoice - Report 1132369 : Site MFS Christie Downs Supp DSI (12639293)

Please find attached results and invoice for your project in the subject header.

Kind regards,

Harry Bacalis
Analytical Services Manager Supervisor (VIC/SA/NT/Tas)

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1134925
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Sep 2, 2024 5:28 PM
Due: Sep 9, 2024
Priority: 5 Day
Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH33_0.9-1.0	Aug 13, 2024		Soil	M24-Se0003060	X	X
2	BH34_0.9-1.0	Aug 13, 2024		Soil	M24-Se0003061	X	X
Test Counts						2	2

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 **1134925-S**
Project name MFS Christie Downs Supp DSI
Project ID 12639293
Received Date Sep 02, 2024

Client Sample ID			**BH33_0.9-1.0**	**BH34_0.9-1.0**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**M24-Se0003060**	**M24-Se0003061**
Date Sampled			**Aug 13, 2024**	**Aug 13, 2024**
Test/Reference	LOR	Unit		
Sample Properties				
% Moisture	1	%	14	18
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	9.0
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	17	22
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	[N09]90	[N09]120
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	[N09]8.4	[N09]34
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	[N09]95	[N09]100
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	29	58
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	%	64	51
13C5-PFPeA (surr.)	1	%	70	64
13C5-PFHxA (surr.)	1	%	71	70
13C4-PFHpA (surr.)	1	%	74	73
13C8-PFOA (surr.)	1	%	72	73
13C5-PFNA (surr.)	1	%	80	85
13C6-PFDA (surr.)	1	%	66	76
13C2-PFUnDA (surr.)	1	%	72	81
13C2-PFDoDA (surr.)	1	%	70	78
13C2-PFTeDA (surr.)	1	%	73	84
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

Client Sample ID			BH33_0.9-1.0	BH34_0.9-1.0
Sample Matrix			Soil	Soil
Eurofins Sample No.			M24-Se0003060	M24-Se0003061
Date Sampled			Aug 13, 2024	Aug 13, 2024
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonamido substances				
13C8-FOSA (surr.)	1	%	59	68
D3-N-MeFOSA (surr.)	1	%	67	79
D5-N-EtFOSA (surr.)	1	%	70	81
D7-N-MeFOSE (surr.)	1	%	61	72
D9-N-EtFOSE (surr.)	1	%	62	72
D5-N-EtFOSAA (surr.)	1	%	90	94
D3-N-MeFOSAA (surr.)	1	%	94	110
Perfluoroalkyl sulfonic acids (PFSAs)				
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	28	45
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	12	17
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	[N09]28	[N09]110
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]760	[N09]1400
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	[N09]50	[N09]78
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]640	[N09]280
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5
13C3-PFBS (surr.)	1	%	68	76
18O2-PFHxS (surr.)	1	%	85	85
13C8-PFOS (surr.)	1	%	55	71
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	%	90	86
13C2-6:2 FTSA (surr.)	1	%	73	89
13C2-8:2 FTSA (surr.)	1	%	88	96
13C2-10:2 FTSA (surr.)	1	%	73	92
PFASs Summations				
Sum (PFHxS + PFOS)*	5	ug/kg	1400	1680
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	735	380
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	1495	1780
Sum of WA DWER PFAS (n=10)*	10	ug/kg	1638.4	2010
Sum of PFASs (n=30)*	50	ug/kg	1757.4	2273

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
% Moisture	Melbourne	Sep 02, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Sep 09, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Sep 09, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Sep 03, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Sep 09, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Sep 02, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

Company Name: GHD Pty Ltd SA
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Adelaide
SA 5001

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1134925
Phone: 08 8111 6600
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Received: Sep 2, 2024 5:28 PM
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Contact Name: Terrance Wilson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH33_0.9-1.0	Aug 13, 2024		Soil	M24-Se0003060	X	X
2	BH34_0.9-1.0	Aug 13, 2024		Soil	M24-Se0003061	X	X
Test Counts						2	2

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	83			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	94			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	87			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	86			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	86			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	81			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	93			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	85			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	85			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	69			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	88			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	102			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	89			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	103			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	90			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	77			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	85			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	93			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	91			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	95			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	98			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	107			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	81			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	150			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	94			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)	%	85			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	89			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	84			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	94			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M24-Se0001809	NCP	%	83			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Se0001809	NCP	%	95			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Se0001809	NCP	%	87			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Se0001809	NCP	%	85			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-Se0001809	NCP	%	85			50-150	Pass	
Perfluorononanoic acid (PFNA)	M24-Se0001809	NCP	%	82			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-Se0001809	NCP	%	88			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Se0001809	NCP	%	84			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Se0001809	NCP	%	93			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Se0001809	NCP	%	82			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Se0001809	NCP	%	88			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-Se0001809	NCP	%	101			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Se0001809	NCP	%	91			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Se0001809	NCP	%	102			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Se0001809	NCP	%	98			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Se0001809	NCP	%	89			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Se0001809	NCP	%	96			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Se0001809	NCP	%	88			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-Se0001809	NCP	%	86			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Se0001809	NCP	%	137			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Se0001809	NCP	%	89			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Se0001809	NCP	%	124			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Se0005140	NCP	%	75			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Se0005140	NCP	%	96			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Se0001809	NCP	%	116			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-Se0001809	NCP	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Se0001809	NCP	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Se0001809	NCP	%	87			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Se0001809	NCP	%	99			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Se0001819	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Se0001819	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Se0005151	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Se0005151	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Se0001819	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Se0001819	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M24-Se0003061	CP	%	18	17	6.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Catherine Wilson	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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Eurofins Environment Testing Australia Pty Ltd

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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Eurofins Environment Testing NZ Ltd

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

Sample Receipt Advice

Company name: GHD Pty Ltd SA
Contact name: Angus Robinson
Project name: Christie Downs Supp DSI
Project ID: 12639293
Turnaround time: 5 Day
Date/Time received Jul 25, 2024 11:24 AM
Eurofins reference 1121716

Sample Information

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

Notes

Contact

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

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

Results will be delivered electronically via email to Angus Robinson - angus.robinson@ghd.com.

Note: A copy of these results will also be delivered to the general GHD Pty Ltd SA email address.

Global Leader - Results you can trust

Fw: 1117313-W

Karl Bulow <Karl.Bulow@eurofinsanz.com>

Thu 25/7/24 11:43 AM

To:#AU_CAU001_EnviroSampleVic <EnviroSampleVic@eurofins.com>

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

Hi Jess,

Please see additional analysis - Standard TAT.

#1121716
25/7/24

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

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From: Joshua Anderson <Joshua.Anderson2@ghd.com>
Sent: Thursday, July 25, 2024 11:24 AM
To: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Cc: Angus Robinson <Angus.Robinson@ghd.com>; Ben Petticrew <Ben.Petticrew@ghd.com>; Eloise Ivy Garcia <Eloiselvy.Garcia@ghd.com>
Subject: 1117313-W

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.
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Hi Karl,

Hope you are doing well,

Could we please have the following sample analysed for the listed analytes:

Sample ID	Date	Lab ID	Analytes			
QC03	Jul 11, 2024	M24-Jl0031827	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Per- and Polyfluoroalkyl Substances (PFASs) – extended suite (Ultra trace)

The report number is 1117313 and project number is 12639293

Could any further reports also please be forwarded to Angus, Ben and Eloise who are Ccd into this email

Thank you in advance, any questions please reach out

Cheers,

Joshua Anderson
Undergraduate Environmental Scientist
Environment and Planning Team

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

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

Project Name: Christie Downs Supp DSI
Project ID: 12639293

Order No.: 12639293
Report #: 1121716
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Jul 25, 2024 11:24 AM
Due: Aug 1, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	QC03	Jul 11, 2024		Water	M24-Jl0066267	X	X	X	X
Test Counts						1	1	1	1

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: **Angus Robinson**

Report **1121716-W**
Project name Christie Downs Supp DSI
Project ID 12639293
Received Date Jul 25, 2024

Client Sample ID			**QC03**
Sample Matrix			**Water**
Eurofins Sample No.			**M24-Jl0066267**
Date Sampled			**Jul 11, 2024**
Test/Reference	LOR	Unit	
Ammonia (as N)	0.01	mg/L	0.08
Nitrate (as N)	0.02	mg/L	0.34
Nitrite (as N)	0.02	mg/L	< 0.02
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	0.006
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.008
Sum of PFASs (n=30)*	0.005	ug/L	0.013
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.006
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.013
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.005	ug/L	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.005	ug/L	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	< 0.005
13C8-FOSA (surr.)	1	%	130
D3-N-MeFOSA (surr.)	1	%	102
D5-N-EtFOSA (surr.)	1	%	106
D7-N-MeFOSE (surr.)	1	%	103
D9-N-EtFOSE (surr.)	1	%	87
D5-N-EtFOSAA (surr.)	1	%	92
D3-N-MeFOSAA (surr.)	1	%	51
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	[G02]< 0.005
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	0.002
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	0.002
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	0.001
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	0.002
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	< 0.001

Client Sample ID			QC03
Sample Matrix			Water
Eurofins Sample No.			M24-Jl0066267
Date Sampled			Jul 11, 2024
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorotridecanoic acid (PFTrDA)[N15]	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA)[N11]	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA)[N11]	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	23
13C5-PFPeA (surr.)	1	%	64
13C5-PFHxA (surr.)	1	%	64
13C4-PFHpA (surr.)	1	%	67
13C8-PFOA (surr.)	1	%	67
13C5-PFNA (surr.)	1	%	67
13C6-PFDA (surr.)	1	%	84
13C2-PFUnDA (surr.)	1	%	91
13C2-PFDoDA (surr.)	1	%	79
13C2-PFTeDA (surr.)	1	%	61
Perfluoroalkyl sulfonic acids (PFSAs)- Trace			
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	< 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	< 0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	0.002
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.001	ug/L	0.004
Perfluorodecanesulfonic acid (PFDS)[N15]	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	78
18O2-PFHxS (surr.)	1	%	77
13C8-PFOS (surr.)	1	%	68
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- 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	%	79
13C2-6:2 FTSA (surr.)	1	%	75
13C2-8:2 FTSA (surr.)	1	%	84
13C2-10:2 FTSA (surr.)	1	%	101

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
Ammonia (as N)	Melbourne	Jul 26, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrate (as N)	Melbourne	Jul 26, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrite (as N)	Melbourne	Jul 26, 2024	2 Days
- Method: LTM-INO-4450 Nitrogens by Discrete Analyser			
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
PFASs Summations	Melbourne	Aug 01, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonamido substances- Trace	Melbourne	Aug 01, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Melbourne	Aug 01, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSAs)- Trace	Melbourne	Aug 01, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Melbourne	Aug 01, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

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

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Project ID: 12639293

Order No.: 12639293
Report #: 1121716
Phone: 08 8111 6600
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Received: Jul 25, 2024 11:24 AM
Due: Aug 1, 2024
Priority: 5 Day
Contact Name: Angus Robinson

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	QC03	Jul 11, 2024		Water	M24-Jl0066267	X	X	X	X
Test Counts						1	1	1	1

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	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	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)- 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	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- 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							
Ammonia (as N)	%	98			70-130	Pass	
Nitrite (as N)	%	106			70-130	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	127			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	101			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	88			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	87			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	83			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	83			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	91			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	83			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	94			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	90			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	81			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	90			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	90			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	98			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	58			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	95			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	90			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	90			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	76			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	74			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	87			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	105			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	79			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	80			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	86			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	52			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	75			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)	%	76			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	79			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	M24-JI0079870	NCP	%	112			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-JI0079870	NCP	%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-JI0079870	NCP	%	79			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-JI0079870	NCP	%	92			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-JI0079870	NCP	%	98			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-JI0079870	NCP	%	94			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-JI0079870	NCP	%	101			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	M24-JI0079870	NCP	%	96			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M24-JI0079870	NCP	%	100			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M24-JI0079870	NCP	%	105			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-JI0079870	NCP	%	102			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M24-JI0079870	NCP	%	90			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorononanoic acid (PFNA)	M24-JI0079870	NCP	%	100			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M24-JI0079870	NCP	%	104			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-JI0079870	NCP	%	72			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-JI0079870	NCP	%	106			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-JI0079870	NCP	%	118			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-JI0079870	NCP	%	109			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M24-JI0079870	NCP	%	84			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-JI0079870	NCP	%	87			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-JI0079870	NCP	%	94			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-JI0079870	NCP	%	118			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-JI0079870	NCP	%	95			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-JI0079870	NCP	%	89			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-JI0079870	NCP	%	89			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-JI0079870	NCP	%	74			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-JI0079870	NCP	%	83			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-JI0079870	NCP	%	94			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-JI0079870	NCP	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-JI0079870	NCP	%	92			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Nitrite (as N)	M24-JI0063100	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-JI0079871	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-JI0079871	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-JI0079871	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-JI0079871	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-JI0079871	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-JI0079871	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-JI0079871	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Jl0079871	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Jl0079871	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Jl0079871	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Jl0079871	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	N/A
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
G02	The LORs have been raised as there was insufficient sample provided for analysis
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Harry Bacalis	Analytical Services Manager
Joseph Edouard	Senior Analyst-PFAS
Mary Makarios	Senior Analyst-Inorganic



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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NATA# 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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NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
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Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name: GHD Pty Ltd SA
Contact name: Eloise
Project name: Chritie Downs Supp DSI
Project ID: 12639293
Turnaround time: 5 Day
Date/Time received Aug 7, 2024 3:24 PM
Eurofins reference 1125999

Sample Information

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

Notes

Contact

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

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

Results will be delivered electronically via email to Eloise - eloiseivy.garcia@ghd.com.

Note: A copy of these results will also be delivered to the general GHD Pty Ltd SA email address.

Jessica Sheppard

From: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Sent: Wednesday, 7 August 2024 3:29 PM
To: #AU_CAU001_EnviroSampleVic
Cc: Eloise Ivy Garcia
Subject: Fw: Requesting for Leachate Analysis- 1117313

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: ADDITIONALS

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.

Jess - See below additional analysis request - Standard Tat.

Kind Regards,

#12599 718124

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

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From: Eloise Ivy Garcia <EloiseIvy.Garcia@ghd.com>
Sent: Wednesday, August 7, 2024 3:24 PM
To: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Cc: Ben Petticrew <Ben.Petticrew@ghd.com>; Jess Miller <Jess.Miller@ghd.com>; Angus Robinson <Angus.Robinson@ghd.com>; Terrence Wilson <Terrence.Wilson@ghd.com>
Subject: Requesting for Leachate Analysis- 1117313

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,

Hope this finds you well

I'm reaching out to request if we could please have the following samples analysed for leachate analysis:

Sample ID	Date	Lab ID
BH19_1.0-1.1	Jul 09, 2024	M24-JI0031814
BH26_1.0-1.1	Jul 09, 2024	M24-JI0031815
BH27_1.0-1.1	Jul 09, 2024	M24-JI0031816

The report number is 1117313 and project number is 12639293.

Please let me know if you have any questions. Thank you!

Kind regards,

Eloise Ivy R. Garcia (she/her)
BSc Geology
Environmental Scientist – South Australia

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Jessica Sheppard

From: Eloise Ivy Garcia <EloiseIvy.Garcia@ghd.com>
Sent: Thursday, 8 August 2024 5:07 PM
To: #AU_CAU001_EnviroSampleVic
Subject: RE: Requesting for Leachate Analysis- 1117313

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Hi Jessica,

Please test the leachate for PFAS analytes.

Kind regards,

Eloise Ivy R. Garcia (she/her)
BSc Geology
Environmental Scientist – South Australia

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L4 211 Victoria Square, Adelaide SA 5000 Australia
M +61 420317959 **E** EloiseIvy.Garcia@ghd.com

From: #AU_CAU001_EnviroSampleVic <EnviroSampleVic@eurofins.com>
Sent: Thursday, August 8, 2024 4:22 PM
To: Karl Bulow <Karl.Bulow@eurofinsanz.com>; #AU_CAU001_EnviroSampleVic <EnviroSampleVic@eurofins.com>
Cc: Eloise Ivy Garcia <EloiseIvy.Garcia@ghd.com>
Subject: RE: Requesting for Leachate Analysis- 1117313

You don't often get email from envirosamplevic@eurofins.com. Learn why this is important

Hi Eloise,

What analytes would you like tested for the leachate?

Regards,
Jessica Sheppard

Sample Receipt Front Desk

Eurofins Environment Testing AU/NZ
6 Monterey Road
Dandenong South, Australia, 3175
Phone: +613 8564 5000

E-mail: EnviroSampleVic@eurofins.com
Website: www.eurofins.com

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+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

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

Project Name: Chritie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1125999
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 7, 2024 3:24 PM
Due: Aug 14, 2024
Priority: 5 Day
Contact Name: Eloise

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH19_1.0-1.1	Jul 09, 2024		AUS Leachate	M24-Au0018491	X	X
2	BH26_1.0-1.1	Jul 09, 2024		AUS Leachate	M24-Au0018492	X	X
3	BH27_1.0-1.1	Jul 09, 2024		AUS Leachate	M24-Au0018493	X	X
Test Counts						3	3

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: **Eloise**

Report **1125999-L**
Project name Chritie Downs Supp DSI
Project ID 12639293
Received Date Aug 07, 2024

Client Sample ID			**BH19_1.0-1.1**	**BH26_1.0-1.1**	**BH27_1.0-1.1**
Sample Matrix			**AUS Leachate**	**AUS Leachate**	**AUS Leachate**
Eurofins Sample No.			**M24-Au0018491**	**M24-Au0018492**	**M24-Au0018493**
Date Sampled			**Jul 09, 2024**	**Jul 09, 2024**	**Jul 09, 2024**
Test/Reference	LOR	Unit			
AUS Leaching Procedure					
Leachate Fluid[C01]		comment	1.0	1.0	1.0
pH (initial)	0.1	pH Units	8.5	8.6	8.8
pH (Leachate fluid)	0.1	pH Units	5.0	5.0	5.0
pH (off)	0.1	pH Units	6.7	6.8	6.7
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	0.16	0.06	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	0.44	0.17	0.05
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	0.59	0.25	0.20
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	[N09]0.73	[N09]0.29	[N09]0.08
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]2.9	[N09]0.58	[N09]0.26
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	[N09]5.5	[N09]0.57	[N09]0.43
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01	0.46	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	[N09]0.03	[N09]1.7	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	145	129	129
13C5-PFPeA (surr.)	1	%	103	102	100
13C5-PFHxA (surr.)	1	%	102	100	96
13C4-PFHpA (surr.)	1	%	98	97	105
13C8-PFOA (surr.)	1	%	111	120	102
13C5-PFNA (surr.)	1	%	103	107	100
13C6-PFDA (surr.)	1	%	112	88	54
13C2-PFUnDA (surr.)	1	%	91	119	90
13C2-PFDoDA (surr.)	1	%	81	86	86
13C2-PFTeDA (surr.)	1	%	72	86	98
Perfluoroalkyl sulfonamido substances					
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05

Client Sample ID			BH19_1.0-1.1	BH26_1.0-1.1	BH27_1.0-1.1
Sample Matrix			AUS Leachate	AUS Leachate	AUS Leachate
Eurofins Sample No.			M24-Au0018491	M24-Au0018492	M24-Au0018493
Date Sampled			Jul 09, 2024	Jul 09, 2024	Jul 09, 2024
Test/Reference	LOR	Unit			
Perfluoroalkyl sulfonamido substances					
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	106	79	110
D3-N-MeFOSA (surr.)	1	%	42	169	103
D5-N-EtFOSA (surr.)	1	%	42	115	107
D7-N-MeFOSE (surr.)	1	%	47	20	77
D9-N-EtFOSE (surr.)	1	%	61	28	99
D5-N-EtFOSAA (surr.)	1	%	78	68	75
D3-N-MeFOSAA (surr.)	1	%	79	78	80
Perfluoroalkyl sulfonic acids (PFSAs)					
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	[N09]0.13	[N09]0.02	[N09]0.04
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01	[N09]0.03	[G01]< 0.125
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	0.07	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	0.38	[N09]0.04	[N09]0.09
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]15	[N09]0.78	[N09]2.5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	[N09]0.21	[N09]0.36	[N09]1.2
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]2.5	[N09]9.5	[N09]69
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	111	118	110
18O2-PFHxS (surr.)	1	%	104	118	107
13C8-PFOS (surr.)	1	%	111	108	107
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	0.95	0.49	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	0.06	0.86	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	106	80	69
13C2-6:2 FTSA (surr.)	1	%	66	64	72
13C2-8:2 FTSA (surr.)	1	%	119	109	117
13C2-10:2 FTSA (surr.)	1	%	97	102	94
PFASs Summations					
Sum (PFHxS + PFOS)*	0.01	ug/L	17.5	10.28	71.5
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	5.4	10.08	69.26
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	20.4	10.86	71.76
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	23.46	13	72.13
Sum of PFASs (n=30)*	0.1	ug/L	29.65	16.16	73.85

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
AUS Leaching Procedure			
pH (initial)	Melbourne	Aug 09, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
pH (Leachate fluid)	Melbourne	Aug 09, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
pH (off)	Melbourne	Aug 09, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Aug 09, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Aug 09, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Aug 09, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Aug 09, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Aug 08, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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

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ABN: 50 005 085 521

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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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NATA# 2561
Site# 2554

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

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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: Chritie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1125999
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 7, 2024 3:24 PM
Due: Aug 14, 2024
Priority: 5 Day
Contact Name: Eloise

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH19_1.0-1.1	Jul 09, 2024		AUS Leachate	M24-Au0018491	X	X
2	BH26_1.0-1.1	Jul 09, 2024		AUS Leachate	M24-Au0018492	X	X
3	BH27_1.0-1.1	Jul 09, 2024		AUS Leachate	M24-Au0018493	X	X
Test Counts						3	3

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	83			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	98			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	92			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	76			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	92			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	75			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	78			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	86			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	82			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	84			50-150	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	82			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	90			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	85			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	89			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	85			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	94			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	84			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	84			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	78			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	86			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	74			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	77			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	88			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	72			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	63			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	82			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	84			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	78			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	85			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M24-Au0018491	CP	ug/L	0.16	0.17	5.0	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M24-Au0018491	CP	ug/L	0.44	0.46	4.0	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M24-Au0018491	CP	ug/L	0.59	0.62	5.0	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M24-Au0018491	CP	ug/L	0.73	0.78	7.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0027160	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M24-Au0019315	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M24-Au0018491	CP	ug/L	< 0.01	0.01	16	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M24-Au0018491	CP	ug/L	0.03	0.04	23	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M24-Au0018491	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M24-Au0018491	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M24-Au0018491	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M24-Au0018491	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M24-Au0018491	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M24-Au0018491	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M24-Au0018491	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M24-Au0018491	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M24-Au0018491	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M24-Au0018491	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M24-Au0018491	CP	ug/L	0.13	0.13	1.0	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M24-Au0018491	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M24-Au0018491	CP	ug/L	0.07	0.07	2.0	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M24-Au0019315	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0027160	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M24-Au0018491	CP	ug/L	0.21	0.21	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M24-Au0027160	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M24-Au0018491	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M24-Au0018491	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0018491	CP	ug/L	0.95	0.93	1.0	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M24-Au0018491	CP	ug/L	0.06	0.06	1.0	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M24-Au0018491	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	N/A
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other
G01	The LORs have been raised due to matrix interference
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:

Karl Bulow	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS
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

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

Sample Receipt Advice

Company name: GHD Pty Ltd SA
Contact name: - ALL SRAs/COCs/Reports
Project name: MFS Christie Downs Supp DSI
Project ID: 12639293
Turnaround time: 10 Day
Date/Time received Aug 27, 2024 11:50 AM
Eurofins reference 1132718

Sample Information

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

Notes

Contact

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

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

Results will be delivered electronically via email to - ALL SRAs/COCs/Reports - GHDLabReports@ghd.com.

Note: A copy of these results will also be delivered to the general GHD Pty Ltd SA email address.

Global Leader - Results you can trust

Jessica Sheppard

From: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Sent: Tuesday, 27 August 2024 11:50 AM
To: #AU_CAU001_EnviroSampleVic
Subject: Re: Eurofins Test Results, Invoice - Report 1129117 : Site MFS Christie Downs Supp DSI (12639293)

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: ADDITIONALS

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

Hi Jess,

I've spoken with the client for clarification over the method requested. Log in BH35_0.0-0.1 (M24-Au0042898) for **MEP leachate** analysis for **both ph2.9 & ph5.**

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

#1132718

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

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From: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Sent: Monday, August 26, 2024 4:21 PM
To: #AU_CAU001_EnviroSampleVic <EnviroSampleVic@eurofins.com>
Subject: Fw: Eurofins Test Results, Invoice - Report 1129117 : Site MFS Christie Downs Supp DSI (12639293)

Hi Jess,

See additional analysis request from Friday - standard Tat.

As requested, log in BH35_0.0-0.1 (M24-Au0042898) separately.

Kind Regards,

Karl Bulow
Analytical Services Manager SA

Eurofins | Environment Testing
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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

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From: Terrence Wilson <Terrence.Wilson@ghd.com>
Sent: Friday, August 23, 2024 12:53 PM
To: marymakarios <marymakarios@eurofins.com>; Karl Bulow <Karl.Bulow@eurofinsanz.com>
Cc: Ben Petticrew <Ben.Petticrew@ghd.com>; Angelica Maria Villada Meza <AngelicaMaria.VilladaMeza@ghd.com>
Subject: RE: Eurofins Test Results, Invoice - Report 1129117 : Site MFS Christie Downs Supp DSI (12639293)

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 Mary/Karl,

Thanks for the results.

Please could you arrange for the following additional samples (currently on hold) to be analysed:

- BH33_0.4-0.5 (M24-Au0042922) – PFAS Full Suite; Standard LOR; Standard TAT
- BH34_0.4-0.5 (M24-Au0042924) – PFAS Full Suite; Standard LOR; Standard TAT
- BH35_0.4-0.5 (M24-Au0042926) – PFAS Full Suite; Standard LOR; Standard TAT
- BH35_0.0-0.1 (M24-Au0042898) – US EPA Method 1320 (Multiple Extraction Procedure) + PFAS Short Suite [in accordance with the SA EPA's landfill disposal criteria for PFAS-contaminated waste] – Due to the difference in analyses turnaround times from above, these results can be reported separately.

Please could you also just amend the sample ID in the lab reports assigned to the following sample:

13	SS10/BH42_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042905		X	X

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Eurofins Environment Testing Australia Pty Ltd
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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
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1132718
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 27, 2024 11:50 AM
Due: Sep 10, 2024
Priority: 10 Day
Contact Name: - ALL SRAs/COCs/Reports

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH35_0.0-0.1 ph2.9 Day 1	Aug 15, 2024		Leachate - MEP	M24-Au0071307	X	X
2	BH35_0.0-0.1 ph2.9 Day 2	Aug 15, 2024		Leachate - MEP	M24-Au0071308	X	X
3	BH35_0.0-0.1 ph2.9 Day 3	Aug 15, 2024		Leachate - MEP	M24-Au0071309	X	X
4	BH35_0.0-0.1 ph2.9 Day 4	Aug 15, 2024		Leachate - MEP	M24-Au0071310	X	X
5	BH35_0.0-0.1 ph2.9 Day 5	Aug 15, 2024		Leachate - MEP	M24-Au0071311	X	X
6	BH35_0.0-0.1 ph2.9 Day 6	Aug 15, 2024		Leachate - MEP	M24-Au0071312	X	X
7	BH35_0.0-0.1 ph2.9 Day 7	Aug 15, 2024		Leachate - MEP	M24-Au0071313	X	X
8	BH35_0.0-0.1 ph2.9 Day 8	Aug 15, 2024		Leachate - MEP	M24-Au0071314	X	X
9	BH35_0.0-0.1	Aug 15, 2024		Leachate -	M24-Au0071315	X	X

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

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

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SA 5001

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Project ID: 12639293

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Contact Name: - ALL SRAs/COCs/Reports

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
	ph2.9 Day 9			MEP			
10	BH35_0.0-0.1 ph2.9 Day 10	Aug 15, 2024		Leachate - MEP	M24-Au0071316	X	X
11	BH35_0.0-0.1 ph5 Day 1	Aug 15, 2024		Leachate - MEP	M24-Au0071317	X	X
12	BH35_0.0-0.1 ph5 Day 2	Aug 15, 2024		Leachate - MEP	M24-Au0071318	X	X
13	BH35_0.0-0.1 ph5 Day 3	Aug 15, 2024		Leachate - MEP	M24-Au0071319	X	X
14	BH35_0.0-0.1 ph5 Day 4	Aug 15, 2024		Leachate - MEP	M24-Au0071320	X	X
15	BH35_0.0-0.1 ph5 Day 5	Aug 15, 2024		Leachate - MEP	M24-Au0071321	X	X
16	BH35_0.0-0.1 ph5 Day 6	Aug 15, 2024		Leachate - MEP	M24-Au0071322	X	X
17	BH35_0.0-0.1 ph5 Day 7	Aug 15, 2024		Leachate - MEP	M24-Au0071323	X	X
18	BH35_0.0-0.1 ph5 Day 8	Aug 15, 2024		Leachate - MEP	M24-Au0071324	X	X
19	BH35_0.0-0.1	Aug 15, 2024		Leachate -	M24-Au0071325	X	X

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
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Adelaide
SA 5001

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
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Received: Aug 27, 2024 11:50 AM
Due: Sep 10, 2024
Priority: 10 Day
Contact Name: - ALL SRAs/COCs/Reports

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
19	BH35_0.0-0.1 ph5 Day 9	Aug 15, 2024		Leachate - MEP	M24-Au0071325		
20	BH35_0.0-0.1 ph5 Day 10	Aug 15, 2024		Leachate - MEP	M24-Au0071326	X	X
Test Counts						20	20

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: **- ALL SRAs/COCs/Reports**

Report **1132718-L**
Project name MFS Christie Downs Supp DSI
Project ID 12639293
Received Date Aug 27, 2024

Client Sample ID			**BH35_0.0-0.1 ph2.9 Day 1**	**BH35_0.0-0.1 ph2.9 Day 2**	**BH35_0.0-0.1 ph2.9 Day 3**	**BH35_0.0-0.1 ph2.9 Day 4**
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071307**	**M24-Au0071308**	**M24-Au0071309**	**M24-Au0071310**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	2.0	2.0	2.0	2.0
pH (initial)	0.1	pH Units	3.3	4.2	4.3	4.2
pH (Leachate fluid)	0.1	pH Units	2.9	2.9	2.9	2.9
pH (off)	0.1	pH Units	4.5	4.4	4.3	4.3
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	%	93	89	118	93
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	6.2	4.7	[N09]1.4	1.0
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]300	[N09]240	[N09]65	[N09]65
18O2-PFHxS (surr.)	1	%	125	127	122	123
13C8-PFOS (surr.)	1	%	91	93	100	117
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.54	[N09]0.44	[N09]0.40	0.37
13C8-PFOA (surr.)	1	%	80	83	64	126
Sum (PFHxS + PFOS)*	0.01	ug/L	306.2	244.7	66.4	66
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	300.54	240.44	65.4	65.37
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	306.74	245.14	66.8	66.37

Client Sample ID			**BH35_0.0-0.1 ph2.9 Day 5**	**BH35_0.0-0.1 ph2.9 Day 6**	**BH35_0.0-0.1 ph2.9 Day 7**	**BH35_0.0-0.1 ph2.9 Day 8**
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071311**	**M24-Au0071312**	**M24-Au0071313**	**M24-Au0071314**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	2.0	2.0	2.0	2.0
pH (initial)	0.1	pH Units	4.1	4.0	3.9	3.8
pH (Leachate fluid)	0.1	pH Units	2.9	2.9	2.9	2.9
pH (off)	0.1	pH Units	4.2	4.0	3.9	3.9

Client Sample ID			BH35_0.0-0.1 ph2.9 Day 5	BH35_0.0-0.1 ph2.9 Day 6	BH35_0.0-0.1 ph2.9 Day 7	BH35_0.0-0.1 ph2.9 Day 8
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071311**	**M24-Au0071312**	**M24-Au0071313**	**M24-Au0071314**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 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	%	112	86	96	182
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	0.67	0.74	0.56	[N09]0.40
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]42	[N09]43	[N09]49	[N09]40
18O2-PFHxS (surr.)	1	%	119	116	134	83
13C8-PFOS (surr.)	1	%	110	122	119	122
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	0.25	0.28	0.23	[N09]0.12
13C8-PFOA (surr.)	1	%	118	114	131	79
Sum (PFHxS + PFOS)*	0.01	ug/L	42.67	43.74	49.56	40.4
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	42.25	43.28	49.23	40.12
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	42.92	44.02	49.79	40.52

Client Sample ID			BH35_0.0-0.1 ph2.9 Day 9		BH35_0.0-0.1 ph5 Day 1	BH35_0.0-0.1 ph5 Day 2
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071315**	**M24-Au0071316**	**M24-Au0071317**	**M24-Au0071318**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	2.0	2.0	1.0	1.0
pH (initial)	0.1	pH Units	3.7	3.7	5.2	5.7
pH (Leachate fluid)	0.1	pH Units	2.9	2.9	4.9	4.9
pH (off)	0.1	pH Units	3.7	3.7	6.5	6.2
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	%	64	95	125	128
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	0.39	[N09]0.24	1.7	1.4
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]21	[N09]27	110	110
18O2-PFHxS (surr.)	1	%	79	108	124	120
13C8-PFOS (surr.)	1	%	124	108	103	99
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.11	[N09]0.08	[N09]0.66	[N09]0.55
13C8-PFOA (surr.)	1	%	74	85	60	61
Sum (PFHxS + PFOS)*	0.01	ug/L	21.39	27.24	111.7	111.4
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	21.11	27.08	110.66	110.55
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	21.5	27.32	112.36	111.95

Client Sample ID			BH35_0.0-0.1 ph5 Day 3	BH35_0.0-0.1 ph5 Day 4	BH35_0.0-0.1 ph5 Day 5	BH35_0.0-0.1 ph5 Day 6
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071319**	**M24-Au0071320**	**M24-Au0071321**	**M24-Au0071322**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	5.9	5.7	5.7	5.6
pH (Leachate fluid)	0.1	pH Units	4.9	5.0	4.9	5.0
pH (off)	0.1	pH Units	6.2	6.0	5.8	5.7
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	%	74	119	116	107
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]1.1	1.1	0.75	0.80
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]95	[N09]110	[N09]63	[N09]83
18O2-PFHxS (surr.)	1	%	121	123	111	122
13C8-PFOS (surr.)	1	%	99	112	107	114
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.28	0.40	0.26	0.30
13C8-PFOA (surr.)	1	%	143	127	117	122
Sum (PFHxS + PFOS)*	0.01	ug/L	96.1	111.1	63.75	83.8
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	95.28	110.4	63.26	83.3
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	96.38	111.5	64.01	84.1

Client Sample ID			BH35_0.0-0.1 ph5 Day 7	BH35_0.0-0.1 ph5 Day 8	BH35_0.0-0.1 ph5 Day 9	BH35_0.0-0.1 ph5 Day 10
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071323**	**M24-Au0071324**	**M24-Au0071325**	**M24-Au0071326**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	5.5	5.5	5.3	5.3
pH (Leachate fluid)	0.1	pH Units	5.0	4.9	4.9	5.0
pH (off)	0.1	pH Units	5.6	5.5	5.4	5.3
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	%	95	77	184	102
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	0.59	[N09]0.36	[N09]0.38	[N09]0.22
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]33	[N09]30	[N09]52	[N09]24
18O2-PFHxS (surr.)	1	%	125	82	77	91
13C8-PFOS (surr.)	1	%	96	120	98	110
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	0.25	[N09]0.10	[N09]0.12	[N09]0.08
13C8-PFOA (surr.)	1	%	114	74	71	84
Sum (PFHxS + PFOS)*	0.01	ug/L	33.59	30.36	52.38	24.22
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	33.25	30.1	52.12	24.08
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	33.84	30.46	52.5	24.3

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
AUS Leaching Procedure			
pH (initial)	Melbourne	Aug 28, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
pH (Leachate fluid)	Melbourne	Aug 28, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
pH (off)	Melbourne	Aug 28, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Melbourne	Sep 12, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Eurofins Environment Testing Australia Pty Ltd
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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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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1132718
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 27, 2024 11:50 AM
Due: Sep 10, 2024
Priority: 10 Day
Contact Name: - ALL SRAs/COCs/Reports

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH35_0.0-0.1 ph2.9 Day 1	Aug 15, 2024		Leachate - MEP	M24-Au0071307	X	X
2	BH35_0.0-0.1 ph2.9 Day 2	Aug 15, 2024		Leachate - MEP	M24-Au0071308	X	X
3	BH35_0.0-0.1 ph2.9 Day 3	Aug 15, 2024		Leachate - MEP	M24-Au0071309	X	X
4	BH35_0.0-0.1 ph2.9 Day 4	Aug 15, 2024		Leachate - MEP	M24-Au0071310	X	X
5	BH35_0.0-0.1 ph2.9 Day 5	Aug 15, 2024		Leachate - MEP	M24-Au0071311	X	X
6	BH35_0.0-0.1 ph2.9 Day 6	Aug 15, 2024		Leachate - MEP	M24-Au0071312	X	X
7	BH35_0.0-0.1 ph2.9 Day 7	Aug 15, 2024		Leachate - MEP	M24-Au0071313	X	X
8	BH35_0.0-0.1 ph2.9 Day 8	Aug 15, 2024		Leachate - MEP	M24-Au0071314	X	X
9	BH35_0.0-0.1	Aug 15, 2024		Leachate -	M24-Au0071315	X	X

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
	ph2.9 Day 9			MEP			
10	BH35_0.0-0.1 ph2.9 Day 10	Aug 15, 2024		Leachate - MEP	M24-Au0071316	X	X
11	BH35_0.0-0.1 ph5 Day 1	Aug 15, 2024		Leachate - MEP	M24-Au0071317	X	X
12	BH35_0.0-0.1 ph5 Day 2	Aug 15, 2024		Leachate - MEP	M24-Au0071318	X	X
13	BH35_0.0-0.1 ph5 Day 3	Aug 15, 2024		Leachate - MEP	M24-Au0071319	X	X
14	BH35_0.0-0.1 ph5 Day 4	Aug 15, 2024		Leachate - MEP	M24-Au0071320	X	X
15	BH35_0.0-0.1 ph5 Day 5	Aug 15, 2024		Leachate - MEP	M24-Au0071321	X	X
16	BH35_0.0-0.1 ph5 Day 6	Aug 15, 2024		Leachate - MEP	M24-Au0071322	X	X
17	BH35_0.0-0.1 ph5 Day 7	Aug 15, 2024		Leachate - MEP	M24-Au0071323	X	X
18	BH35_0.0-0.1 ph5 Day 8	Aug 15, 2024		Leachate - MEP	M24-Au0071324	X	X
19	BH35_0.0-0.1	Aug 15, 2024		Leachate -	M24-Au0071325	X	X

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Contact Name: - ALL SRAs/COCs/Reports

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
19	BH35_0.0-0.1 ph5 Day 9	Aug 15, 2024		Leachate - MEP	M24-Au0071325		
20	BH35_0.0-0.1 ph5 Day 10	Aug 15, 2024		Leachate - MEP	M24-Au0071326	X	X
Test Counts						20	20

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
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	
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	
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)	%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	83			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	117			50-150	Pass	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	85			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	79			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	93			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	74			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-Au0071311	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0071311	CP	ug/L	0.67	0.71	7.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0071311	CP	ug/L	0.25	0.26	6.0	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0071314	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0071314	CP	ug/L	0.40	0.41	4.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0071314	CP	ug/L	0.12	0.12	1.0	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0071317	CP	ug/L	< 0.05	0.05	7.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0071317	CP	ug/L	0.66	0.68	2.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other
G01	The LORs have been raised due to matrix interference
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.

Authorised by:

Harry Bacalis	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS
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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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 №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (Excel, EQuIS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman
Handed over by	Terrence Wilson
Email for Invoice	accountspayableAU@ghd.com ben.petti
Email for Results	

Analyses (Where metals are requested, please specify "Total" or "Filtered". Suite code must be used to obtain correct analytes.)

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD	PFAS (Short Suite)	500mL Plastic	125mL Plastic	125mL Plastic (metals)	125mL Plastic (inorganics)	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
9	QC09a	11/4/24	S					X								1		Please forward to ALS
10	QC10a	11/4/24	S					X								1		Please forward to ALS
11	QC11a	12/4/24	S					X								1		Please forward to ALS
12	QC12a WATER	12/4/24	S/W	X	X	X	X					1	1		1	1		Please forward to ALS
	RB01	10/4/24	W						X		1							
	RB02	11/4/24	W						X		1							
	RB03	12/4/24	W						X		1							
	FB01	10/4/24	W						X		1							
	FB02	11/4/24	W						X		1							
	FB03	12/4/24	W						X		1							
13	QC12a Soil																	
	Total Counts			1	1	1	1	3	6		6	1	1		1	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 days♦
- ☑ 5 days (Standard)
- ☐ Other( )

Method of Shipment: ☐ Courier (#) ☐ Hand Delivered ☐ Postal | Name | Signature | Date | Time

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.

QSX009_R13 Modified by: Dr. R Symons Approved by: G. Jackson Approved on: 8 August 2019

Environmental Division
Melbourne
Work Order Reference
EM2406055

Telephone : + 61-3-8549 9600

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42

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 №	12639293	Project Manager	Angus Robinson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Angus Robinson				
Phone №					
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson, Terrence Wilson, Ally Kirkman	
Handed over by	Terrence Wilson	
Email for Invoice	accountspayableAU@ghd.com ben.petti	
Email for Results		

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE codes must be used to ensure SUITE prices.

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 days♦ ☑ 5 days (Standard) ☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS Full Suite	PFAS Ultra Trace	Metals (dissolved)	Nutrients	HOLD	500mL Plastic	250mL Plastic	125mL Plastic (metals)	125mL Plastic (inorganics)	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other/Asbestos AS4964, WA Guidelines	Sample Comments / Dangerous Goods Hazard Warning
	QC07	10/4/24	S	X											1		
	QC08	11/4/24	S					X							1		
	QC09	11/4/24	S					X							1		
	QC10	11/4/24	S					X							1		
	QC11	12/4/24	S					X							1		
	QC12	12/4/24	S/W	X	X	X	X				1	1		1	1		
1	QC01a	10/4/24	S					X							1		Please forward to ALS
2	QC02a	10/4/24	S	X											1		Please forward to ALS
3	QC03a	10/4/24	S	X											1		Please forward to ALS
4	QC04a	10/4/24	S					X							1		Please forward to ALS
5	QC05a	10/4/24	S	X											1		Please forward to ALS
6	QC06a	10/4/24	S					X							1		Please forward to ALS
7	QC07a	10/4/24	S	X											1		Please forward to ALS
8	QC08a	11/4/24	S					X							1		Please forward to ALS
	Total Counts			6	1	1	1	8			1	1		1	14		

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Relinquished by Nicole R (EF) 17/4/24 8am

Method of Shipment	☐ Courier (#) ☐ Hand Delivered ☐ Postal	Name		Signature		Date		Time	
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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(5) AL ½

CERTIFICATE OF ANALYSIS

Work Order	: **EM2406055**	Page	: 1 of 8
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: ANGUS ROBINSON	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	: 12639293	Date Samples Received	: 17-Apr-2024 07:30
Order number	: ----	Date Analysis Commenced	: 19-Apr-2024
C-O-C number	: ----	Issue Date	: 23-Apr-2024 16:27
Sampler	: Ally Kirkman, ANGUS ROBINSON, Terrence Wilson		
Site	:		
Quote number	: EN/000		
No. of samples received	: 13		
No. of samples analysed	: 6		

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

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

This 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*
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

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

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

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

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

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

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

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

- EP231X-SUT: Poor matrix spike recoveries) due to matrix interferences.
- 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.
- 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	QC02a	QC03a	QC05a	QC07a	QC12a
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	12-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		EM2406055-002	EM2406055-003	EM2406055-005	EM2406055-007	EM2406055-013
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**10.1**	**12.4**	**12.0**	**3.1**	**17.1**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		**0.0106**	**0.0007**	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		**0.0202**	**0.0006**	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.256**	**0.0100**	**0.0005**	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		**0.0018**	**0.0006**	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0016**	**0.101**	<0.0002	**0.0077**	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0004**	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		**0.001**	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		**0.0031**	**0.0015**	**0.0007**	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0260**	**0.0024**	**0.0013**	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		**0.0110**	**0.0029**	**0.0065**	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		**0.0201**	**0.0036**	**0.0012**	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	**0.159**	**0.0095**	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	**0.0007**	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	**0.0007**	**0.0006**	**0.0032**	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0003**	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC02a	QC03a	QC05a	QC07a	QC12a
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	12-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		EM2406055-002	EM2406055-003	EM2406055-005	EM2406055-007	EM2406055-013
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<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	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.355**	**0.284**	**0.0203**	**0.0116**	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.258**	**0.111**	**0.0005**	**0.0077**	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.329**	**0.122**	**0.0102**	**0.0077**	<0.0002
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**115**	**106**	**110**	**104**	**110**
13C8-PFOA	----	0.0002	%		**93.5**	**100**	**101**	**103**	**103**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC12a	----	----	----	----
				Sampling date / time	12-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2406055-012	--------	--------	--------	--------
					Result	----	----	----	----
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		**0.015**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		**0.0019**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		**0.0023**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		**0.0159**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		**0.0008**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		**0.0214**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		**0.0083**	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		<0.0005	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		**0.0010**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		**0.0037**	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		**0.0043**	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		**0.0049**	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC12a	----	----	----	----
				Sampling date / time	12-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2406055-012	--------	--------	--------	--------
					Result	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L		<0.0005	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L		<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	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									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC12a	----	----	----	----
				Sampling date / time	12-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2406055-012	--------	--------	--------	--------
					Result	----	----	----	----
EP231P: PFAS Sums - Continued									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		**0.0373**	----	----	----	----
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		**0.0565**	----	----	----	----
^ **Sum of PFAS**	----	0.0002	µg/L		**0.0645**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		**88.3**	----	----	----	----
13C8-PFOA	----	0.0005	%		**103**	----	----	----	----

Surrogate Control Limits

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

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(WATER) EP231D: (n:2) Fluorotelomer Sulfonic Acids

(WATER) EP231C: Perfluoroalkyl Sulfonamides

(WATER) EP231A: Perfluoroalkyl Sulfonic Acids

(WATER) EP231B: Perfluoroalkyl Carboxylic Acids

(WATER) EP231P: PFAS Sums

(WATER) EP231S: PFAS Surrogate

QUALITY CONTROL REPORT

Work Order	: **EM2406055**	Page	: 1 of 12
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: ANGUS ROBINSON	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	: 12639293	Date Samples Received	: 17-Apr-2024
Order number	: ----	Date Analysis Commenced	: 19-Apr-2024
C-O-C number	: ----	Issue Date	: 23-Apr-2024
Sampler	: Ally Kirkman, ANGUS ROBINSON, Terrence Wilson		
Site	:		
Quote number	: EN/000		
No. of samples received	: 13		
No. of samples analysed	: 6		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

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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.

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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

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: 5736655)									
EM2405542-001	Anonymous	EA055: Moisture Content	----	0.1	%	36.4	35.2	3.2	0% - 20%
EM2406055-003	QC03a	EA055: Moisture Content	----	0.1	%	12.4	10.7	14.1	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5739949)									
EB2412188-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EB2412188-011	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: 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: 5739949)									
EB2412188-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: 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

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: 5739949) - continued									
EB2412188-001	Anonymous	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
EB2412188-011	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5739949)									
EB2412188-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2412188-011	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

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5739949) - continued									
EB2412188-011	Anonymous	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: 5739949)									
EB2412188-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2412188-011	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5739949)									
EB2412188-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EB2412188-011	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5737503)									
EM2406011-007	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	0.002	0.002	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	0.008	0.009	14.8	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	0.046	0.045	2.2	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5737503) - continued									
EM2406011-007	Anonymous	EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.084	0.087	4.1	0% - 50%
EM2406100-005	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0004	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.038	0.040	3.8	0% - 20%
		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	0.011	0.011	0.0	0% - 50%
		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	0.007	0.007	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.020	0.021	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5737504)									
EM2406055-012	QC12a	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5738129)									
EP2405140-002	Anonymous	EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	<0.0002	0.0	No Limit
		EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5738129)									
EP2405140-002	Anonymous	EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	0.0045	0.0041	10.0	No Limit
		EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	0.0027	0.0027	0.0	No Limit
		EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	0.0007	0.0007	0.0	No Limit
		EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	0.0747	0.0764	2.3	0% - 20%
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5738129)									

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 (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5738129) - continued									
EP2405140-002	Anonymous	EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5738129)									
EP2405140-002	Anonymous	EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	<0.001	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5738129)									
EP2405140-002	Anonymous	EP231X-SUT: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	µg/L	<0.0002	<0.0002	0.0	No Limit
		EP231X-SUT: Sum of PFAS (WA DER List)	----	0.0002	µg/L	0.0826	0.0839	1.6	0% - 20%
		EP231X-SUT: Sum of PFAS	----	0.0002	µg/L	0.0826	0.0839	1.6	0% - 20%

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: 5739949)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	94.9	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	93.3	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	94.2	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	93.5	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	97.6	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00121 mg/kg	88.9	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5739949)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	89.8	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.1	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.5	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.0	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.2	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.6	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	108	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5739949)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.1	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	97.5	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	90.3	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.7	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.6	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5739949)								

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: 5739949) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	86.7	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	94.4	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	99.6	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	85.0	70.0	130
EP231P: PFAS Sums (QCLot: 5739949)								
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	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5737503)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	89.0	111
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	106	83.5	111
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.6	83.2	109
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.0	83.1	107
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.0	84.6	108
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.0	84.3	110
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	102	86.3	112
EG035F: Dissolved Mercury by FIMS (QCLot: 5737504)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	96.7	71.6	116
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5738129)								
EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	0.004 µg/L	82.8	72.0	130
EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	0.004 µg/L	97.8	71.0	127
EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	0.004 µg/L	80.3	68.0	131
EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.004 µg/L	108	69.0	134
EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	0.004 µg/L	93.0	65.0	140
EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	0.004 µg/L	86.2	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5738129)								
EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.0020	0.02 µg/L	95.8	73.0	129
EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	0.004 µg/L	106	72.0	129
EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	0.004 µg/L	83.8	72.0	129
EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	0.004 µg/L	100	72.0	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
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5738129) - continued								
EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	0.004 µg/L	104	71.0	133
EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	0.004 µg/L	99.7	69.0	130
EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	0.004 µg/L	98.3	71.0	129
EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	114	69.0	133
EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	0.004 µg/L	106	72.0	134
EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	91.5	65.0	144
EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	0.01 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5738129)								
EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	0.004 µg/L	94.4	67.0	137
EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	0.01 µg/L	103	68.0	141
EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	0.01 µg/L	93.7	56.6	136
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	0.01 µg/L	92.2	61.9	129
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	0.01 µg/L	87.6	52.8	135
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	0.004 µg/L	102	65.0	136
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	0.004 µg/L	99.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5738129)								
EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	0.004 µg/L	89.4	63.0	143
EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	0.004 µg/L	80.4	64.0	140
EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	0.004 µg/L	88.1	67.0	138
EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	0.004 µg/L	68.6	60.9	136
EP231P: PFAS Sums (QCLot: 5738129)								
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: **SOIL**

Matrix Spike (MS) Report

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: 5739949)							
EB2412188-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	93.8	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00118 mg/kg	86.9	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	94.2	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	93.1	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	91.3	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00121 mg/kg	89.6	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5739949)							
EB2412188-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	88.4	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	92.6	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	91.7	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	88.7	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	95.5	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	90.7	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	90.1	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	92.6	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	105	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	99.6	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	108	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5739949)							
EB2412188-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	100	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	102	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	94.0	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	94.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	92.9	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	92.6	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	88.0	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5739949)							
EB2412188-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	87.9	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	102	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	90.2	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	83.7	70.0	130

Sub-Matrix: **WATER**

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5737503)							
EM2406011-007	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	104	76.6	124
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	102	74.6	118
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	94.5	71.0	135
		EG020A-F: Copper	7440-50-8	0.2 mg/L	94.5	76.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	88.6	75.0	133
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	92.3	73.0	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	98.6	75.0	131
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5738129)							
EM2406055-012	QC12a	EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.004 µg/L	80.5	72.0	130
		EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.004 µg/L	81.4	71.0	127
		EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.004 µg/L	76.7	68.0	131
		EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.004 µg/L	112	69.0	134
		EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.004 µg/L	# Not Determined	65.0	140
		EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.004 µg/L	59.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5738129)							
EM2406055-012	QC12a	EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.02 µg/L	95.9	73.0	129
		EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.004 µg/L	92.2	72.0	129
		EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.004 µg/L	110	72.0	129
		EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.004 µg/L	107	72.0	130
		EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.004 µg/L	89.9	71.0	133
		EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.004 µg/L	99.6	69.0	130
		EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.004 µg/L	112	71.0	129
		EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.004 µg/L	106	69.0	133
		EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.004 µg/L	# 48.0	72.0	134
		EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.004 µg/L	# 53.5	65.0	144
		EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.01 µg/L	111	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5738129)							
EM2406055-012	QC12a	EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.004 µg/L	94.8	67.0	137
		EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.01 µg/L	110	68.0	141
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.01 µg/L	112	56.6	136
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.01 µg/L	104	61.9	129
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.01 µg/L	116	52.8	135
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.004 µg/L	118	65.0	136

Sub-Matrix: **WATER**

				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: 5738129) - continued							
EM2406055-012	QC12a	EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.004 µg/L	120	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5738129)							
EM2406055-012	QC12a	EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.004 µg/L	87.1	63.0	143
		EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.004 µg/L	83.0	64.0	140
		EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.004 µg/L	91.4	67.0	138
		EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.004 µg/L	# 44.1	60.9	136

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2406055**	Page	: 1 of 6
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: ANGUS ROBINSON	Telephone	: +6138549 9645
Project	: 12639293	Date Samples Received	: 17-Apr-2024
Site	:	Issue Date	: 23-Apr-2024
Sampler	: Ally Kirkman, ANGUS ROBINSON, Terrence Wilson	No. of samples received	: 13
Order number	: ----	No. of samples analysed	: 6

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EM2406055--012	QC12a	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EM2406055--012	QC12a	**Perfluorododecanoic acid (PFDoDA)**	307-55-1	48.0 %	72.0-134%	**Recovery less than lower data quality objective**
EP231B: Perfluoroalkyl Carboxylic Acids	EM2406055--012	QC12a	**Perfluorotridecanoic acid (PFTrDA)**	72629-94-8	53.5 %	65.0-144%	**Recovery less than lower data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EM2406055--012	QC12a	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	44.1 %	60.9-136%	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)						
Dissolved Mercury by FIMS	EG035F	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055)							
QC02a, QC03a, QC05a, QC07a	**10-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	24-Apr-2024	✓
HDPE Soil Jar (EA055)							
QC12a	**12-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	26-Apr-2024	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) QC02a, QC03a, QC05a, QC07a	10-Apr-2024	22-Apr-2024	07-Oct-2024	✓	22-Apr-2024	01-Jun-2024	✓
HDPE Soil Jar (EP231X) QC12a	12-Apr-2024	22-Apr-2024	09-Oct-2024	✓	22-Apr-2024	01-Jun-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) QC02a, QC03a, QC05a, QC07a	10-Apr-2024	22-Apr-2024	07-Oct-2024	✓	22-Apr-2024	01-Jun-2024	✓
HDPE Soil Jar (EP231X) QC12a	12-Apr-2024	22-Apr-2024	09-Oct-2024	✓	22-Apr-2024	01-Jun-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) QC02a, QC03a, QC05a, QC07a	10-Apr-2024	22-Apr-2024	07-Oct-2024	✓	22-Apr-2024	01-Jun-2024	✓
HDPE Soil Jar (EP231X) QC12a	12-Apr-2024	22-Apr-2024	09-Oct-2024	✓	22-Apr-2024	01-Jun-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) QC02a, QC03a, QC05a, QC07a	10-Apr-2024	22-Apr-2024	07-Oct-2024	✓	22-Apr-2024	01-Jun-2024	✓
HDPE Soil Jar (EP231X) QC12a	12-Apr-2024	22-Apr-2024	09-Oct-2024	✓	22-Apr-2024	01-Jun-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) QC02a, QC03a, QC05a, QC07a	10-Apr-2024	22-Apr-2024	07-Oct-2024	✓	22-Apr-2024	01-Jun-2024	✓
HDPE Soil Jar (EP231X) QC12a	12-Apr-2024	22-Apr-2024	09-Oct-2024	✓	22-Apr-2024	01-Jun-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
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) QC12a	12-Apr-2024	----	----	----	19-Apr-2024	09-Oct-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) QC12a	12-Apr-2024	----	----	----	19-Apr-2024	10-May-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X-SUT) QC12a	12-Apr-2024	22-Apr-2024	09-Oct-2024	✓	23-Apr-2024	09-Oct-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
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X-SUT)							
QC12a	**12-Apr-2024**	**22-Apr-2024**	09-Oct-2024	✓	**23-Apr-2024**	09-Oct-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X-SUT)							
QC12a	**12-Apr-2024**	**22-Apr-2024**	09-Oct-2024	✓	**23-Apr-2024**	09-Oct-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X-SUT)							
QC12a	**12-Apr-2024**	**22-Apr-2024**	09-Oct-2024	✓	**23-Apr-2024**	09-Oct-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X-SUT)							
QC12a	**12-Apr-2024**	**22-Apr-2024**	09-Oct-2024	✓	**23-Apr-2024**	09-Oct-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	1	1	**100.00**	**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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	1	**100.00**	**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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	1	**100.00**	**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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	0	1	**0.00**	**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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	8	**12.50**	**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.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
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
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.
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.

URGENT

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 №	12639293
Address	Level 4, 211 Victoria Square. Adelaide	Project Name	Christie Downs Supp DSI
Contact Name	Joshua Anderson	Project Manager	Angus Robinson
Phone №	08 8111 6710	EDD Format (ESdat, EQuIS etc)	Esdat
Special Directions	3 day TAT		
Purchase Order			
Quote ID №			

Analyses — Where metals are requested please specify Total or Filtered. Suite codes must be listed 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 with ultra trace | Nitrate, nitrite, ammonia | Total Metals (Standard 8) | HOLD | | |

URGENT

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 may be longer for some tests e.g., Ultra Trace Organics)	☐ Standard TAT **(List due date):**
OFFICE: Adelaide		☐ Non Standard or urgent TAT **(List due date):** 3 day TAT
	ALS QUOTE:	
PROJECT: 12639293	**ORDER NO.:**	
PROJECT MANAGER: Angus Robinson	**CONTACT PH:** +61 8 81116560	
SAMPLER: Joshua Anderson	**SAMPLER MOBILE:** +61 8 81116710	
COC emailed to ALS? YES	**EDD FORMAT (or default):** Esdat	
Email Reports to: GHDLabReports@ghd.com		
Email Invoice to: angus.robinson@ghd.com joshua.anderson2@ghd.com terrence.wilson@ghd.com eloiseivy.garcia@ghd.com		

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)

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

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Joshua Anderson			
DATE/TIME: 11/07/2024	DATE/TIME:	DATE/TIME:	DATE/TIME:

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 – Super Ultra Trace Full Suite (28 analytes)	Metals Total Dissolve (Standard 8)	Nutrients	HOLD					
	QC03A	9/07/2024	W	P/N/SP	3				X					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	QC03A	11/07/2024	W	P/N/SP	3	X	X	X						Samples forwarded from Eurofins
				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.

Ranil Weerakkody

From: Kieren Burns
Sent: Friday, 12 July 2024 11:44 AM
To: COC Melbourne
Subject: FW: [EXTERNAL] - 12639293 - COC
Attachments: ALS COC Christie Downs Supp DSI.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: EUROFINS, COC for incoming samples

Hi Guys,

A heads up on samples heading your way from Eurofins

Regards,

right solutions. right partner.

Kieren Burns
BD Manager - South Australia
ALS Environmental

O: +61 8 8162 5130
M: +61 448 527 608
kieren.burns@alsglobal.com

Suite D, 32 West Thebarton Rd
Thebarton SA 5031

alsglobal.com

From: Joshua Anderson <Joshua.Anderson2@ghd.com>
Sent: Friday, July 12, 2024 11:07 AM
To: Kieren Burns <Kieren.Burns@alsglobal.com>
Cc: Angus Robinson <Angus.Robinson@ghd.com>; Ben Petticrew <Ben.Petticrew@ghd.com>; Terrence Wilson <Terrence.Wilson@ghd.com>; Eloise Ivy Garcia <EloiseIvy.Garcia@ghd.com>
Subject: [EXTERNAL] - 12639293 - COC

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 for samples QC03A (09/07/2024) and QC03A (11/07/2024) being forwarded by Eurofins,

These should be arriving either today or tomorrow and will be requiring a 3 day turnaround time,

Thank you in advance, if you have any questions please reach out,

Cheers,

Joshua Anderson
Undergraduate Environmental Scientist

Environment and Planning Team

GHD

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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

CONFIDENTIALITY NOTICE: This email, including any attachments, is confidential and may be privileged. If you are not the intended recipient please notify the sender immediately, and please delete it; you should not copy it or use it for any purpose or disclose its contents to any other person. GHD and its affiliates reserve the right to monitor and modify all email communications through their networks.

CERTIFICATE OF ANALYSIS

Work Order	: **EM2411859**	Page	: 1 of 2
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: ANGUS ROBINSON	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	: 12639293	Date Samples Received	: 15-Jul-2024 11:15
Order number	: ----	Date Analysis Commenced	: 15-Jul-2024
C-O-C number	: ----	Issue Date	: 17-Jul-2024 15:31
Sampler	: JOSHUA ANDERSON		
Site	:		
Quote number	: EN/000		
No. of samples received	1		
No. of samples analysed	1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC

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.

- Unless otherwise stated, analytical work for this work order will be conducted at ALS Melbourne.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC03A	----	----	----	----
			Sampling date / time	11-Jul-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2411859-001	--------	--------	--------	--------
				Result	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.16**	**----**	**----**	**----**	**----**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ana yser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.39**	**----**	**----**	**----**	**----**

QUALITY CONTROL REPORT

Work Order	: **EM2411859**	Page	: 1 of 3
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: ANGUS ROBINSON	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	: 12639293	Date Samples Received	: 15-Jul-2024
Order number	: ----	Date Analysis Commenced	: 15-Jul-2024
C-O-C number	: ----	Issue Date	: 17-Jul-2024
Sampler	: JOSHUA ANDERSON		
Site	:		
Quote number	: EN/000		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5924784)									
EM2411758-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	4.25	4.19	1.3	0% - 20%
EM2411788-009	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.19	0.20	6.7	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5924785)									
EM2411788-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.05	0.05	0.0	No Limit
EM2411788-010	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.01	0.02	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
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5924784)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	108	90.0	110
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5924785)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	99.6	90.0	110

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**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5924784)							
EM2411788-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	115	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5924785)							
EM2411788-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	108	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2411859**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: ANGUS ROBINSON	Telephone	: +6138549 9645
Project	: 12639293	Date Samples Received	: 15-Jul-2024
Site	:	Issue Date	: 17-Jul-2024
Sampler	: JOSHUA ANDERSON	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
QC03A	**11-Jul-2024**	**----**	----	----	**17-Jul-2024**	08-Aug-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
QC03A	**11-Jul-2024**	**----**	----	----	**17-Jul-2024**	08-Aug-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: **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)							
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	1	**200.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
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)
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)

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 12

Company	GHD	Project №	12639293	Project Manager	Terrence Wilson
Address	Level 4, 211 Victoria Square, Adelaide	Project Name	MFS Christie Downs Supp DSI	EDD Format ESdat, EQuIS etc	Esdat
Contact Name	Terrence Wilson				
Phone №	0467034756				
Special Directions	Standard TAT				
Purchase Order					
Quote ID №					

Sampler(s)	Angus Robinson (AR)
Handed over by	Terrence Wilson
Email for Invoice	accountspayableAU@ghd.com ben.petticrew@ghd.com.au
Email for Results	GHDLabReports@ghd.com Angus.Robinson@ghd.com Terrence.Wilson@ghd.com angelicamaria.villadameza@ghd.com

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

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Soil (S) Water (W)	PFAS - Extended 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
	QC1	13/8/24	S	X								1		
	QC1A	13/8/24	S	X								1		Please forward to ALS
	QC2	13/8/24	S		X							1		
	QC2A	13/8/24	S		X							1		Please forward to ALS
	QC3	14/8/24	S	X								1		
	QC3A	14/8/24	S	X								1		Please forward to ALS
	R01	13/8/24	W	X			1							
	R2	14/8/24	W	X			1							
			Total Counts	6	2		2					6		

Relinquished by Nicole R (Eurofins) 16/8/24 8pm

Environmental Division Melbourne
Work Order Reference
EM2414005

Telephone : +61-3-8549 9600

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Terrence Wilson	Signature		Date	14/08/2024	Time	3:00:00 PM
Laboratory Use Only	Received By	CAITLIN (ALS)	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature			Date	16/8/24	Time	11:15	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.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: GHD	TURNAROUND REQUIREMENTS : ☒ Standard TAT		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: MFS Christie Downs Supp DSI	ORDER NO.: 12639293	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: AR	SAMPLER MOBILE: 0431 177 498	RELINQUISHED BY:	RECEIVED BY: CAITLIN (ALS)	RELINQUISHED BY:
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default): Esdat			
Email Reports to: Terrence.Wilson@ghd.com; Angelicamaria.villadameza@ghd.com; Ben.Petticrew@ghd.com; GHDLabReports@ghd.com		DATE/TIME:	DATE/TIME: 16/8/24 11:15	DATE/TIME:
Email Invoice to: Terrence.Wilson@ghd.com; 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 - Full Suite (EP231X)	HOLD										Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	QC1A	13/08/2024	S	PFAS Jar	1	X											
	QC2A	13/08/2024	S	PFAS Jar	1		X										
	QC3A	14/08/2024	S	PFAS Jar	1	X											
				TOTAL	3	2	1										

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.

Ranil Weerakkody

From: Terrence Wilson <Terrence.Wilson@ghd.com>
Sent: Friday, 16 August 2024 12:20 PM
To: ALS Enviro Melbourne
Cc: Peter Ravlic; Kieren Burns; Angelica Maria Villada Meza; Angus Robinson
Subject: [EXTERNAL] - 12639293_MFS Christie Downs Supp DSI COC
Attachments: 12639293_MFS Christie Downs Supp DSI_COC.pdf

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 ALS Team,

Please find attached COC for QC samples to be received shortly via Eurofins.

Please let me know if there are any queries and please forward the SRN once received.

Thanks and regards,

Terrence Wilson
Environmental Scientist

GHD
Proudly employee-owned | ghd.com
Level 4/211 Victoria Square Adelaide SA 5000 Australia
D +61 8 8111 6514 | **M** +61 467 034 756 | **E** Terrence.Wilson@ghd.com

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CERTIFICATE OF ANALYSIS

Work Order	: **EM2414005**	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	: 12639293	Date Samples Received	: 16-Aug-2024 11:15
Order number	: 12639293	Date Analysis Commenced	: 20-Aug-2024
C-O-C number	: ----	Issue Date	: 23-Aug-2024 11:21
Sampler	: AR		
Site	:		
Quote number	: EN/000		
No. of samples received	3		
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*
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.

- EP231X: Poor matrix spike recovery for sample EM2414005_03 due to matrix interferences.
- 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	QC1A	QC3A	----	----	----
				Sampling date / time	13-Aug-2024 00:00	14-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM2414005-001	EM2414005-003	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**16.2**	**16.9**	----	----	----
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		**0.0014**	**0.0014**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		**0.0005**	**0.0003**	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.287**	**0.0571**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		**0.0018**	<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		**0.0004**	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0004**	**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		**0.0005**	**0.0004**	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		**0.0254**	**0.0003**	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		**0.0092**	<0.0002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		**0.118**	**0.0007**	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		**0.0022**	<0.0002	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		**0.0674**	**0.0005**	----	----	----
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	<0.0002	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC1A	QC3A	----	----	----
			Sampling date / time	13-Aug-2024 00:00	14-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM2414005-001	EM2414005-003	--------	--------	--------
				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	**0.514**	**0.0609**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.288**	**0.0585**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.290**	**0.0591**	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**103**	**110**	----	----	----
13C8-PFOA	----	0.0002	%	**91.2**	**93.5**	----	----	----

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	: **EM2414005**	Page	: 1 of 6
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	: 12639293	Date Samples Received	: 16-Aug-2024
Order number	: 12639293	Date Analysis Commenced	: 20-Aug-2024
C-O-C number	: ----	Issue Date	: 23-Aug-2024
Sampler	: AR		
Site	:		
Quote number	: EN/000		
No. of samples received	: 3		
No. of samples analysed	: 2		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
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: **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: 5999328)									
EM2413883-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	16.9	15.8	7.0	0% - 50%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6006811)									
EM2414005-001	QC1A	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	0.0014	0.0014	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0005	0.0005	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.287	0.256	11.2	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	0.0018	0.0017	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6006811)									
EM2414005-001	QC1A	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0005	0.0004	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	0.0254	0.0219	14.8	0% - 20%
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	0.0092	0.0092	0.0	0% - 20%
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	0.118	0.124	5.0	0% - 20%
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	0.0022	0.0024	8.9	0% - 50%
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	0.0674	0.0693	2.7	0% - 20%
		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

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: 6006811)									
EM2414005-001	QC1A	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6006811)									
EM2414005-001	QC1A	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6006811)									
EM2414005-001	QC1A	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.514	0.488	5.3	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.288	0.257	11.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.290	0.259	11.4	0% - 20%

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: 6006811)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	86.0	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	88.2	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00114 mg/kg	88.2	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	89.2	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	83.4	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00121 mg/kg	82.8	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6006811)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	84.5	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.5	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.4	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.9	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.6	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.3	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.5	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.1	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.0	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	91.4	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6006811)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.1	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.1	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	88.0	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	89.5	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	90.2	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.4	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.3	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6006811)								

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: 6006811) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	78.1	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	86.4	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	95.3	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	89.1	70.0	130
EP231P: PFAS Sums (QCLot: 6006811)								
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: 6006811)							
EM2414005-003	QC3A	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	75.7	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00118 mg/kg	74.3	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	85.2	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	71.3	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00121 mg/kg	# 41.1	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6006811)							
EM2414005-003	QC3A	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	75.2	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	70.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	86.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	81.6	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	73.6	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	83.5	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	89.0	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	85.8	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	74.8	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	# Not Determined	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	77.8	69.0	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6006811)							
EM2414005-003	QC3A	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	84.1	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	86.2	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	71.3	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	76.9	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	71.4	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	74.6	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	74.7	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6006811)							
EM2414005-003	QC3A	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	68.7	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	74.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	79.0	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	# 36.4	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2414005**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Terrence Wilson	Telephone	: +6138549 9645
Project	: 12639293	Date Samples Received	: 16-Aug-2024
Site	:	Issue Date	: 23-Aug-2024
Sampler	: AR	No. of samples received	: 3
Order number	: 12639293	No. of samples analysed	: 2

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EM2414005--003	QC3A	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EM2414005--003	QC3A	**Perfluorodecane sulfonic acid (PFDS)**	335-77-3	41.1 %	59.0-134%	**Recovery less than lower data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EM2414005--003	QC3A	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	36.4 %	70.0-130%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055) QC1A	**13-Aug-2024**	**----**	----	**----**	**20-Aug-2024**	27-Aug-2024	✓
HDPE Soil Jar (EA055) QC3A	**14-Aug-2024**	**----**	----	**----**	**20-Aug-2024**	28-Aug-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) QC1A	**13-Aug-2024**	**22-Aug-2024**	09-Feb-2025	✓	**22-Aug-2024**	01-Oct-2024	✓
HDPE Soil Jar (EP231X) QC3A	**14-Aug-2024**	**22-Aug-2024**	10-Feb-2025	✓	**22-Aug-2024**	01-Oct-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) QC1A	**13-Aug-2024**	**22-Aug-2024**	09-Feb-2025	✓	**22-Aug-2024**	01-Oct-2024	✓
HDPE Soil Jar (EP231X) QC3A	**14-Aug-2024**	**22-Aug-2024**	10-Feb-2025	✓	**22-Aug-2024**	01-Oct-2024	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) QC1A	**13-Aug-2024**	**22-Aug-2024**	09-Feb-2025	✓	**22-Aug-2024**	01-Oct-2024	✓
HDPE Soil Jar (EP231X) QC3A	**14-Aug-2024**	**22-Aug-2024**	10-Feb-2025	✓	**22-Aug-2024**	01-Oct-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) QC1A	**13-Aug-2024**	**22-Aug-2024**	09-Feb-2025	✓	**22-Aug-2024**	01-Oct-2024	✓
HDPE Soil Jar (EP231X) QC3A	**14-Aug-2024**	**22-Aug-2024**	10-Feb-2025	✓	**22-Aug-2024**	01-Oct-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) QC1A	**13-Aug-2024**	**22-Aug-2024**	09-Feb-2025	✓	**22-Aug-2024**	01-Oct-2024	✓
HDPE Soil Jar (EP231X) QC3A	**14-Aug-2024**	**22-Aug-2024**	10-Feb-2025	✓	**22-Aug-2024**	01-Oct-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
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.

Appendix I

Sampling Records and Calibration Certificate

SURFACE WATER SAMPLING RECORD

PROJECT NO.	12639293	**DATE:**	11/07/24
PROJECT NAME:	MFS Christie Downs Supp	**TIME:**	11.30am
CLIENT:	MFS Christie Downs	**SAMPLING OFFICERS:**	J. Anderson, LW
SITE:	SA MFS		
COORDINATES/GPS *(If Applicable)*			
SAMPLING METHOD *(ie grab, bucket)*	Grab		
DETAILED SAMPLE LOCATION DESCRIPTION	SW08		

ENVIRONMENTAL OBSERVATIONS

WEATHER	light rain
VEGETATION	grass, reeds, eucalypts
SLOPE	slight
EROSION	–
OTHER	

FIELD MEASUREMENTS

TEMPERATURE (°C)	10.5	pale brown, no odour,
CONDUCTIVITY (uS/cm)	204.5	turbid
pH	8.6	
DO (ppm)	10.8	
REDOX (mV)	57.5	

HYDROLOGICAL DATA

FLOW MEASUREMENT (or stream height if rating table available)	
CROSS SECTION WIDTH (m)	3m
DEPTH (m)	
OTHER	

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW08	3			PFAS, metals, nutrients

FIELD SUPERVISOR **CHECKED** (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO. 12639293 DATE: ~~11/06/24~~ 11/07/24

PROJECT NAME: MFS Christie Downs Supp DSI TIME: 12.45pm

CLIENT: SA MFS SAMPLING OFFICERS: J. Anderson, L.W

SITE:

COORDINATES/GPS *(If Applicable)*

SAMPLING METHOD *(ie grab, bucket)* grab

DETAILED SAMPLE LOCATION DESCRIPTION SW09

ENVIRONMENTAL OBSERVATIONS

WEATHER overcaut

VEGETATION grass, eucalypts, some reeds

SLOPE mild

EROSION some

OTHER

FIELD MEASUREMENTS

TEMPERATURE (°C)	10.7	no odour, brown,
CONDUCTIVITY (uS/cm)	235.2	turbid
pH	8.44	
DO (ppm)	20.8	
REDOX (mV)	122.5	

HYDROLOGICAL DATA

FLOW MEASUREMENT
(or stream height if rating table available)

CROSS SECTION WIDTH (m) 4

DEPTH (m)

OTHER

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW09	3			PFAs, metals, nutrients

FIELD SUPERVISOR CHECKED (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO. 12639293 DATE: 11/07/24

PROJECT NAME: MFS Christie Downs Supp DSI TIME: 1:00pm

CLIENT: SA MFS SAMPLING OFFICERS: J.A, L.W

SITE:

COORDINATES/GPS *(If Applicable)*

SAMPLING METHOD *(ie grab, bucket)* grab

DETAILED SAMPLE LOCATION DESCRIPTION SW10

ENVIRONMENTAL OBSERVATIONS

WEATHER overcast

VEGETATION reeds, grasses, eucalypts

SLOPE mild

EROSION

OTHER

FIELD MEASUREMENTS

TEMPERATURE (°C) 11.1 no odour, turbid, brown

CONDUCTIVITY (uS/cm) 337.5

pH 7.80

DO (ppm) 9.3

REDOX (mV) 99.1

HYDROLOGICAL DATA

FLOW MEASUREMENT
(or stream height if rating table available)

CROSS SECTION WIDTH (m) 5m

DEPTH (m)

OTHER

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW10	3			PFAS, metals, nutrients

FIELD SUPERVISOR **CHECKED** (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO. 12639293 DATE: 11/07/24

PROJECT NAME: MFS Christie Downs Supp DSI TIME: 1:15pm

CLIENT: SA MFS SAMPLING OFFICERS: J.A, L.W

SITE:

COORDINATES/GPS *(If Applicable)*

SAMPLING METHOD *(ie grab, bucket)* grab

DETAILED SAMPLE LOCATION DESCRIPTION SW11

ENVIRONMENTAL OBSERVATIONS

WEATHER overcast

VEGETATION grasses, eucalypt saplings, lomandras, callitris

SLOPE steep

EROSION

OTHER

FIELD MEASUREMENTS

TEMPERATURE (°C) 11 no odour, no sheen

CONDUCTIVITY (uS/cm) 287.5

pH 7.75

DO (ppm) 9.97

REDOX (mV) 115.5

HYDROLOGICAL DATA

FLOW MEASUREMENT
(or stream height if rating table available)

CROSS SECTION WIDTH (m)

DEPTH (m)

OTHER

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW11	3			PFAS, metals, nutrients
QC03	3			
QC03A	3			

FIELD SUPERVISOR CHECKED (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO. 12639293 DATE: 11/07/24

PROJECT NAME: SAMFS Christie Downs Supp DSI TIME: 1:40pm

CLIENT: SA MFS SAMPLING OFFICERS: J.A, L.W

SITE:

COORDINATES/GPS *(If Applicable)*

SAMPLING METHOD *(ie grab, bucket)* grab

DETAILED SAMPLE LOCATION DESCRIPTION SW12

ENVIRONMENTAL OBSERVATIONS

WEATHER overcast

VEGETATION reeds, casuarinas, eucalypts

SLOPE

EROSION

OTHER

FIELD MEASUREMENTS

TEMPERATURE (°C) 11.1

CONDUCTIVITY (uS/cm) 325.3

pH 7.88

DO (ppm) 10.3

REDOX (mV) 116.2

HYDROLOGICAL DATA

FLOW MEASUREMENT
(or stream height if rating table available)

CROSS SECTION WIDTH (m)

DEPTH (m)

OTHER

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW12	3			PFAS, metals, nutrients

FIELD SUPERVISOR CHECKED (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO. 12639293 DATE: 11/07/24

PROJECT NAME: Christie Downs Supp DSI TIME: 1:2:00pm

CLIENT: SA MFS SAMPLING OFFICERS: J.A, L.W

SITE:

COORDINATES/GPS *(If Applicable)*

SAMPLING METHOD *(ie grab, bucket)* grab

DETAILED SAMPLE LOCATION DESCRIPTION SW13

ENVIRONMENTAL OBSERVATIONS

WEATHER overcast

VEGETATION grass, reeds, eucalypts

SLOPE steep

EROSION some

OTHER man-made line

FIELD MEASUREMENTS

TEMPERATURE (°C) 11

CONDUCTIVITY (uS/cm) 387.2

pH 7.69

DO (ppm) 9.87

REDOX (mV) 125.4

HYDROLOGICAL DATA

FLOW MEASUREMENT
(or stream height if rating table available)

CROSS SECTION WIDTH (m)

DEPTH (m)

OTHER

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW13	3			PFAS, metals, nutrients

FIELD SUPERVISOR CHECKED (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO. 12629293 DATE: 11/07/24

PROJECT NAME: Christie Downs Supp Ovl TIME: 2:15pm

CLIENT: SA MFS SAMPLING OFFICERS: D.A, L.W

SITE:

COORDINATES/GPS *(If Applicable)*

SAMPLING METHOD *(ie grab, bucket)* grab

DETAILED SAMPLE LOCATION DESCRIPTION SW14

ENVIRONMENTAL OBSERVATIONS

WEATHER overcast

VEGETATION lomandra, teatree

SLOPE slight

EROSION

OTHER

FIELD MEASUREMENTS

TEMPERATURE (°C) 11.3

CONDUCTIVITY (uS/cm) 412.6

pH 7.84

DO (ppm) 10.83

REDOX (mV) 133.6

HYDROLOGICAL DATA

FLOW MEASUREMENT
(or stream height if rating table available)

CROSS SECTION WIDTH (m)

DEPTH (m)

OTHER

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW414	3			PFAS, nutrient, metals
RB03				
~~TB01~~				

FIELD SUPERVISOR CHECKED (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO.	12639293	**DATE:**	12/4/24
PROJECT NAME:	MFS Christie Downs Supp DSI	**TIME:**	12:45
CLIENT:	SA MFS	**SAMPLING OFFICERS:**	AK, TW, LC
SITE:			

COORDINATES/GPS *(If Applicable)* S 35° 07'17.31" E 138° 30'47.23"

SAMPLING METHOD *(ie grab, bucket)* Grab - direct to bottle

DETAILED SAMPLE LOCATION DESCRIPTION Christie Creek - near Brodie Road Reserve Wetlands

ENVIRONMENTAL OBSERVATIONS

WEATHER	Partly cloudy, mild
VEGETATION	Grasses, reeds, mature eucalypts
SLOPE	Very gentle
EROSION	No evidence of erosion
OTHER	Lots of bird activity, butterflies, frog?

FIELD MEASUREMENTS

TEMPERATURE (°C)	20.8	pale brown, no odour/sheen, low turbidity/
CONDUCTIVITY (uS/cm)	4136	sed load
pH	7.70	↳ water insects (backstraker?) present
DO ~~(ppm)~~ mg/L	4.02	in samples
REDOX (mV)	154.1	
TDS mg/L	2623.2	

HYDROLOGICAL DATA

FLOW MEASUREMENT (or stream height if rating table available)	Moderate
CROSS SECTION WIDTH (m)	0.5-1.0m
DEPTH (m)	0.2m
OTHER	

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW07	3	-	-	PFAS, metals, inorganics
SED07	1	-	-	

FIELD SUPERVISOR **CHECKED** (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO.	12639293	DATE:	12/4/24
PROJECT NAME:	MFS Christie Downs Supp OSI	TIME:	9:31
CLIENT:	SA MFS	SAMPLING OFFICERS:	AK, TW, LC
SITE:			
COORDINATES/GPS *(If Applicable)*	S 35° 03' 37.93"	E 138° 36' 38.21"	
SAMPLING METHOD *(ie grab, bucket)*	Grab - direct to bottle		
DETAILED SAMPLE LOCATION DESCRIPTION	West of bridge and concrete - Christies Creek		

ENVIRONMENTAL OBSERVATIONS

WEATHER	Overcast, mild
VEGETATION	Grasses, reeds, eucalypts
SLOPE	Steep embankments
EROSION	No evidence of significant erosion
OTHER	

FIELD MEASUREMENTS

TEMPERATURE (°C)	17.5	pale yellow, no odour/sheen, low turbidity/
CONDUCTIVITY (uS/cm)	3129	sediment load
pH	7.97	
DO (~~ppm~~) mg/L	4.79	
REDOX (mV)	106.6	
TDS mg/L	2028	

HYDROLOGICAL DATA

FLOW MEASUREMENT (or stream height if rating table available)	Could not be accurately measured. Moderate flow
CROSS SECTION WIDTH (m)	1.5-2.0m
DEPTH (m)	0.2m
OTHER	Rocks in stream, concrete culvert ~30m upstream

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW01	3	–	–	PFAS, metals, inorganics
SED01	1	–	–	

FIELD SUPERVISOR

CHECKED (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO.	12639293	**DATE:**	12/4/24
PROJECT NAME:	MFS Christie Downs Supp DSI	**TIME:**	11:52
CLIENT:	SA MFS	**SAMPLING OFFICERS:**	AK, TW, LC
SITE:			
COORDINATES/GPS *(If Applicable)*	S 35° 07' 12.82" E 138° 30' 17.75"		
SAMPLING METHOD *(ie grab, bucket)*	Grab - direct to bottle		
DETAILED SAMPLE LOCATION DESCRIPTION	Christie Creek - north end of Heather Dr.		

ENVIRONMENTAL OBSERVATIONS

WEATHER	Overcast, mild
VEGETATION	0.5-1m embankment drop Reeds, native trees (banksia/wattle)
SLOPE	↓
EROSION	No evidence of significant erosion
OTHER	Industrial/earth moving activity north of creek

FIELD MEASUREMENTS

TEMPERATURE (°C)	17.6	pale yellow, no odour/sheen, low
CONDUCTIVITY (uS/cm)	2098	turbidity/sed load
pH	7.75	
DO ~~(ppm)~~ mg/L	5.14	
REDOX (mV)	124.1	
TDS mg/L	2015	

HYDROLOGICAL DATA

FLOW MEASUREMENT (or stream height if rating table available)	No flow
CROSS SECTION WIDTH (m)	1.5m
DEPTH (m)	0.3m
OTHER	

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW06	3	-	-	PFAS, metals, inorganics
SE006	1	-	-	

FIELD SUPERVISOR **CHECKED** (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO.	12639293	DATE:	12/4/24
PROJECT NAME:	MFS Christie Downs Supp OSI	TIME:	10:05
CLIENT:	SA MFS	SAMPLING OFFICERS:	AK, TW, LC
SITE:			
COORDINATES/GPS *(If Applicable)*	S 35° 07' 23.88" E 138° 29' 16.94"		
SAMPLING METHOD *(ie grab, bucket)*	Grab - direct into bottle		
DETAILED SAMPLE LOCATION DESCRIPTION	Christies Creek - east of Dyson Road (~40m)		

ENVIRONMENTAL OBSERVATIONS

WEATHER	Overcast, mild
VEGETATION	Grasses,
SLOPE	Short, steep embankment to north
EROSION	No evidence of significant erosion
OTHER	Ducks present, mature eucalypts

FIELD MEASUREMENTS

TEMPERATURE (°C)	17.5	pale yellow, no odour/sheen, low turbidity/
CONDUCTIVITY (uS/cm)	4023	sed load
pH	7.78	
DO ~~(ppm)~~ mg/L	2.85	
REDOX (mV)	156.5	
TDS mg/L	2613	

HYDROLOGICAL DATA

FLOW MEASUREMENT (or stream height if rating table available)	No flow
CROSS SECTION WIDTH (m)	~2.0m
DEPTH (m)	0.3m
OTHER	

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW02	3	—	—	PFAS, metals, inorganics
SED02	2, 1	—	—	

FIELD SUPERVISOR

CHECKED (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO.	12639293	DATE:	12/4/24
PROJECT NAME:	MFS Christie Downs Supp DSI	TIME:	10:18
CLIENT:	SA MFS	SAMPLING OFFICERS:	AK, TW, LC
SITE:			

COORDINATES/GPS *(If Applicable)*: S 35° 07'28.95" E 138° 29'24.06"

SAMPLING METHOD *(ie grab, bucket)*: Grab - direct to bottle

DETAILED SAMPLE LOCATION DESCRIPTION: Christie Creek, ~~east~~ western stormwater outlet near Joana Ct.

ENVIRONMENTAL OBSERVATIONS

WEATHER	Overcast, mild
VEGETATION	Grasses, mature eucalypts
SLOPE	Gentle slope on both banks
EROSION	No evidence of significant erosion
OTHER	A couple of birds present, litter in stream - 2x stormwater outlets, one flowing (sampled), one stagnant

FIELD MEASUREMENTS

TEMPERATURE (°C)	20.4
CONDUCTIVITY (uS/cm)	4406
pH	7.81
DO ~~(ppm)~~ mg/L	4.53
REDOX (mV)	157.3
TDS	2873

HYDROLOGICAL DATA

FLOW MEASUREMENT (or stream height if rating table available)	Moderate flow, calculation not possible
CROSS SECTION WIDTH (m)	~1.2 m
DEPTH (m)	0.15m
OTHER	Sample take at stormwater culvert discharge point

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW03	3 + 6 QC	—	QC12/a	PFAS, metals, inorganics
SED03	1 + 2 QC	—	QC12/a	

FIELD SUPERVISOR

CHECKED (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO.	12639293	**DATE:**	12/4/24
PROJECT NAME:	MFS Christie Downs Supp DSI	**TIME:**	11:00
CLIENT:	SA MFS	**SAMPLING OFFICERS:**	AK, TW, LC
SITE:			
COORDINATES/GPS *(If Applicable)*	S 35° 07' 19.53" E 138° 29' 36.77"		
SAMPLING METHOD *(ie grab, bucket)*	Grab - direct to bottle		
DETAILED SAMPLE LOCATION DESCRIPTION	Christie Creek at bend, west of rail line		

ENVIRONMENTAL OBSERVATIONS

WEATHER	Overcast, mild
VEGETATION	Grasses, shrubs, some mature eucalypts, number of dead trees in/around creek
SLOPE	Steep slope to north, shorter steep slope to south
EROSION	No evidence of significant erosion
OTHER	Fallen trees / evidence of high flow events

FIELD MEASUREMENTS

TEMPERATURE (°C)	16.9	pale yellow, no odour/sheen low turbidity/sediment load
CONDUCTIVITY (uS/cm)	2696	
pH	8.15	
DO ~~(ppm)~~ mg/L	6.73	
REDOX (mV)	154.8	
TDS mg/L	1722.5	

HYDROLOGICAL DATA

FLOW MEASUREMENT (or stream height if rating table available)	low-moderate flow rate
CROSS SECTION WIDTH (m)	~2.0m
DEPTH (m)	0.15 - 0.3m
OTHER	

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW04	3	-	-	PFAS, metals, inorganics
SED04	1	-	-	

FIELD SUPERVISOR **CHECKED** (SIGN & DATE)

SURFACE WATER SAMPLING RECORD

PROJECT NO.	12639293	DATE:	12/4/24
PROJECT NAME:	MFS Christie Downs Supp DSI	TIME:	~~12~~ 11:28
CLIENT:	SA MFS	SAMPLING OFFICERS:	AK, TW, LC
SITE:			
COORDINATES/GPS *(If Applicable)*	S 35° 07' 18.60" E 138° 29' 50.16"		
SAMPLING METHOD *(ie grab, bucket)*	Grab - direct to bottle		
DETAILED SAMPLE LOCATION DESCRIPTION	Christie Creek, east of train line		

ENVIRONMENTAL OBSERVATIONS

WEATHER	Overcast, mild
VEGETATION	Grasses, native trees (golden wattle?)
SLOPE	0.5m embankment drop-off
EROSION	No evidence of significant erosion
OTHER	Sewage smell in area - evidence of sewage infrastructure, former outlet to creek?

FIELD MEASUREMENTS

TEMPERATURE (°C)	16.8	yellow, no odour/sheen, low turbidity
CONDUCTIVITY (uS/cm)	~~2487~~	sed lead
pH	7.7 * initial reading of 3, cleaned YSI and reading increased to 7.7	
DO (~~ppm~~) mg/L	4.61	
REDOX (mV)	~~134.1~~	
TDS mg/L	1625	

HYDROLOGICAL DATA

FLOW MEASUREMENT (or stream height if rating table available)	No flow
CROSS SECTION WIDTH (m)	2.0 m
DEPTH (m)	0.6 m
OTHER	

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
SW05	3	-	-	PFAS, metals, inorganics
SED05	1	-	-	

FIELD SUPERVISOR

CHECKED (SIGN & DATE)

Multi Parameter Water Meter

Instrument **YSI Quatro Pro Plus**
Serial No. **12D101324**

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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		0 ppm		407802	0 ppm
2. Conductivity		2760 uS/cm		420141	2760 uS/cm
3. pH7		pH 7.00		413995	pH 6.93
4. pH4		pH 4.00		414104	pH 3.98
5. ORP mV		236.86		406331/398193	237.08
6. Temp °C		18.7		Multitherm	18.6

Calibrated by: **Trent Chase**

Calibration date: **5/07/2024**

Next calibration due: **3/10/2024**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 12D101324

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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		0 ppm		391223	0 ppm
2. Conductivity		2760 uS/cm		388521	2760 uS/cm
3. pH7		pH 7.00		413995	pH 7.00
4. pH4		pH 4.00		414104	pH 4.00
5. ORP mV		234		406331/398193	234
6. Temp °C		20		Multitherm	20

Calibrated by: Jaspher Olanio

Calibration date: 5/04/2024

Next calibration due: 4/07/2024

Appendix J

QA/ QC Assessment

Appendix I - Quality Assurance and Quality Control Report

1. GHD QA/QC Assessment

1.1 Laboratories and data set

All samples recovered during the supplementary detailed site investigation (DSI) were submitted to Eurofins and ALS, both of which are National Association of Testing Authorities (NATA) accredited laboratories, accredited 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 are set out in **Error! Reference source not found.**.

Table 1.1 Analytical laboratories and reports

Laboratory	Primary or Secondary	NATA Certified for Analysis Requested	Report No
Eurofins	Primary	Yes	1117313 1088156
ALS	Secondary	Yes	EM2406055

The primary results for the supplementary DSI are outlined in the Tabulated Analytical Results section of the supplementary detailed site investigation (DSI) report. The laboratory certificates of analysis are located in the Laboratory Reports section of the supplementary detailed site investigation (DSI). The QAQC results for the supplementary detailed site investigation (DSI) are outlined in the tables at the end of this QAQC report.

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

1.2 Data quality indicators

Table 1. sets out the QA/QC Data Quality Indicators (DQIs) used in the sampling investigation and outcomes for each of these for each DQI.

Table 1.2 Summary of QA/QC compliance for soil 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	Not required	No on-site field instruments utilised during DSI
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	Eurofins/ALS Laboratory Quality Control Reports.
Analysis of inter and intra-laboratory duplicate samples	Analysis of duplicate samples in 10% of primary samples	Minor non-conformances as stated in 2.1.3	AS4482.1-2005 and US EPA NEPM 1999 (as amended

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Item	Objective	Outcome	References
GHD Internal Procedures			
			2013) and Eurofins/ALS certificates of analysis. PFAS NEMP 2.0
Analysis 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	Eurofins/ALS Laboratory Quality Control Reports.
Analysis of laboratory spike recoveries	Recoveries within the laboratory specified recovery limits	Achieved, with some minor non-conformances.	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

1.3 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 with ice during transport from the field to the laboratory.
- Transportation of samples with accompanying chain-of-custody documentation.
- Compliance with sample holding times.
- Review of results of a blind duplicate samples.
- Review of results of a split duplicate samples.
- Review of results of a 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 completed included the collection and analysis of duplicate samples, rinsate samples and trip 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.
- Field blank samples: A sample of deionised water collected prior to the conduct of the sampling to check the contamination that might be introduced during the sampling process.
- Rinsate samples: A sample of deionised water collected from equipment used during sampling to indicate whether cross contamination occurred from equipment.

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– Trip Blanks: A laboratory supplied uncontaminated (blank) deionised water sample which is placed within the ice chest with the samples. This sample is analysed at the laboratory to indicate if contamination occurred during transportation of samples.

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 this Appendix.

Table 2.1 Blind duplicate and split duplicate RPD exceedance summary

Primary Sample	QC Sample (and type)	Analyte	Primary result (mg/kg)	Blind result (mg/kg)	Split result (mg/kg)	Highest RPD (%)
Soil						
BH15_0.4-0.5	QC02 - blind QC02a - split	Perfluorobutane sulfonic acid (PFBS)	0.0062	0.0097#1	0.0106	52
		Perfluoropentane sulfonic acid (PFPeS)	0.013#1	0.02#1	0.0202	43
		Perfluorohexane sulfonic acid (PFHxS)	0.22#1	0.31#1	0.256	34
		Perfluoroheptanoic acid (PFHpA)	0.0085#1	0.012#1	0.0110	34
		Perfluorohexanoic acid (PFHxA)	0.016	0.025	0.0260	48
		PFAS (Sum of Total)	0.2857	0.4047	0.355	34
		PFAS (Sum of Total) (WA DER List)	0.2727	0.3847	0.329	34
		Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.242	0.338	-	33
BH21_1.5-1.6	QC05 - blind QC05a - split	Perfluoroheptanoic acid (PFHpA)	0.015#1	0.012#1	0.0065	79
		Perfluorononanoic acid (PFNA)	0.022#1	0.023#1	0.0095	79
		PFAS (Sum of Total) (WA DER List)	0.015	0.012	0.0102	38

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BH24_0.4-0.5	QC07 - blind QC07a - split	Perfluorooctane sulfonic acid (PFOS)	0.0082	0.017#1	0.0077	70
		PFAS (Sum of Total)(WA DER List)	<0.01	0.017	0.0077	52
		Sum of US EPA PFAS (PFOS + PFOA)*	0.0082	0.017	-	70
		Sum of PFHxS and PFOS	0.0082	0.017	0.0077	70
		Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.0082	0.017	-	70
Surface water						
SW03	QC12 - blind QC12a - split	Nitrate (as N)	1.7	0.42	-	121
		Nitrogen (Total Oxidised) (as N)	1.8	0.42	-	124
		Kjeldahl Nitrogen Total	1.2	1.9	-	45
		Nitrogen (Organic)	1.08	1.76	-	48
		Perfluorobutane sulfonic acid (PFBS)	0.003	0.003#1	0.0019	45
		Perfluoropentane sulfonic acid (PFPeS)	0.001	0.001#1	0.0023	79
		Perfluoroheptanoic acid (PFHpA)	0.005	0.003	0.0010	133
		Perfluorohexanoic acid (PFHxA)	0.008	0.006	0.0037	74
		Perfluorononanoic acid (PFNA)	0.003	0.003#1	0.0049	48
		Perfluorooctanoic acid (PFOA)	0.007	0.006#1	0.0043	48
		Perfluoropentanoic acid (PFPeA)	0.006	0.009	<0.0005	169

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 3 duplicate samples. The elevated RPDs can be attributed to the following:

– Low analyte concentrations close to or below the LOR

– Heterogeneity of soils, particularly soils sampled within fill material

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

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2.1.2 Surface water blind duplicate and split duplicate

The majority of RPDs were calculated within acceptable limits, with the exception of some PFAS analytes in 1 duplicate samples. The above RPD exceedances are likely exaggerated given the relatively low-level concentrations detected for PFAS compounds. Given the concentration of PFAS anaytes reported were below the adopted PFAS NEMP assessment criteria for a residential and commercial/industrial land use setting, the exceeding RPD values are not considered critical in the overall assessment context.

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				
47	4	8.5	4	8.5
Sediment				
7	1	14.29	1	14.29
Surface water				
17	2	11.76	1	11.76

The QC rates for duplicate frequency across matrix types generally met the data quality objectives, with the exception of the soil matrix. Despite this discrepancy, the frequency of soil duplicates is considered acceptable given that the site is not currently under audit consideration.

2.2 Field blank

Three field blank samples were collected during the DSI 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 field blank samples are presented at the end of this Appendix.

2.3 Rinsate blank

Three rinsate blank samples were collected during the DSI 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 blank samples are presented at the end of this Appendix.

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

Matrix spikes from the laboratory reports were within the acceptable ranges, with the exception of those presented in Table 3.1.

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Table 3.1 Matrix spike outliers

Lab report	Analyte	Laboratory comment
EM2406055	EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	MS recovery not determined, background level greater than or equal to 4x spike level.
	EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	Recovery less than lower data quality objective
	EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	Recovery less than lower data quality objective
	EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Recovery less than lower data quality objective

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 LOR and indicating that potential laboratory cross contamination was unlikely to have occurred.

3.5 Compliance with holding times

All analytes were extracted and analysed within both ALS' and Eurofins' technical holding times.

3.6 Laboratory QA/QC summary

Given the relatively low number of laboratory QA/QC result outliers and the presence of matrix interference in the majority of matrix spike outliers, GHD considered the data to be of satisfactory precision 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.

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Attachment 1

Blind duplicate and split duplicate RPD Table

Location Code			BH15						BH17						
Date			10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024	
Field ID			BH15_0.4-0.5	QC02		BH15_0.4-0.5	QC02a		BH17_1.5-1.6	QC03		BH17_1.5-1.6	QC03a	
Lab Report Number			1088156	1088156		1088156	EM2406055		1088156	1088156		1088156	EM2406055	
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	23	12	**63**	23	-	-	10	12	18	10	-	-
Inorganics														
Moisture (%)	%	0.1	-	-	-	-	10.1	-	-	-	-	-	12.4	-
Nutrients														
Ammonia as N	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate (as N)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite (as N)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen (Total Oxidised) (as N)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen (Total)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Kjeldahl Nitrogen Total	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen (Organic)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (Total)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Metals														
Arsenic	mg/kg	2	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	2	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/kg	2	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
PFAS - Perfluoroalkyl Sulfonic Acids														
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002	0.0062	0.0097[#1]	**44**	0.0062	0.0106	**52**	<0.005	<0.005	0	<0.005	0.0007	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	0.0018	0	<0.005	<0.005	0	<0.005	0.0006	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0016	0	0.11[#1]	0.13[#1]	17	0.11[#1]	0.101	9
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	0.013[#1]	0.02[#1]	**42**	0.013[#1]	0.0202	**43**	<0.005	<0.005	0	<0.005	0.0006	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	0.22[#1]	0.31[#1]	**34**	0.22[#1]	0.256	15	0.01[#1]	0.012	18	0.01[#1]	0.0100	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	0.0007	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	0.0085[#1]	0.012[#1]	**34**	0.0085[#1]	0.0110	26	<0.005	<0.005	0	<0.005	0.0029	0
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	0.016	0.025	**44**	0.016	0.0260	**48**	<0.005	<0.005	0	<0.005	0.0024	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	0.12[#1]	0.14[#1]	15	0.12[#1]	0.159	28
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	0.022[#1]	0.028[#1]	24	0.022[#1]	0.0201	9	<0.005	0.0054	8	<0.005	0.0036	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0031	0	<0.005	<0.005	0	<0.005	0.0015	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	0.0007	0
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

Location Code			BH15						BH17						
Date			10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024	
Field ID			BH15_0.4-0.5	QC02		BH15_0.4-0.5	QC02a		BH17_1.5-1.6	QC03		BH17_1.5-1.6	QC03a	
Lab Report Number			1088156	1088156		1088156	EM2406055		1088156	1088156		1088156	EM2406055	
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												
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	<0.0002	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	0.2857	0.4047	**34**	0.2857	0.355	22	0.24	0.2874	18	0.24	0.284	17
PFAS (Sum of Total)(WA DER List)	mg/kg	0.0002	0.2727	0.3847	**34**	0.2727	0.329	19	0.12	0.1474	20	0.12	0.122	2
Sum of US EPA PFAS (PFOS + PFOA)*	mg/kg	0.005	0.022	0.028	24	0.022	-	-	0.11	0.1354	21	0.11	-	-
Sum of PFHxS and PFOS	mg/kg	0.0002	0.22	0.31	**34**	0.22	0.258	16	0.12	0.142	17	0.12	0.111	8
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	mg/kg	0.005	0.242	0.338	**33**	0.242	-	-	0.12	0.1474	20	0.12	-	-

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			BH21						BH24						
Date			10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024	
Field ID			BH21_1.5-1.6	QC05		BH21_1.5-1.6	QC05a		BH24_0.4-0.5	QC07		BH24_0.4-0.5	QC07a	
Lab Report Number			1088156	1088156		1088156	EM2406055		1088156	1088156		1088156	EM2406055	
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	14	0	14	-	-	3.1	3.2	3	3.1	-	-
Inorganics														
Moisture (%)	%	0.1	-	-	-	-	12.0	-	-	-	-	-	3.1	-
Nutrients														
Ammonia as N	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate (as N)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite (as N)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen (Total Oxidised) (as N)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen (Total)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Kjeldahl Nitrogen Total	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen (Organic)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (Total)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Metals														
Arsenic	mg/kg	2	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	2	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/kg	2	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	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	0.0004	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	<0.0002	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	0.0082	0.017[#1]	**70**	0.0082	0.0077	6
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	<0.005	0	<0.005	0.0005	0	<0.005	<0.005	0	<0.005	<0.0002	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	0.015[#1]	0.012[#1]	22	0.015[#1]	0.0065	**79**	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0013	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	0.022[#1]	0.023[#1]	4	0.022[#1]	0.0095	**79**	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0012	0	<0.005	<0.005	0	<0.005	<0.0002	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0007	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	0.0006	0	<0.005	0.0059[#1]	17	<0.005	0.0032	0
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

Location Code			BH21						BH24						
Date			10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024		10 Apr 2024	10 Apr 2024	
Field ID			BH21_1.5-1.6	QC05		BH21_1.5-1.6	QC05a		BH24_0.4-0.5	QC07		BH24_0.4-0.5	QC07a	
Lab Report Number			1088156	1088156		1088156	EM2406055		1088156	1088156		1088156	EM2406055	
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												
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	0.0003	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	0.0203	0	<0.05	<0.05	0	<0.05	0.0116	0
PFAS (Sum of Total)(WA DER List)	mg/kg	0.0002	0.015	0.012	22	0.015	0.0102	**38**	<0.01	0.017	**52**	<0.01	0.0077	0
Sum of US EPA PFAS (PFOS + PFOA)*	mg/kg	0.005	<0.005	<0.005	0	<0.005	-	-	0.0082	0.017	**70**	0.0082	-	-
Sum of PFHxS and PFOS	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0005	0	0.0082	0.017	**70**	0.0082	0.0077	6
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	mg/kg	0.005	<0.005	<0.005	0	<0.005	-	-	0.0082	0.017	**70**	0.0082	-	-

Comments
#1 Quantification of linear and branched isomers has been conducted as a single t

***RPDs have only been considered where a concentration is greater tha**
****Elevated RPDs are highlighted as per QAQC Profile settings (Accepta**
*****Interlab Duplicates are matched on a per compound basis as metho**

Location Code			SED03						BH30					
Date			12 Apr 2024	12 Apr 2024		12 Apr 2024	12 Apr 2024		13 Aug 2024	13 Aug 2024		13 Aug 2024	13 Aug 2024	
Field ID			SED03	QC12		SED03	QC12a		BH30_0.0-0.1	QC1		BH30_0.0-0.1	QC1A	
Lab Report Number			1088156	1088156		1088156	EM2406055		1129117	1129117		1129117	EM2414005	
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	22	18	20	22	-	-	14	14	0	14	-	-
Inorganics														
Moisture (%)	%	0.1	-	-	-	-	17.1	-	-	-	-	-	16.2	-
Nutrients														
Ammonia as N	mg/kg	5	-	38	-	-	-	-	-	-	-	-	-	-
Nitrate (as N)	mg/kg	5	-	<5	-	-	-	-	-	-	-	-	-	-
Nitrite (as N)	mg/kg	5	-	<5	-	-	-	-	-	-	-	-	-	-
Nitrogen (Total Oxidised) (as N)	mg/kg	5	-	<5	-	-	-	-	-	-	-	-	-	-
Nitrogen (Total)	mg/kg	10	-	110	-	-	-	-	-	-	-	-	-	-
Kjeldahl Nitrogen Total	mg/kg	10	-	110	-	-	-	-	-	-	-	-	-	-
Nitrogen (Organic)	mg/kg	10	-	72	-	-	-	-	-	-	-	-	-	-
Phosphorus (Total)	mg/kg	5	-	900	-	-	-	-	-	-	-	-	-	-
Metals														
Arsenic	mg/kg	2	-	2.8	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4	-	<0.4	-	-	-	-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	5	-	8.0	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	-	5.4	-	-	-	-	-	-	-	-	-	-
Lead	mg/kg	5	-	39	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1	-	0.3	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/kg	5	-	<5	-	-	-	-	-	-	-	-	-	-
Nickel	mg/kg	5	-	<5	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	2	-	<2	-	-	-	-	-	-	-	-	-	-
Silver	mg/kg	2	-	<2	-	-	-	-	-	-	-	-	-	-
Tin	mg/kg	10	-	<10	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	-	29	-	-	-	-	-	-	-	-	-	-
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	0.0018	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	0.0005	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	0.34[#1]	0.27[#1]	23	0.34[#1]	0.287	17
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	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	0.0014	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	0.011[#1]	0.01	10	0.011[#1]	0.0092	18
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	0.0022	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	0.0004	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	0.026[#1]	0.025	4	0.026[#1]	0.0254	2
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	<0.005	<0.005	0	<0.005	0.0005	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	0.0004	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	0.047[#1]	0.036	27	0.047[#1]	0.0674	**36**
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	0.13[#1]	0.16	21	0.13[#1]	0.118	10
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

Location Code			SED03						BH30						
Date			12 Apr 2024	12 Apr 2024		12 Apr 2024	12 Apr 2024		13 Aug 2024	13 Aug 2024		13 Aug 2024	13 Aug 2024	
Field ID			SED03	QC12		SED03	QC12a		BH30_0.0-0.1	QC1		BH30_0.0-0.1	QC1A	
Lab Report Number			1088156	1088156		1088156	EM2406055		1129117	1129117		1129117	EM2414005	
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												
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	<0.0002	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	<0.0002	0	0.554	0.501	10	0.554	0.514	7
PFAS (Sum of Total)(WA DER List)	mg/kg	0.0002	<0.01	<0.01	0	<0.01	<0.0002	0	0.34	0.27	23	0.34	0.290	16
Sum of US EPA PFAS (PFOS + PFOA)*	mg/kg	0.005	<0.005	<0.005	0	<0.005	-	-	0.34	0.27	23	0.34	-	-
Sum of PFHxS and PFOS	mg/kg	0.0002	<0.005	<0.005	0	<0.005	<0.0002	0	0.34	0.27	23	0.34	0.288	17
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	mg/kg	0.005	<0.005	<0.005	0	<0.005	-	-	0.34	0.27	23	0.34	-	-

Comments
#1 Quantification of linear and branched isomers has been conducted as a single t

***RPDs have only been considered where a concentration is greater tha**
****Elevated RPDs are highlighted as per QAQC Profile settings (Accepta**
*****Interlab Duplicates are matched on a per compound basis as metho**

Location Code			BH49					
Date			13 Aug 2024	13 Aug 2024		13 Aug 2024	14 Aug 2024	
Field ID			BH49_0.0-0.1	QC3		BH49_0.0-0.1	QC3A	
Lab Report Number			1129117	1129117		1129117	EM2414005	
Matrix Type			Soil	Soil		Soil	Soil	
Sample Type			Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL						
Misc.								
% Moisture_	%	1	16	16	0	16	-	-
Inorganics								
Moisture (%)	%	0.1	-	-	-	-	16.9	-
Nutrients								
Ammonia as N	mg/kg	5	-	-	-	-	-	-
Nitrate (as N)	mg/kg	5	-	-	-	-	-	-
Nitrite (as N)	mg/kg	5	-	-	-	-	-	-
Nitrogen (Total Oxidised) (as N)	mg/kg	5	-	-	-	-	-	-
Nitrogen (Total)	mg/kg	10	-	-	-	-	-	-
Kjeldahl Nitrogen Total	mg/kg	10	-	-	-	-	-	-
Nitrogen (Organic)	mg/kg	10	-	-	-	-	-	-
Phosphorus (Total)	mg/kg	5	-	-	-	-	-	-
Metals								
Arsenic	mg/kg	2	-	-	-	-	-	-
Cadmium	mg/kg	0.4	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	5	-	-	-	-	-	-
Copper	mg/kg	5	-	-	-	-	-	-
Lead	mg/kg	5	-	-	-	-	-	-
Mercury	mg/kg	0.1	-	-	-	-	-	-
Molybdenum	mg/kg	5	-	-	-	-	-	-
Nickel	mg/kg	5	-	-	-	-	-	-
Selenium	mg/kg	2	-	-	-	-	-	-
Silver	mg/kg	2	-	-	-	-	-	-
Tin	mg/kg	10	-	-	-	-	-	-
Zinc	mg/kg	5	-	-	-	-	-	-
PFAS - Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002	<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
Perfluorononane sulfonate (PFNS)	mg/kg	0.005	<0.005	<0.005	0	<0.005	-	-
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0003	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002	0.063[#1]	0.063[#1]	0	0.063[#1]	0.0571	10
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	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
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0014	0
PFAS - Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<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
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<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
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0002	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0003	0
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0004	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<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
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.005	<0.005	0	<0.005	0.0007	0
PFAS - Perfluoroalkyl Sulfonamide								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0

Location Code			BH49					
Date			13 Aug 2024	13 Aug 2024		13 Aug 2024	14 Aug 2024	
Field ID			BH49_0.0-0.1	QC3		BH49_0.0-0.1	QC3A	
Lab Report Number			1129117	1129117		1129117	EM2414005	
Matrix Type			Soil	Soil		Soil	Soil	
Sample Type			Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL						
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	0.0002	<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
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005	<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
N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	mg/kg	0.0005	<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
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
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005	<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
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0
PFAS - Sums								
PFAS (Sum of Total)	mg/kg	0.0002	0.063	0.063	0	0.063	0.0609	3
PFAS (Sum of Total)(WA DER List)	mg/kg	0.0002	0.063	0.063	0	0.063	0.0591	6
Sum of US EPA PFAS (PFOS + PFOA)*	mg/kg	0.005	0.063	0.063	0	0.063	-	-
Sum of PFHxS and PFOS	mg/kg	0.0002	0.063	0.063	0	0.063	0.0585	7
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	mg/kg	0.005	0.063	0.063	0	0.063	-	-

Comments
#1 Quantification of linear and branched isomers has been conducted as a single t

***RPDs have only been considered where a concentration is greater tha**
****Elevated RPDs are highlighted as per QAQC Profile settings (Accepta**
*****Interlab Duplicates are matched on a per compound basis as metho**

Location Code			SW03					
Date			12 Apr 2024	12 Apr 2024		12 Apr 2024	12 Apr 2024	
Field ID			SW03	QC12		SW03	QC12a	
Lab Report Number			1088156	1088156		1088156	EM2406055	
Matrix Type			Water	Water		Water	Water	
Sample Type			Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL						
Nutrients								
Ammonia as N	mg/L	0.01	0.12	0.14	15	0.12	-	-
Nitrate (as N)	mg/L	0.02	1.7	0.42	**121**	1.7	-	-
Nitrite (as N)	mg/L	0.02	<0.02	<0.02	0	<0.02	-	-
Nitrogen (Total Oxidised) (as N)	mg/L	0.05	1.8	0.42	**124**	1.8	-	-
Nitrogen (Total)	mg/L	0.2	3.0	2.3	26	3.0	-	-
Kjeldahl Nitrogen Total	mg/L	0.2	1.2	1.9	**45**	1.2	-	-
Nitrogen (Organic)	mg/L	0.2	1.08	1.76	**48**	1.08	-	-
Phosphorus (Total)	mg/L	0.01	0.17	0.15	13	0.17	-	-
Metals								
Arsenic	mg/L	0.001	<0.001	-	-	<0.001	-	-
Arsenic (filtered)	mg/L	0.001	-	<0.001	-	-	<0.001	-
Cadmium	mg/L	0.0001	<0.0002	-	-	<0.0002	-	-
Cadmium (filtered)	mg/L	0.0001	-	<0.0002	-	-	<0.0001	-
Chromium (III+VI)	mg/L	0.001	<0.001	-	-	<0.001	-	-
Chromium (III+VI) (filtered)	mg/L	0.001	-	<0.001	-	-	<0.001	-
Copper	mg/L	0.001	0.002	-	-	0.002	-	-
Copper (filtered)	mg/L	0.001	-	<0.001	-	-	0.002	-
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	-
Molybdenum	mg/L	0.005	<0.005	-	-	<0.005	-	-
Molybdenum (filtered)	mg/L	0.005	-	<0.005	-	-	-	-
Nickel	mg/L	0.001	<0.001	-	-	<0.001	-	-
Nickel (filtered)	mg/L	0.001	-	<0.001	-	-	<0.001	-
Selenium	mg/L	0.001	0.004	-	-	0.004	-	-
Selenium (filtered)	mg/L	0.001	-	0.003	-	-	-	-
Silver	mg/L	0.005	<0.005	-	-	<0.005	-	-
Silver (filtered)	mg/L	0.005	-	<0.005	-	-	-	-
Tin	mg/L	0.005	<0.005	-	-	<0.005	-	-
Tin (filtered)	mg/L	0.005	-	<0.005	-	-	-	-
Zinc	mg/L	0.005	0.010	-	-	0.010	-	-
Zinc (filtered)	mg/L	0.005	-	<0.005	-	-	0.015	-
PFAS - Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.0005	0.003	0.003[#1]	0	0.003	0.0019	**45**
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.0005	<0.001	<0.001	0	<0.001	<0.0005	0
Perfluorononane sulfonate (PFNS)	µg/L	0.001	<0.001	<0.001	0	<0.001	-	-
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.0005	<0.001	<0.001	0	<0.001	0.0008	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.0001	0.017	0.019	11	0.017	0.0214	23
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.001	<0.001	<0.001	0	<0.001	-	-
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.0005	0.001	0.001[#1]	0	0.001	0.0023	**79**
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.0005	0.014	0.016[#1]	13	0.014	0.0159	13
PFAS - Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	µg/L	0.002	<0.005	<0.005	0	<0.005	0.0083	**50**
Perfluorodecanoic acid (PFDA)	µg/L	0.0005	<0.001	<0.001	0	<0.001	<0.0005	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.0005	<0.001	<0.001	0	<0.001	<0.0005	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	0.005	0.003	**50**	0.005	0.0010	**133**
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	0.008	0.006	29	0.008	0.0037	**74**
Perfluorononanoic acid (PFNA)	µg/L	0.0005	0.003	0.003[#1]	0	0.003	0.0049	**48**
Perfluorooctanoic acid (PFOA)	µg/L	0.0005	0.007	0.006[#1]	15	0.007	0.0043	**48**
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	0.006	0.009	**40**	0.006	<0.0005	**169**

		Location Code	SW03					
		Date	12 Apr 2024	12 Apr 2024		12 Apr 2024	12 Apr 2024	
		Field ID	SW03	QC12		SW03	QC12a	
		Lab Report Number	1088156	1088156		1088156	EM2406055	
		Matrix Type	Water	Water		Water	Water	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL						
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.0005	<0.001	<0.001	0	<0.001	<0.0005	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.0005	<0.001	<0.001	0	<0.001	<0.0005	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.0005	<0.001	<0.001	0	<0.001	<0.0005	0
PFAS - Perfluoroalkyl Sulfonamide								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.001	<0.005	<0.005	0	<0.005	<0.001	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.001	<0.005	<0.005	0	<0.005	<0.001	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.001	<0.005	<0.005	0	<0.005	<0.001	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.0005	<0.005	<0.005	0	<0.005	<0.0005	0
N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	µg/L	0.001	<0.005	<0.005	0	<0.005	<0.001	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.0005	<0.005	<0.005	0	<0.005	<0.0005	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	<0.005	<0.005	0	<0.005	<0.001	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	0.064	0.066	3	0.064	0.0645	1
PFAS (Sum of Total)(WA DER List)	µg/L	0.0002	0.06	0.062	3	0.06	0.0565	6
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.001	0.024	0.025	4	0.024	-	-
Sum of PFHxS and PFOS	µg/L	0.0002	0.031	0.035	12	0.031	0.0373	18
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.001	0.038	0.041	8	0.038	-	-

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**

Attachment 2

Field Blank Samples Table

		Date	10 Apr 2024	11 Apr 2024	12 Apr 2024
		Field ID	FB01	FB02	FB03
		Lab Report Number	1088156	1088156	1088156
	Unit	EQL			
PFAS - Perfluoroalkyl Sulfonic Acids					
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	-	-	-
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.01	-	-	-
Perfluorononane sulfonate (PFNS)	µg/L	0.01	-	-	-
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	-	-	-
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.0001	<0.01	<0.01	<0.01
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.01	-	-	-
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.001	<0.01	<0.01	<0.01
PFAS - Perfluoroalkyl Carboxylic Acids					
Perfluorobutanoic acid (PFBA)	µg/L	0.05	-	-	-
Perfluorodecanoic acid (PFDA)	µg/L	0.01	-	-	-
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	-	-	-
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	-	-	-
Perfluorononanoic acid (PFNA)	µg/L	0.01	-	-	-
Perfluorooctanoic acid (PFOA)	µg/L	0.001	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	-	-	-
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	-	-	-
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	-	-	-
PFAS - Perfluoroalkyl Sulfonamide					
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	-	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.05	-	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	-	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	-	-	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.05	-	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	µg/L	0.05	-	-	-
Perfluorooctane sulfonamide (FOSA)	µg/L	0.05	-	-	-
PFAS - Fluorotelomer Sulfonic Acids					
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	-	-	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	-	-	-
6:2 Fluorotelomer Sulfonate (6:2 FTS)	µg/L	0.005	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	-	-	-
PFAS - Sums					
PFAS (Sum of Total)	µg/L	0.1	-	-	-
PFAS (Sum of Total)(WA DER List)	µg/L	0.05	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.001	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	µg/L	0.001	<0.01	<0.01	<0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.001	<0.01	<0.01	<0.01

Attachment 3

Rinsate Blank Samples Table

			Date	10 Apr 2024	11 Apr 2024	12 Apr 2024	11 Jul 2024	11 Jul 2024	13 Aug 2024	13 Aug 2024
			Field ID	RB01	RB02	RB03	RB02	RB03	R01	R2
			Lab Report Number	1088156	1088156	1088156	1117313	1117313	1129117	1129117
	Unit	EQL								
PFAS - Perfluoroalkyl Sulfonic Acids										
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluorononane sulfonate (PFNS)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.0001	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.01	<0.01
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.01	<0.01
PFAS - Perfluoroalkyl Carboxylic Acids										
Perfluorobutanoic acid (PFBA)	µg/L	0.05	-	-	-	-	-	<0.05	<0.05
Perfluorodecanoic acid (PFDA)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluorononanoic acid (PFNA)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluorooctanoic acid (PFOA)	µg/L	0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
PFAS - Perfluoroalkyl Sulfonamide										
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	-	-	-	-	-	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.05	-	-	-	-	-	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	-	-	-	-	-	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	-	-	-	-	-	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.05	-	-	-	-	-	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	µg/L	0.05	-	-	-	-	-	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.05	-	-	-	-	-	<0.05	<0.05
PFAS - Fluorotelomer Sulfonic Acids										
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
6:2 Fluorotelomer Sulfonate (6:2 FTS)	µg/L	0.005	<0.05	<0.05	<0.05	<0.005	<0.005	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	-	-	-	-	-	<0.01	<0.01
PFAS - Sums										
PFAS (Sum of Total)	µg/L	0.1	-	-	-	-	-	<0.1	<0.1
PFAS (Sum of Total)(WA DER List)	µg/L	0.05	-	-	-	-	-	<0.05	<0.05
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.01	<0.01
Sum of PFHxS and PFOS	µg/L	0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.01	<0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.01	<0.01

Appendix K

Transfer of Liability

Site contamination

Information Sheet

Transfer of liability

Updated October 2010[1]

EPA 854/10: This information sheet is for vendors and purchasers intending to transfer or accept liability for site contamination with the sale or purchase of a property. It details the effects of transferring liability and the need to assess the extent of site contamination by qualified and experienced professionals before entering into a sale agreement. Attached is the form referred to in section 103E(2)(a)(i) of the Environment Protection Act 1993.

Introduction

If site contamination exists, section 103E of the *Environment Protection Act 1993* (the EP Act) provides for the transfer of liability for site contamination in certain circumstances set out in the EP Act. The liability may be transferred for all, or a specified part of the site contamination at the site. For example, the liability may include or exclude soils, groundwater, and onsite or offsite contamination.

Assessment of site contamination

In order to transfer liability, site contamination must be known to exist. In this context the EPA must be satisfied that the legislative definition of 'site contamination' is met.

This can be achieved by including all relevant information about the site contamination (for which liability is proposed to be transferred) in the agreement which is lodged with the EPA in accordance with section 103E(2)(ii) of the EP Act.

If the agreement does not demonstrate that site contamination exists and does not define the site contamination to which the agreement relates, the requirements of section 103E will not have been satisfied and the agreement will be returned without being recorded on the EPA Public Register.

Definition of site contamination

Section 5B of the EP Act defines site contamination as follows:

For the purposes of this 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

[1] Issued May 2009.

(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.

The definition of site contamination and the concept of 'trivial' are discussed in further detail in EPA Information Sheet, *Site contamination: What is site contamination?*

Professional advice

A person who is proposing to enter into an agreement to transfer with a sale of land, liability for any contamination on that land, should ensure that he or she obtains advice as to the nature and extent of contamination on the land from a suitably qualified and experienced professional. The nature and extent of any contamination should be assessed using appropriate techniques provided in the *National Environment Protection (Assessment of site contamination) Measure*.

Section 3(1) of the EP Act states that:

liability for site contamination means—

(a) liability to be issued with an order under Part 10A in respect of the site contamination; or

(b) liability to pay an amount ordered by the Court under Part 11 in respect of the site contamination.

The liability for site contamination can translate into significant amounts of money. In some cases, the cost to assess or remediate a site can far exceed the value of the land and the assets established on the land.

The EPA recommends that both parties obtain independent legal counsel before entering into an agreement for transfer of liability for site contamination.

In the case of agreements to transfer liability of site contamination entered into after the commencement of the site contamination provisions and for such an agreement to be recognised by the EPA, the person must first give the purchaser or transferee a notice in a form approved by the EPA setting out the legal effect of the agreement. A copy is attached to this information sheet and available electronically from the website <www.epa.sa.gov.au>.

Section 103E of the EP Act

Section 103E of the EP Act states the following:

103E—Liability for site contamination subject to certain agreements

(1) If—

(a) site contamination exists at a site; and

(b) land that is all or portion of the site has been sold or transferred (whether before or after the commencement of this Part or this Act) subject to an agreement in writing under which the purchaser or transferee will assume liability for all or a specified part of the site contamination at the site, the purchaser or transferee is to be taken to have assumed the vendor's or transferor's liability for the site contamination in accordance with the agreement and this Act applies as if the purchaser or transferee (and not the vendor or transferor) had caused the site contamination or, as the case may be, the specified part of the site contamination.

(2) Subsection (1) does not apply to an agreement—

(a) unless, in the case of an agreement entered into after the commencement of this Part—

(i) the person has first given the purchaser or transferee a notice in a form approved by the Authority for the purposes of this section setting out the legal effect of the agreement under this section; and

(ii) a copy of the agreement is lodged with the Authority; or

(b) if the Environment Resources and Development Court determines, on application by the Authority, that the purchaser or transferee did not acquire the land in a genuine arms length transaction.

Lodgement of agreements with the EPA

In accordance with s103E, a copy of an agreement to transfer liability of site contamination, entered into after the commencement of the section, must be lodged with the EPA.

In the event the agreement is written into a sale agreement and not a separate document, then the whole sale agreement must be lodged. Upon receipt, the EPA will acknowledge receipt of the agreement.

As noted above, if, however, the information provided in the agreement is not sufficient to satisfy the EPA that site contamination exists, the requirements of section 103E of the EP Act will not have been satisfied and the agreement will be returned without being recorded on the EPA Public Register.

If the agreement is returned, the EPA will write to the vendor, the purchaser and the relevant legal counsel, providing the reasons for its decision.

Section 103E commenced on 1 July 2009.

Genuine arms length agreement

If the Environment Resources and Development Court determines, on application by the EPA, that the purchaser or transferee did not acquire the land in a genuine arms length transaction then the purchaser or transferee will not be taken by the EPA to have assumed liability for site contamination[2].

Put simply, a ‘genuine arms length’ transaction is one in which there is no special duty, obligation or relationship between the parties to the transaction in which one party is under a duty to act for the benefit of the other.

There are several formal definitions of the general arms length transaction. As a guide two are provided:

- Of or relating to dealings between two parties who are not related or not on close terms and who are presumed to have roughly equal bargaining power; not involving a confidential relationship—*Black's Law Dictionary (2004)*
- A transaction in which the parties act severally and independently in forming the bargain and in which neither of the parties has the ability to exert personal influence or control over the other—see Branby Pty Ltd v. FCT (1995) 129 ALR 503: Australian Trade Commission v. WA Meat Exports Pty Ltd (1987) 11 ALD 52; 75 ALR 287 from *Butterworths Australian Law Dictionary 1997*.

Extent of liability

Site contamination can extend off the site on which the original (contaminating) activity occurred. This typically occurs where underground water has caused the migration of the chemical substances. In such cases, many allotments can be affected by the contamination.

[2] See section 103E(2)(b) of the EP Act.

Section 103E of the EP Act states that the transfer works ‘as if the purchaser or transferee (and not the vendor or transferor) had caused[3] the site contamination or, as the case may be, the specified part of the site contamination’.

Section 103C(1) of the EP Act states ‘the appropriate person to be issued with a site contamination assessment order or a site remediation order in respect of a site under Division 3 is— (a) the person who caused[4] the site contamination at the site’.

Section 103H(3) of the EP Act states ‘if the order is issued to an appropriate person as an owner of the site as distinct from a person who caused[5] the site contamination, the order must be limited in its application to site contamination on or below the surface of the site’.

So by default, a person agreeing to acceptance of liability for site contamination is agreeing to have caused the site contamination. This means that liability can be assumed for both on and offsite contamination. A person acquiring liability should determine the extent of liability that is being acquired.

Again the EPA recommends that **before** entering into an agreement for the transfer of liability for site contamination, both parties should seek independent legal counsel. Once liability has been assumed liability for site contamination, the purchaser/transferee would be deemed, for the purposes of the EP Act, to have caused the site contamination, and may also be liable for site contamination on land that is not owned by them. This may result in significant cost as the person is required to assess and/or remediate the site contamination for which he or she has accepted liability.

Specifically and as a minimum, the following factors should be considered:

- the extent of the liability being transferred (on and offsite)
- the nature and extent of all site contamination (including soil, groundwater and vapour)
- the lateral and vertical extent of contamination (on and offsite)
- whether the nature and extent of the site contamination has been fully characterised
- the qualifications and experience of the person(s) who have provided an opinion in relation to the nature, extent and financial liability of the site contamination
- the independence of the person who provides an opinion in relation to the nature, extent and financial liability of the site contamination
- the age and relevance of any reports that is relied on in making decisions on site contamination
- the cost to remediate[6] the chemical substances.

Public Register

The EPA will record on the Public Register details of each agreement for the exclusion or limitation of liability for site contamination to which section 103E applies. The entire agreement that is lodged with the EPA will also be on the Public Register.

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[3] Underline added.

[4] Underline added.

[5] Underline added.

[6] The *EP Act* defines remediate a site as “treat, contain, remove or manage chemical substances on or below the surface of the site so as to—

(a) eliminate or prevent actual or potential harm to the health or safety of human beings that is not trivial, taking into account current or proposed land uses; and

(b) eliminate or prevent, as far as reasonably practicable—

(i) actual or potential harm to water that is not trivial; and

(ii) any other actual or potential environmental harm that is not trivial, taking into account current or proposed land uses.

Consequences of assuming liability

The EPA has substantial powers to address site contamination. A person with liability for site contamination may be required to assess and/or remediate the site contamination under a site contamination assessment and/or site remediation order.

Site contamination assessment orders and site remediation orders

The EP Act (sections 103H and 103J) allows the EPA to order a person to assess or remediate site contamination.

If a new owner is deemed to have caused site contamination, then the EPA can require the assessment and remediation to be both on and offsite unless this is **specifically limited by the agreement**.

It is a criminal offence to not comply with an order and the penalties for non-compliance are significant.

If a person does not comply with a site contamination assessment or site remediation order, the EPA can undertake the work itself or engage someone else to undertake the work on its behalf (section 103Q). The EPA can then recover all reasonable costs and expenses incurred in taking such action, as a debt from the person to whom the order was issued. Specifically the EPA can recover '… the amount, together with any interest charge so payable, is until paid, a charge in favour of the EPA on **any** land owned by the person in relation to which the site contamination assessment order or site remediation order…[7]'. The current interest rate is 24% per annum.

Section 103R of the Act states:

A charge imposed on land by this section has priority over—

(a) any prior charge imposed on the land (whether or not registered) that operates in favour of a person who is an associate of the owner of the land; and

(b) any other charge on the land other than a charge registered prior to registration of the site contamination assessment order or site remediation order in relation to the land".

Voluntary proposals

A person may, by agreement with the EPA, enter into a voluntary proposal for the assessment or remediation of site contamination.

Voluntary proposals are legislative tool (sections 103I and 103K of the EP Act) that provides the EPA and the person who has liability for site contamination with an alternative to an order. The legislation provides a clear framework for how the proposals are established and how they operate. In addition, voluntary proposals provide an excellent way to undertake work on a voluntary basis and at the same time, providing certainty as to the EPA's expectations and actions. If a person enters into an approved voluntary proposal, the Authority cannot issue an order if the person undertakes the work in accordance with the proposal.

Non-compliance with a voluntary proposal can result in the EPA issuing an order.

Further reading

Available at <www.epa.sa.gov.au>.

EPA Information Sheet, *Site contamination: What is site contamination? (2009).*

EPA Information Sheet, *Site contamination: Prescribed potentially contaminating activities* (to be published).

[7] Section 103R(4)(b) of the EP Act.

EPA Information Sheet, *Site contamination: Responsibility for site contamination* (2009).

EPA Information sheet, *Site contamination: Voluntary proposals* (to be published).

Disclaimer

This publication is a guide only and does not necessarily provide adequate information in relation to every situation. This publication seeks to explain your possible obligations in a helpful and accessible way. In doing so, however, some detail may not be captured. It is important, therefore, that you seek information from the EPA itself regarding your possible obligations and, where appropriate, that you seek your own legal advice.

Further information

Legislation

Legislation may be viewed on the Internet at: <www.parliament.sa.gov.au/dbsearch/legsearch.htm>

Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet	Telephone:	13 23 24
Adelaide Service SA Centre	Fax:	(08) 8204 1909
108 North Terrace	Internet:	<shop.service.sa.gov.au>
Adelaide SA 5000		

For general information please contact:

Environment Protection Authority	Telephone:	(08) 8204 2004
GPO Box 2607	Facsimile:	(08) 8124 4670
Adelaide SA 5001	Freecall (country):	1800 623 445
	Internet:	<www.epa.sa.gov.au>
	Email:	<epainfo@epa.sa.gov.au>

The EPA welcomes written comments on and suggestions for improvements to any of its site contamination publications. These should be addressed to the Manager Site Contamination at the above address for the EPA.

Notice of legal effect of agreement to assume liability for site contamination

Notice for the purposes of section 103E(2)(a)(i) of the *Environment Protection Act 1993* (SA).

Use BLOCK LETTERS and all sections must be completed

Type of transaction

Please mark one box only:

[ ] sale [ ] transfer

Vendor/transferor details	Purchaser/transferee details
Full name and address	Full name and address
Contact details Tel: Fax: Email:	Contact details Tel: Fax: Email:

Site Information

Site name (if applicable):

Site address:

Certificate of Title number(s):

(**must be** correct at the time of transaction)

Provide details of all existing site contamination (as defined by the EP Act) for which liability is being transferred. (Note that the requirements of section 103E will not be met and subsequently the EPA will not record an agreement on the Public Register unless it is satisfied that definition of 'site contamination' in s 5B of the EP Act is met.)

Responsibility and liability for site contamination (VERY IMPORTANT)

The cost to assess and/or remediate site contamination can far exceed the property value.

Where an agreement is made under section 103E(1) of the *Environment Protection Act 1993,* the purchaser or transferee is to be taken to have assumed the vendor's or transferor's liability for the site contamination in accordance with the agreement and the Act applies as if the purchaser or transferee (and not the vendor or transferor) had caused the site contamination or, as the case may be, the specified part of the site contamination

The legislation allows for you to accept all liability for site contamination—both in soils and in groundwater and both on and offsite. The EPA recommends that you seek independent legal counsel before signing the agreement.

If you are liable for site contamination, the EPA can, where site contamination exists:

- order you to assess the site contamination,
- order you to remediate site contamination,
- assess or remediate the site and recover the costs from you,
- register the costs incurred by the Authority, together with any interest (at 24%pa) so payable, in assessing or remediating the site contamination against this land and any other land that you own in relation to which the site contamination assessment order or site remediation order.

Declaration

I/we, as purchaser / transferee hereby declare that I/we have been given and have read both the EPA Information Sheet, *Site contamination: Transfer of liability for site contamination* and this form. I/we understand that the Environment Protection Authority has powers to enforce a person's liability for site contamination.

Name: Signature:

Name: Signature:

Date:

NOTE: The provisions of section 103E(1) of the EP Act do not apply to an agreement—

(a) unless, in the case of an agreement entered into on or after the commencement of Part 10A of the EP Act (1 July 2009) —

(i) the person has first given the purchaser or transferee a notice in a form approved by the Authority for the purposes of section 103E(2)(i) setting out the legal effect of the agreement under section 103E; and

(ii) a copy of the agreement is lodged with the Authority; or

(b) if the Environment Resources and Development Court determines, on application by the Authority, that the purchaser or transferee did not acquire the land in a genuine arms length transaction.

EPA use only

Date received:

EPA reference number: Received by (print name and sign):

Appendix L

Remediation Options Assessment

Appendix L – Remediation Options Assessment

1. Overview

This Remediation Options Assessment (ROA) aims to inform MFS of the management options available for addressing PFAS contamination at the site prior to its divestment. The results of the supplementary Detailed Site Investigation (DSI) indicate the presence of PFAS concentrations in the soils, extending both within the site and into the adjacent unsealed reserve area.

For the current land use setting of the site and the applicable assessment criteria (HIL D/MFS Site-Specific Criteria – Metropolitan), the soil analysis shows no exceedances of the adopted criteria. However, given that the site is proposed for divestment and will potentially be redeveloped into a more sensitive land use setting, HIL A and HIL B assessment criteria were also considered. A Human Health and Ecological Risk Assessment (HHERA) was also undertaken to determine if risk-based remediation drivers exist under the various potential future land use scenarios. The HHERA allocated a risk level for under five land use scenarios, the outcomes of which are outlined in Section 2.

Comparing the analysis results with these more stringent HILs, several soil samples exceeded PFAS concentration thresholds, ranging from 0.15-3.82 mg/kg. The depth of contamination was delineated from the surface to a depth of 1.6 m bgl, with significant exceedances occurring at surface to near-surface depths in the unsealed gardenbeds.

This ROA presents possible strategies for managing and remediating contaminated soil. While the site meets current land use criteria, a change in intended future land use may necessitate a more stringent assessment and remediation approach. The options detailed in this document are intended to address the contamination identified in the supplementary DSI and ensure the site is adequately prepared for the selected redevelopment.

2. HHERA Summary

As mentioned above, a HHERA was completed for the site to determine if risk-based remediation drivers exist under five potential future land use scenarios. The five scenarios are outlined in Table 1, as well as the HHERA outcomes.

Table 1 HHERA – Future Land Use Scenarios

Scenario	Land use	Health Investigation Level	HHERA outcome
1	Low-density residential	HIL A	Moderate risk if exposed soil exceeds 25% of the site
2	Medium-to-high-density residential	HIL B	Low risk
3	Commercial/industrial	HIL D	Low risk
4	Childcare facility	HIL A	Moderate to high risk if exposed soil exceeds 17.5% of the site
5	Open space area with recreational use	HIL C	Low risk

It was concluded that only scenarios 2, 3, and 5 pose low risk to future site users, therefore site remediation works would not be required prior to divestment under these circumstances. However, scenarios 1 and 4 (HIL A) were determined to pose an elevated risk and would require site remediation works prior to divestment. This ROA focuses on remediation options relevant to future HIL A use.

3. Remediation Drivers and Goals

Based on the potential sensitive receptors identified within the supplementary DSI, the primary goals of the remediation options assessment are:

– Ensure that PFAS contamination is managed to mitigate any potential risk to human health and the environment.
– Meet the applicable regulatory standards for PFAS contamination, ensuring safe redevelopment and use of the site and do not exceed HIL A assessment criteria and, where applicable, HIL B assessment criteria.
– Develop and implement remediation strategies that effectively address and reduce PFAS concentrations in the contaminated soil, dependent on future intended site use.
– Prepare the site for future redevelopment by aligning remediation strategies with the requirements and expectations for the intended land use scenario.

4. Remediation Strategy Review

In response to the PFAS contamination identified at the Christie Downs site, two primary management approaches were considered based on the risk to sensitive receptors identified in the CSM and the remediation objectives. These strategies are tailored to address PFAS contamination and acknowledge the data gaps related to other potential contaminants.

The two general forms of response are:

– Non-intrusive responses
  - No action – where a risk assessment has determined the contamination does not pose an unacceptable risk to receptors. This may involve monitoring rather than active intervention.
  - Institutional controls – where a risk assessment has determined the contamination poses a minor risk to receptors on-site; controls can be put in place to restrict access to the contamination.
– Intrusive responses
  - In-situ stabilisation- involves the application of stabilising agents to bind contaminants within the soil, reducing their mobility and bioavailability. This method would require auditor approval.
  - Containment – involves containing the contamination on-site so that it cannot escape into the wider environment.
  - Removal – involves physical removal of the contaminant from the environment and often disposal from the site.

It is important to note that all sites have site-specific constraints that directly affect the selection process for remediation technologies. Site-specific constraints relating to the Christie Downs site include:

– The physical and chemical properties of PFAS.
– The site's physical setting includes the topography and soil condition.
– Divestment Plans and potential future site uses.

To reiterate, the development of this assessment has considered the investigation works that have occurred to date; however, it is noted that further investigations would be required before any option could be finalised. Furthermore, the results of this ROA do not constitute specific recommendations; rather, they

are presented to inform MFS of the potential management options that can assist in future decision-making regarding the site.

A comparison of the selected options to remediate or manage soil contamination is summarised in Table 2. Key items, such as reliability, capital cost, and sustainability, were assessed with the following scoring values: nil (score of zero), low (score of 1), moderate (score of 2), and high (score of 3). Scores were tallied for each option, with higher scoring options indicating more effective/preferable options.

Table 2 PFAS Remediation Options

Key item	Option 1 – no action [a]	Option 2 – Institutional/Administrative controls [a]	Option 3 – In-situ soil stabilisation [a]	Option 4 – Capping of contaminated soil [a]	Option 5 – Excavation of contaminated soil and off-site disposal [of a]
Policy issue	**Nil (0)** – may not be acceptable if regulations or stakeholder expectations require active remediation. Liability remains on-site.	**Low (1)** – regulator may accept if a comprehensive management plan were presented along with restriction measures that limit the accessibility to the site.	**Low (1)** – regulator may accept if proven effective. Requires regulatory approval and compliance with environmental policies.	**Moderate (2)** – generally accepted by regulators and communities. Requires regulatory approval and design verification. Post-remedial action, such as maintenance and management, entails liability.	**High (3)** – generally accepted by regulators and communities as it eliminates contamination. Ongoing maintenance or management would not be required; hence, minimal liability would remain on the site owner.
Reliability	**Nil (0)** – the potential for health risks would remain at the site.	**Low (1)** – although the potential for health risks would be reduced, they would remain at the site. Likely depends on the effectiveness and enforcement of controls.	**Low (1)** – generally reliable for reducing contaminant mobility, but effectiveness can vary based on site-specific conditions and PFAS properties.	**Moderate (2)** – highly effective at preventing contamination migration if adequately designed and maintained. However, contaminants would remain on site, and ongoing management would be required.	**High (3)** – Very effective as it removes the contamination from the site through excavation and off-site disposal of impacted soils.
Capital Cost	**High (3)** – Little or no costs as no action is proposed.	**High (3)** – this is variable depending on how comprehensive the administrative controls are or the cost of installing physical barriers and signages to isolate high-risk areas of the site.	**Moderate (2)** – costs vary depending on the stabilising agents used and the scale of the contamination.	**Moderate (2)** – significant upfront costs for construction and engineering.	**Low (1)** significant excavation, transportation, and disposal costs.
Sustainability	**Nil (0)** – residual contamination would remain within the site as no long-term solution is applied.	**Low (1)** – provides ongoing management, but residual contamination remains within the site.	**Moderate (2)** – depends on the stabilising agents used. The process itself reduces contaminant migration, contributing to long-term site stability.	**Moderate (2)** – provides a long-term solution but requires maintenance and monitoring. Works would consume a moderate amount of energy and material.	**High (3)** – removes contamination but requires energy and resources for excavation and transportation, as well as production of a large amount of waste.
Ongoing liabilities	**Nil (0)** – liability would remain on the site, as the contamination remains and may pose risks in the future.	**Low (1)** – liability would remain on the site, as the contamination remains and may pose risks in the future.	**Moderate (2)** – reduced liabilities compared to untreated contamination, but ongoing monitoring and potential future treatments may be required to ensure long-term stability.	**Moderate (2)** – long-term liabilities related to monitoring and maintaining the containment system.	**High (3)** – minimal ongoing liabilities once removal is complete.
Human health and ecological risk of exposure to contamination	**Low (1)** – risk is maintained based on current conditions.	**Moderate (2)** – human health risks would be managed through OH&S protocols and H&S plans for installing physical barriers. Risk is managed but not eliminated.	**Moderate (2)** – significantly reduces the risk of exposure to contaminants by immobilising them. However, the initial mixing process may pose short-term exposure risks.	**Moderate (2)** – significantly reduces risk by isolating contaminants. Contamination would remain on-site, but exposure to impacted soil would be prevented.	**High (3)** – Eliminates exposure risk at the site; however, it may pose risks during removal and transport.
Human health and ecological risk of remediation activities	**Nil (0)** – no remediation would be undertaken.	**Nil (0)** – no remediation would be undertaken.	**Moderate (2)** – risks associated with the handling and application of stabilising agents. Proper safety measures can mitigate these risks.	**Moderate (2)** – human health risk during construction, but manageable with proper safety measures. Implementation of OH&S protocols and H&S plans. No unacceptable ecological risks are anticipated.	**High (3)** – risks associated with excavation, transportation, and disposal. Human health risks would be managed through OH&S protocols and H&S plans. No unacceptable ecological risks are anticipated.
Complexity	**High (3)** – no complexity; no actions required.	**Moderate (2)** – involves establishment and maintenance of controls. Ensuring that the regulator and auditor endorse the proposed controls.	**Moderate (2)** – requires specialised knowledge and equipment to apply stabilising agents effectively.	**Moderate (2)** – requires comprehensive engineering and construction works considering the presence of PFAS contamination.	**Low (1)** – a complex process involving heavy machinery and logistics.
Implementation timeframe	**Low (1)** – immediate; no action needed.	**Moderate (2)** – Could be implemented quickly, approximately 1-3 weeks.	**Moderate (2)** – approximately 1-6 weeks.	**Moderate (2)** – approximately 1-6 weeks.	**Moderate (2)** – approximately 1-3 months.
Acceptability	**Nil (0)** – generally low if contamination remains unaddressed; stakeholders may have to deal with soil contamination in the future.	**Low (1)** – generally acceptable if controls are adequate. Stakeholders may have to deal with soil contamination in the future; however, appropriate controls would minimise contact.	**Moderate (2)** – generally acceptable to stakeholders due to its effectiveness in reducing contamination risks. However, there may be concerns about stabilising agents' long-term stability and environmental impact.	**Moderate (2)** – Generally acceptable due to its effectiveness in isolating contamination. Giving a short to medium-term solution on contamination exposure.	**High (3)** – Highly acceptable due to completely removing contamination, which provides a holistic and long-term solution to contamination exposure.
TOTAL SCORE	**8**	**14**	**18**	**20**	**25**

Notes

[a] Scores for each item are reported in brackets

5. Indicative costs

Based on the options in Table 2, an estimation of material requiring management under a HIL-A use scenario was calculated (Table 3). The estimated bulk weight of materials was then used to inform the high-level costing for PFAS-contaminated soil management in Table 4. Prices used are based on estimates quoted by EnviroPacific for the site's demolition and remediation. The costing is based on conservative estimates, with waste material requiring an SA EPA waste-derived fill screen and remediation targets.

Table 3 Estimated Material Excess

Material	Quantity	Mean PFAS concentration in soil (mg/kg) [3]	Highest PFAS concentration in soil (mg/kg)
	Weight (Tonnes) [1, 2]		
PFAS Contaminated Concretes	255	0.373	3.82
PFAS Contaminated Soils	3,832	0.273	3.82

Notes:

[1] The weight of the material was calculated assuming a bulk density of 2,000 kg/m^3
[2] The weight of concrete was calculated using the standard density of 2,400 kg/m^3
[3] Mean concentrations were based on the reported concentration sum of PFOS and PFHxS from the historical and current soil sampling results.

Table 4 High Level Costing for PFAS Contaminated Soil Management

Option	UOM	Unit Rate (Ex. GST)	Quantity	Total Rate (Ex. GST)
Stage 1: Preliminaries and Planning				
QHSE Documentation and Preliminaries Preparation	Item	$ 22,283	1	$ 22,283
Mobilisation / Demobilisation and Site Establishment	Item	$ 24,225	1	$ 24,225
Dilapidation Surveys	Item	$ 887.50	2	$ 1,775
Stage 2: Site Works				
Demolition of Aboveground Structures	Item	$ 99,338	1	$ 99,338
Removal and Disposal of PFAS Impacted Concrete	Tonnes	Lower estimate: $ 972.66 Upper estimate: $ 1,126.64	255	$ 248,028 $ 287,293
Removal and Disposal of Clean Concrete	Tonnes	$ 183	255	$ 46,665
Excavation, Transport and Disposal of PFAS Impacted Soils	Tonnes	Lower estimate: $ 739.03 Upper estimate: $ 841.76	3,832	$ 2,832,169 $ 3,225,860
Backfill and Compaction	Tonnes	$ 77.06	4,342	$334,616
Stage 3 Project Completion				
Site Tidy-up and Demobilisation	Item	$ 14,146	1	$ 14,146
Project Reporting	Item	$ 8,221	1	$ 8,221
			Estimated Total:	**Lower: $3,631,466**
				Upper: $4,064,422

The scope assumed and cost in this estimate encompasses the following:

- Project planning and development of documentation.
- Mobilisation and site establishment.
- Power disconnections (including arranging for any existing power supplier assets) have not been included; this can be added once more details regarding the site are provided.
- Removal of HAZMAT (asbestos) from existing buildings.
- Demolition of all aboveground structures and removal of demolition wastes to licenced facilities.
- Demolition and removal of concrete hardstands, with clean concrete going for local disposal and PFAS-contaminated concrete being transported to SOLVE, Altona (VIC) for treatment and disposal.
- Excavation, loading, transport and thermal treatment of PFAS-impacted soils to SOLVE, Altona.
- Approval between SA and VIC EPAs for the transfer of contaminated materials across state lines with appropriate licences and documentation.
- Backfill and compaction of excavations to 98% standard under Level 1 supervision.
- Tidy the site and demobilise.
- Project reporting, including Waste Tracking Certificates, disposal dockets, QHSE reporting and others as required by the client.

For this site, the PFAS-impacted soils would be transported to a licensed waste treatment facility for specialised treatment and remediation. Leachate analysis results have confirmed that PFAS concentrations in the impacted soils exceed regulatory landfill disposal thresholds, rendering the material unsuitable for conventional landfill disposal without prior treatment. Table 5 below provides the landfill acceptance criteria for PFAS-contaminated waste, and Table 6 shows the results of the leachate analysis in comparison to landfill disposal criteria. The laboratory report of the leachate analysis is attached to this ROA.

Table 5 Landfill Disposal Criteria – South Australia

Parameter	Dry weight conc. (mg/kg)	Leachate conc. (ug/L)
Single composite lining system		
PFOS + PFHxS	50	0.70
PFOA	50	5.60
Double composite lining system		
PFOS + PFHxS	50	7
PFOA	50	56

Table 6 Leachate Analysis Results and Exceedances

Sample ID	PFHxS (µg/kg)	PFOS (µg/kg)	PFOA (µg/kg)	Sum of PFHxS and PFOS (µg/kg)
BH35_0.0-0.1 pH 2.9 Day 1	0.24	27	0.08	27.24
BH35_0.0-0.1 pH 2.9 Day 2	6.2	300	0.54	306.2
BH35_0.0-0.1 pH 2.9 Day 3	4.7	240	0.44	244.7
BH35_0.0-0.1 pH 2.9 Day 4	1.4	65	0.40	66.4
BH35_0.0-0.1 pH 2.9 Day 5	1.0	65	0.37	66
BH35_0.0-0.1 pH 2.9 Day 6	0.67	4	0.25	42.67
BH35_0.0-0.1 pH 2.9 Day 7	0.74	43	0.28	43.74
BH35_0.0-0.1 pH 2.9 Day 8	0.56	49	0.23	49.56
BH35_0.0-0.1 pH 2.9 Day 9	0.40	40	0.12	40.4
BH35_0.0-0.1 pH 5 Day 1	0.39	21	0.11	21.39
BH35_0.0-0.1 pH 5 Day 2	0.22	24	0.08	24.22

Sample ID	PFHxS (µg/kg)	PFOS (µg/kg)	PFOA (µg/kg)	Sum of PFHxS and PFOS (µg/kg)
BH35_0.0-0.1 pH 5 Day 3	1.4	110	0.55	111.4
BH35_0.0-0.1 pH 5 Day 4	1.1	95	0.28	96.1
BH35_0.0-0.1 pH 5 Day 5	1.1	110	0.40	111.1
BH35_0.0-0.1 pH 5 Day 6	0.75	63	0.26	63.75
BH35_0.0-0.1 pH 5 Day 7	0.80	83	0.30	83.8
BH35_0.0-0.1 pH 5 Day 8	0.59	33	0.25	33.59
BH35_0.0-0.1 pH 5 Day 9	0.36	30	0.10	30.36
BH35_0.0-0.1 pH 5 Day 10	1.7	110	0.66	111.7

6. Ongoing Management

The site's current ongoing management is centred around administrative controls, as it remains non-operational. These controls are essential to managing residual PFAS contamination and ensuring the site safety until further remediation or redevelopment occurs. Administrative controls serve to limit exposure risks, prevent unauthorised access, and ensure regulatory compliance while maintaining the site in a stable condition.

In addition to existing administrative controls, a management plan will need to be developed outlining controls for the management of contaminated materials during remedial works, as well as ongoing controls for future land users. Such document would be included in the sale of the property and provided to the purchaser as part of the transfer of liability. The contents and controls within the management plan would depend on both the intended future land use and remediation method.

7. Summary

It was concluded that only scenarios 2, 3, and 5 pose low risk to future site users, therefore site remediation works would not be required prior to divestment under these circumstances. However, scenarios 1 and 4 (HIL A) were determined to pose an elevated risk and would require site remediation works prior to divestment. The ROA outlines available and applicable options for addressing PFAS contamination at the site in preparation for its divestment within the scope of HIL A use. The DSIs have identified PFAS contamination within the site and nearby areas. While the contamination levels meet current land-use standards, more stringent assessment criteria were applied to account for the site's potential future redevelopment into more sensitive uses.

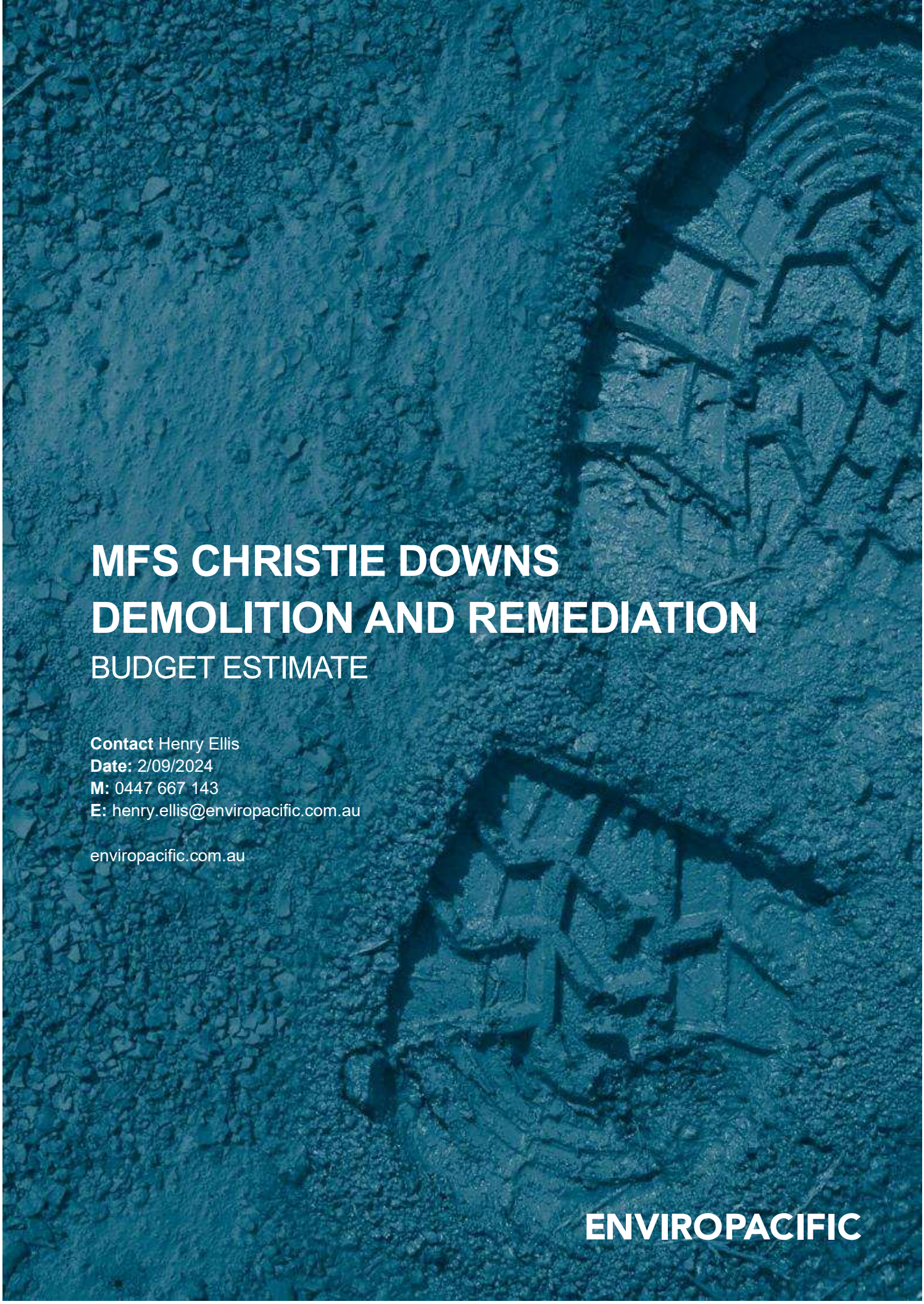
Several management strategies were evaluated, ranging from non-intrusive options like institutional controls to intrusive methods such as in-situ stabilisation and full removal with off-site disposal. Each option was assessed based on cost, effectiveness, and sustainability.

Currently, the site is managed through administrative controls, which restrict access and monitor contamination while the site remains non-operational. A management plan will need to be developed outlining controls for the management of contaminated materials during remedial works, as well as ongoing controls for future land users.

Given the results of the leachate analysis which exceed the PFAS concentrations for landfill disposal within South Australia, removal of the contaminated materials with transport to a licensed facility for treatment and disposal is considered the most feasible option.

Attachment 1

Enviropacific Budget Estimate



MFS CHRISTIE DOWNS DEMOLITION AND REMEDIATION

BUDGET ESTIMATE

Contact Henry Ellis
Date: 2/09/2024
M: 0447 667 143
E: henry.ellis@enviropacific.com.au

enviropacific.com.au

ENVIROPACIFIC

2 September 2024

GHD

Ben Petticrew

Response to Request for Estimate – MFS Christie Downs Demolition and Site Remediation

Dear Ben,

Thank you for the opportunity to submit a budget estimate for the demolition of the former MFS site at Christies Downs, and the remediation of PFAS impacted concrete and soils at this site. Our estimate has been prepared in accordance with the detail provided via email on 2 August 2024 in addition to a site inspection on 23 July 2024.

Enviropacific are well positioned to deliver the scope of work, offering the most comprehensive PFAS management expertise in the industry. We have completed in excess of 120 PFAS remediation projects since 2013 and are recognised leaders in the remediation of PFAS impacted solids, water, and sludges.

Please note that as a budget estimate, this is Enviropacific's best estimate for the cost to complete the works based on an incomplete knowledge of the site, structures, contamination and remediation targets. We welcome the opportunity to provide a firm proposal based on the more refined project targets should the need arise.

Regards,



Henry Ellis
Operations Manager – SA

1.PROJECT APPRECIATION

The site is a former MFS fire station, at which PFAS containing materials were stored, used and disposed of. The site is no longer in use by the MFS and will likely be developed or sold by the government to a private developer. As such, the existing structures will require demolition, and the site will require remediation to meet the needs of the future site usage. For the purposes of this budget estimate, it has been assumed that contaminated soils and concretes are to be removed as per volumes indicated by GHD:

- PFAS Contaminated Concretes – 254T
- PFAS Contaminated Soils – 3,831T

For the purposes of this estimate, it assumed that no shoring or retention of excavations will be required, and no excavation within groundwater will be required.

2.SCOPE OF WORKS

Broadly, the scope as assumed and costed in this estimate encompasses the following:

- Project planning and development of documentation.
- Mobilisation and site establishment.
- Power Disconnection (including arranging for any existing power supplier assets) has not been included, this can be added once more detail regarding the site is provided
- Removal of HAZMAT (asbestos) from existing buildings.
- Demolition of all aboveground structures and removal of demolition wastes to licenced facilities.
- Demolition and removal of concrete hardstands, with clean concrete going for local disposal and PFAS contaminated concrete being transported to SOLVE, Altona (VIC) for treatment and disposal.
- Excavation, loading, transport and thermal treatment of PFAS impacted soils to SOLVE, Altona. It is assumed, based on data provided by GHD, that no PFAS impacted soils meet the criteria for local disposal and hence all material would be transported to SOLVE for treatment.
- No time has been included for chasing and excavating additional contaminated soil or groundwater.
- Backfill and compaction of excavations 98% standard under Level 1 supervision.
- Tidy site and demobilise.
- Project reporting including Waste Tracking Certificates, disposal dockets, QHSE reporting and other as required by the client.

APPENDIX A

BUDGET ESTIMATE PRICING

ENVIROPACIFIC

ENVIROPACIFIC SERVICES LIMITED
Melbourne, 591 Blackburn Road, Notting Hill, VIC 3168
ABN 43 111 372 064

Client: GHD
Project: MFS Christie Downs
EPS Ref: RR25005
Date: 2/09/2024

CHRISTIE DOWNS - MFS DEMOLITION AND PFAS REMEDIATION BUDGET ESTIMATE									
Item	**Task**	**Description**	**Unit**	**Quantity**	**Unit Price (Ex. GST)**	**Lower Estimate (Ex GST)**	**Upper Estimate (Ex GST)**	**Total Price - Lower Estimate (Ex GST)**	**Total Price - Upper Estimate (Ex GST)**
Stage 1: Preliminaries and Planning									
1.1	QHSE Documentation and Preliminaries	Preparation of SWMS and QHSE documentation	Item	1	$ 22,283.10			$ 22,283.10	$ 22,283.10
1.2	Mobilisation / Demobilisation and Site Establishment	Mobilisation and procurement of equipment	Item	1	$ 24,225.08			$ 24,225.08	$ 24,225.08
1.3	Dilapidation Surveys	Dilapidation surveys of site and neighbouring properties	Item	2	$ 887.50			$ 1,775.00	$ 1,775.00
Subtotal Stage 1 (ex GST)								**$ 48,283.18**	**$ 48,283.18**
Stage 2: Site Works									
2.1	Demolition of Aboveground Structures	Includes removal and disposal of HAZMAT, demolition of structures and disposal of all generated wastes	Item	1	$ 99,338.40			$ 99,338.40	$ 99,338.40
2.2	Removal and Disposal of PFAS Impacted Concrete	Onsite breaking, lifting, loading, cartage and disposal of PFAS impacted concrete. Includes all plant, personnel, PPE and consumables required for works.	Tonnes	255		$ 972.66	$ 1,126.64	$ 248,028.30	$ 287,293.20
2.3	Removal and Disposal of Clean Concrete	Onsite breaking, lifting, loading, cartage and disposal of clean concrete. Includes all plant, personnel, PPE and consumables required for works.	Tonnes	255	$ 183.00			$ 46,665.00	$ 46,665.00
2.4	Excavation, Transport and Disposal of PFAS Impacted Soils	Excavation, loading, transport and disposal of PFAS impacted soils. All material to be sent to SOLVE, VIC due to exceedances of total concentrations and/or leachability criteria for local disposal options.	Tonnes	3832		$ 739.03	$ 841.76	$ 2,832,169.89	$ 3,225,860.01
2.5	Backfill and Compaction	Backfill and compaction of excavations to existing surface level under Level 1 geotechnical supervision. Inclusive of testing and geotechnical report.	Tonnes	4342	$ 77.06			$ 334,616.10	$ 334,616.10
Subtotal Stage 2 (ex GST)								**$ 3,560,817.69**	**$ 3,993,772.71**
Stage 3: Project Completion									
3.1	Site Tidy-up and Demobilisation	Tidy-up and demobilisation of all plant, material and personnel. Includes final site inspection with client/owner.	Item	1	$ 14,146.65			$ 14,146.65	$ 14,146.65
3.2	Project Reporting	Project reporting including provision of waste tracking certificates, weighbridge dockets, asbestos clearances and air monitoring reports and all other project documentation as required by the client.	Item	1	$ 8,221.50			$ 8,221.50	$ 8,221.50
Subtotal Stage 3 (ex GST)								**$ 22,368.15**	**$ 22,368.15**
Estimated Total (ex GST)								**$ 3,631,469.02**	**$ 4,064,424.04**



CONTACT DETAILS

Prepared by: Henry Ellis
Version: 1
Date: 2/09/2024
M: 0447 667 143
E: henry.ellis@enviropacific.com.au

ENVIROPACIFIC

Attachment 2

Leachate Analysis Table and Laboratory Report

				Leach Preparation			PFAS - Perfluoroalkyl Sulfonic Acids		PFAS - Perfluoroalkyl Carboxylic Acids	PFAS - Fluorotelomer Sulfonic Acids	PFAS - Sums		
				pH of Leaching Fluid	pH (Initial)	pH (Final)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanoic acid (PFOA)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFHxS and PFOS	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*
				pH units	pH units	pH units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				0.1	0.1	0.1	0.01	0.01	0.01	0.05	0.01	0.01	0.01
PFAS NEMP 2.0 2020 Interim Landfill Double (Leachate)							7	7	56			7	
PFAS NEMP 2.0 2020 Interim Landfill Unlined (Leachate)							0.07	0.07	0.56			0.07	
Location Code	**Date**	**Field ID**	**Depth**	**Lab Report Number**									
	15 Aug 2024			1132718	2.9	3.7	3.7	27[#1]	0.24[#1]	0.08[#1]	<0.05	27.08	27.24	27.32
BH35	15 Aug 2024	BH35_0.0-0.1 ph2.9 Day 1		1132718	2.9	3.3	4.5	300[#1]	6.2	0.54[#1]	<0.05	300.54	306.2	306.74
BH35	15 Aug 2024	BH35_0.0-0.1 ph2.9 Day 2		1132718	2.9	4.2	4.4	240[#1]	4.7	0.44[#1]	<0.05	240.44	244.7	245.14
BH35	15 Aug 2024	BH35_0.0-0.1 ph2.9 Day 3		1132718	2.9	4.3	4.3	65[#1]	1.4[#1]	0.40[#1]	<0.05	65.4	66.4	66.8
BH35	15 Aug 2024	BH35_0.0-0.1 ph2.9 Day 4		1132718	2.9	4.2	4.3	65[#1]	1.0	0.37	<0.05	65.37	66	66.37
BH35	15 Aug 2024	BH35_0.0-0.1 ph2.9 Day 5		1132718	2.9	4.1	4.2	42[#1]	0.67	0.25	<0.05	42.25	42.67	42.92
BH35	15 Aug 2024	BH35_0.0-0.1 ph2.9 Day 6		1132718	2.9	4.0	4.0	43[#1]	0.74	0.28	<0.05	43.28	43.74	44.02
BH35	15 Aug 2024	BH35_0.0-0.1 ph2.9 Day 7		1132718	2.9	3.9	3.9	49[#1]	0.56	0.23	<0.05	49.23	49.56	49.79
BH35	15 Aug 2024	BH35_0.0-0.1 ph2.9 Day 8		1132718	2.9	3.8	3.9	40[#1]	0.40[#1]	0.12[#1]	<0.05	40.12	40.4	40.52
BH35	15 Aug 2024	BH35_0.0-0.1 ph2.9 Day 9		1132718	2.9	3.7	3.7	21[#1]	0.39	0.11[#1]	<0.05	21.11	21.39	21.5
BH35	15 Aug 2024	BH35_0.0-0.1 ph5 Day 1		1132718	4.9	5.2	6.5	110	1.7	0.66[#1]	<0.05	110.66	111.7	112.36
BH35	15 Aug 2024	BH35_0.0-0.1 ph5 Day 10		1132718	5.0	5.3	5.3	24[#1]	0.22[#1]	0.08[#1]	<0.05	24.08	24.22	24.3
BH35	15 Aug 2024	BH35_0.0-0.1 ph5 Day 2		1132718	4.9	5.7	6.2	110	1.4	0.55[#1]	<0.05	110.55	111.4	111.95
BH35	15 Aug 2024	BH35_0.0-0.1 ph5 Day 3		1132718	4.9	5.9	6.2	95[#1]	1.1[#1]	0.28[#1]	<0.05	95.28	96.1	96.38
BH35	15 Aug 2024	BH35_0.0-0.1 ph5 Day 4		1132718	5.0	5.7	6.0	110[#1]	1.1	0.40	<0.05	110.4	111.1	111.5
BH35	15 Aug 2024	BH35_0.0-0.1 ph5 Day 5		1132718	4.9	5.7	5.8	63[#1]	0.75	0.26	<0.05	63.26	63.75	64.01
BH35	15 Aug 2024	BH35_0.0-0.1 ph5 Day 6		1132718	5.0	5.6	5.7	83[#1]	0.80	0.30	<0.05	83.3	83.8	84.1
BH35	15 Aug 2024	BH35_0.0-0.1 ph5 Day 7		1132718	5.0	5.5	5.6	33[#1]	0.59	0.25	<0.05	33.25	33.59	33.84
BH35	15 Aug 2024	BH35_0.0-0.1 ph5 Day 8		1132718	4.9	5.5	5.5	30[#1]	0.36[#1]	0.10[#1]	<0.05	30.1	30.36	30.46
BH35	15 Aug 2024	BH35_0.0-0.1 ph5 Day 9		1132718	4.9	5.3	5.4	52[#1]	0.38[#1]	0.12[#1]	<0.05	52.12	52.38	52.5

Statistics

Number of Results	20	20	20	20	20	20	20	20	20	20
Number of Detects	20	20	20	20	20	20	0	20	20	20
Minimum Concentration	2.9	3.3	3.7	21	0.22	0.08	<0.05	21.11	21.39	21.5
Minimum Detect	2.9	3.3	3.7	21	0.22	0.08	ND	21.11	21.39	21.5
Maximum Concentration	5	5.9	6.5	300	6.2	0.66	<0.05	300.54	306.2	306.74
Maximum Detect	5	5.9	6.5	300	6.2	0.66	ND	300.54	306.2	306.74
Average Concentration *	3.9	4.7	5	80	1.2	0.29	0.025	80	81	82
Geometric Average *	3.8	4.7	4.9	61	0.8	0.24	0.025	61	62	62
Median Concentration *	3.9	4.75	4.9	57.5	0.745	0.27	0.025	57.69	58.065	58.255
Standard Deviation *	1	0.87	0.95	72	1.5	0.17	0	72	73	73
Geometric Standard Deviation *	1.3	1.2	1.2	2.1	2.4	1.9	1	2.1	2.1	2.1
95% UCL (Student's-t) *	4.325	5.067	5.322	107.9	1.822	0.356	0.025	108.2	109.7	110
% of Detects	100	100	100	100	100	100	0	100	100	100
% of Non-Detects	0	0	0	0	0	0	100	0	0	0

* A Non Detect Multiplier of 0.5 has been applied.

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.

Environmental Standards

HEPA, Jan 2020, PFAS NEMP 2.0 2020 Interim Landfill Double (Leachate)
HEPA, Jan 2020, PFAS NEMP 2.0 2020 Interim Landfill Unlined (Leachate)

Jessica Sheppard

From: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Sent: Tuesday, 27 August 2024 11:50 AM
To: #AU_CAU001_EnviroSampleVic
Subject: Re: Eurofins Test Results, Invoice - Report 1129117 : Site MFS Christie Downs Supp DSI (12639293)

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: ADDITIONALS

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

Hi Jess,

I've spoken with the client for clarification over the method requested. Log in BH35_0.0-0.1 (M24-Au0042898) for **MEP leachate** analysis for **both ph2.9 & ph5.**

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

#1132718

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

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From: Karl Bulow <Karl.Bulow@eurofinsanz.com>
Sent: Monday, August 26, 2024 4:21 PM
To: #AU_CAU001_EnviroSampleVic <EnviroSampleVic@eurofins.com>
Subject: Fw: Eurofins Test Results, Invoice - Report 1129117 : Site MFS Christie Downs Supp DSI (12639293)

Hi Jess,

See additional analysis request from Friday - standard Tat.

As requested, log in BH35_0.0-0.1 (M24-Au0042898) separately.

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

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From: Terrence Wilson <Terrence.Wilson@ghd.com>
Sent: Friday, August 23, 2024 12:53 PM
To: marymakarios <marymakarios@eurofins.com>; Karl Bulow <Karl.Bulow@eurofinsanz.com>
Cc: Ben Petticrew <Ben.Petticrew@ghd.com>; Angelica Maria Villada Meza <AngelicaMaria.VilladaMeza@ghd.com>
Subject: RE: Eurofins Test Results, Invoice - Report 1129117 : Site MFS Christie Downs Supp DSI (12639293)

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 Mary/Karl,

Thanks for the results.

Please could you arrange for the following additional samples (currently on hold) to be analysed:

- BH33_0.4-0.5 (M24-Au0042922) – PFAS Full Suite; Standard LOR; Standard TAT
- BH34_0.4-0.5 (M24-Au0042924) – PFAS Full Suite; Standard LOR; Standard TAT
- BH35_0.4-0.5 (M24-Au0042926) – PFAS Full Suite; Standard LOR; Standard TAT
- BH35_0.0-0.1 (M24-Au0042898) – US EPA Method 1320 (Multiple Extraction Procedure) + PFAS Short Suite [in accordance with the SA EPA's landfill disposal criteria for PFAS-contaminated waste] – Due to the difference in analyses turnaround times from above, these results can be reported separately.

Please could you also just amend the sample ID in the lab reports assigned to the following sample:

13	SS10/BH42_0.4-0.5	Aug 13, 2024		Soil	M24-Au0042905		X	X

eurofins | Environment Testing

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

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

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

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

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46-48 Banksia Road
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Site# 2370

Eurofins ProMicro Pty Ltd

ABN: 47 009 120 549

Perth ProMicro
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2561
Site# 2554

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

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

Sample Receipt Advice

Company name: GHD Pty Ltd SA
Contact name: - ALL SRAs/COCs/Reports
Project name: MFS Christie Downs Supp DSI
Project ID: 12639293
Turnaround time: 10 Day
Date/Time received Aug 27, 2024 11:50 AM
Eurofins reference 1132718

Sample Information

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

Notes

Contact

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

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

Results will be delivered electronically via email to - ALL SRAs/COCs/Reports - GHDLabReports@ghd.com.

Note: A copy of these results will also be delivered to the general GHD Pty Ltd SA email address.

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

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

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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

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

Project Name: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1132718
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 27, 2024 11:50 AM
Due: Sep 10, 2024
Priority: 10 Day
Contact Name: - ALL SRAs/COCs/Reports

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH35_0.0-0.1 ph2.9 Day 1	Aug 15, 2024		Leachate - MEP	M24-Au0071307	X	X
2	BH35_0.0-0.1 ph2.9 Day 2	Aug 15, 2024		Leachate - MEP	M24-Au0071308	X	X
3	BH35_0.0-0.1 ph2.9 Day 3	Aug 15, 2024		Leachate - MEP	M24-Au0071309	X	X
4	BH35_0.0-0.1 ph2.9 Day 4	Aug 15, 2024		Leachate - MEP	M24-Au0071310	X	X
5	BH35_0.0-0.1 ph2.9 Day 5	Aug 15, 2024		Leachate - MEP	M24-Au0071311	X	X
6	BH35_0.0-0.1 ph2.9 Day 6	Aug 15, 2024		Leachate - MEP	M24-Au0071312	X	X
7	BH35_0.0-0.1 ph2.9 Day 7	Aug 15, 2024		Leachate - MEP	M24-Au0071313	X	X
8	BH35_0.0-0.1 ph2.9 Day 8	Aug 15, 2024		Leachate - MEP	M24-Au0071314	X	X
9	BH35_0.0-0.1	Aug 15, 2024		Leachate -	M24-Au0071315	X	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	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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Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
	ph2.9 Day 9			MEP			
10	BH35_0.0-0.1 ph2.9 Day 10	Aug 15, 2024		Leachate - MEP	M24-Au0071316	X	X
11	BH35_0.0-0.1 ph5 Day 1	Aug 15, 2024		Leachate - MEP	M24-Au0071317	X	X
12	BH35_0.0-0.1 ph5 Day 2	Aug 15, 2024		Leachate - MEP	M24-Au0071318	X	X
13	BH35_0.0-0.1 ph5 Day 3	Aug 15, 2024		Leachate - MEP	M24-Au0071319	X	X
14	BH35_0.0-0.1 ph5 Day 4	Aug 15, 2024		Leachate - MEP	M24-Au0071320	X	X
15	BH35_0.0-0.1 ph5 Day 5	Aug 15, 2024		Leachate - MEP	M24-Au0071321	X	X
16	BH35_0.0-0.1 ph5 Day 6	Aug 15, 2024		Leachate - MEP	M24-Au0071322	X	X
17	BH35_0.0-0.1 ph5 Day 7	Aug 15, 2024		Leachate - MEP	M24-Au0071323	X	X
18	BH35_0.0-0.1 ph5 Day 8	Aug 15, 2024		Leachate - MEP	M24-Au0071324	X	X
19	BH35_0.0-0.1	Aug 15, 2024		Leachate -	M24-Au0071325	X	X

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Project ID: 12639293

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Received: Aug 27, 2024 11:50 AM
Due: Sep 10, 2024
Priority: 10 Day
Contact Name: - ALL SRAs/COCs/Reports

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
19	BH35_0.0-0.1 ph5 Day 9	Aug 15, 2024		Leachate - MEP	M24-Au0071325		
20	BH35_0.0-0.1 ph5 Day 10	Aug 15, 2024		Leachate - MEP	M24-Au0071326	X	X
Test Counts						20	20

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: **- ALL SRAs/COCs/Reports**

Report **1132718-L**
Project name MFS Christie Downs Supp DSI
Project ID 12639293
Received Date Aug 27, 2024

Client Sample ID			**BH35_0.0-0.1 ph2.9 Day 1**	**BH35_0.0-0.1 ph2.9 Day 2**	**BH35_0.0-0.1 ph2.9 Day 3**	**BH35_0.0-0.1 ph2.9 Day 4**
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071307**	**M24-Au0071308**	**M24-Au0071309**	**M24-Au0071310**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	2.0	2.0	2.0	2.0
pH (initial)	0.1	pH Units	3.3	4.2	4.3	4.2
pH (Leachate fluid)	0.1	pH Units	2.9	2.9	2.9	2.9
pH (off)	0.1	pH Units	4.5	4.4	4.3	4.3
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	%	93	89	118	93
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	6.2	4.7	[N09]1.4	1.0
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]300	[N09]240	[N09]65	[N09]65
18O2-PFHxS (surr.)	1	%	125	127	122	123
13C8-PFOS (surr.)	1	%	91	93	100	117
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.54	[N09]0.44	[N09]0.40	0.37
13C8-PFOA (surr.)	1	%	80	83	64	126
Sum (PFHxS + PFOS)*	0.01	ug/L	306.2	244.7	66.4	66
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	300.54	240.44	65.4	65.37
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	306.74	245.14	66.8	66.37

Client Sample ID			**BH35_0.0-0.1 ph2.9 Day 5**	**BH35_0.0-0.1 ph2.9 Day 6**	**BH35_0.0-0.1 ph2.9 Day 7**	**BH35_0.0-0.1 ph2.9 Day 8**
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071311**	**M24-Au0071312**	**M24-Au0071313**	**M24-Au0071314**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	2.0	2.0	2.0	2.0
pH (initial)	0.1	pH Units	4.1	4.0	3.9	3.8
pH (Leachate fluid)	0.1	pH Units	2.9	2.9	2.9	2.9
pH (off)	0.1	pH Units	4.2	4.0	3.9	3.9

Client Sample ID			BH35_0.0-0.1 ph2.9 Day 5	BH35_0.0-0.1 ph2.9 Day 6	BH35_0.0-0.1 ph2.9 Day 7	BH35_0.0-0.1 ph2.9 Day 8
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071311**	**M24-Au0071312**	**M24-Au0071313**	**M24-Au0071314**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 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	%	112	86	96	182
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	0.67	0.74	0.56	[N09]0.40
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]42	[N09]43	[N09]49	[N09]40
18O2-PFHxS (surr.)	1	%	119	116	134	83
13C8-PFOS (surr.)	1	%	110	122	119	122
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	0.25	0.28	0.23	[N09]0.12
13C8-PFOA (surr.)	1	%	118	114	131	79
Sum (PFHxS + PFOS)*	0.01	ug/L	42.67	43.74	49.56	40.4
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	42.25	43.28	49.23	40.12
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	42.92	44.02	49.79	40.52

Client Sample ID			BH35_0.0-0.1 ph2.9 Day 9		BH35_0.0-0.1 ph5 Day 1	BH35_0.0-0.1 ph5 Day 2
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071315**	**M24-Au0071316**	**M24-Au0071317**	**M24-Au0071318**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	2.0	2.0	1.0	1.0
pH (initial)	0.1	pH Units	3.7	3.7	5.2	5.7
pH (Leachate fluid)	0.1	pH Units	2.9	2.9	4.9	4.9
pH (off)	0.1	pH Units	3.7	3.7	6.5	6.2
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	%	64	95	125	128
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	0.39	[N09]0.24	1.7	1.4
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]21	[N09]27	110	110
18O2-PFHxS (surr.)	1	%	79	108	124	120
13C8-PFOS (surr.)	1	%	124	108	103	99
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.11	[N09]0.08	[N09]0.66	[N09]0.55
13C8-PFOA (surr.)	1	%	74	85	60	61
Sum (PFHxS + PFOS)*	0.01	ug/L	21.39	27.24	111.7	111.4
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	21.11	27.08	110.66	110.55
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	21.5	27.32	112.36	111.95

Client Sample ID			BH35_0.0-0.1 ph5 Day 3	BH35_0.0-0.1 ph5 Day 4	BH35_0.0-0.1 ph5 Day 5	BH35_0.0-0.1 ph5 Day 6
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071319**	**M24-Au0071320**	**M24-Au0071321**	**M24-Au0071322**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	5.9	5.7	5.7	5.6
pH (Leachate fluid)	0.1	pH Units	4.9	5.0	4.9	5.0
pH (off)	0.1	pH Units	6.2	6.0	5.8	5.7
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	%	74	119	116	107
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]1.1	1.1	0.75	0.80
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]95	[N09]110	[N09]63	[N09]83
18O2-PFHxS (surr.)	1	%	121	123	111	122
13C8-PFOS (surr.)	1	%	99	112	107	114
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.28	0.40	0.26	0.30
13C8-PFOA (surr.)	1	%	143	127	117	122
Sum (PFHxS + PFOS)*	0.01	ug/L	96.1	111.1	63.75	83.8
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	95.28	110.4	63.26	83.3
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	96.38	111.5	64.01	84.1

Client Sample ID			BH35_0.0-0.1 ph5 Day 7	BH35_0.0-0.1 ph5 Day 8	BH35_0.0-0.1 ph5 Day 9	BH35_0.0-0.1 ph5 Day 10
Sample Matrix			**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**	**Leachate - MEP**
Eurofins Sample No.			**M24-Au0071323**	**M24-Au0071324**	**M24-Au0071325**	**M24-Au0071326**
Date Sampled			**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**	**Aug 15, 2024**
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid[C01]		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	5.5	5.5	5.3	5.3
pH (Leachate fluid)	0.1	pH Units	5.0	4.9	4.9	5.0
pH (off)	0.1	pH Units	5.6	5.5	5.4	5.3
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	%	95	77	184	102
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	0.59	[N09]0.36	[N09]0.38	[N09]0.22
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]33	[N09]30	[N09]52	[N09]24
18O2-PFHxS (surr.)	1	%	125	82	77	91
13C8-PFOS (surr.)	1	%	96	120	98	110
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	0.25	[N09]0.10	[N09]0.12	[N09]0.08
13C8-PFOA (surr.)	1	%	114	74	71	84
Sum (PFHxS + PFOS)*	0.01	ug/L	33.59	30.36	52.38	24.22
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	33.25	30.1	52.12	24.08
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	33.84	30.46	52.5	24.3

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
AUS Leaching Procedure			
pH (initial)	Melbourne	Aug 28, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
pH (Leachate fluid)	Melbourne	Aug 28, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
pH (off)	Melbourne	Aug 28, 2024	N/A
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Melbourne	Sep 12, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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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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Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
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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: MFS Christie Downs Supp DSI
Project ID: 12639293

Order No.:
Report #: 1132718
Phone: 08 8111 6600
Fax: 08 8111 6699

Received: Aug 27, 2024 11:50 AM
Due: Sep 10, 2024
Priority: 10 Day
Contact Name: - ALL SRAs/COCs/Reports

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH35_0.0-0.1 ph2.9 Day 1	Aug 15, 2024		Leachate - MEP	M24-Au0071307	X	X
2	BH35_0.0-0.1 ph2.9 Day 2	Aug 15, 2024		Leachate - MEP	M24-Au0071308	X	X
3	BH35_0.0-0.1 ph2.9 Day 3	Aug 15, 2024		Leachate - MEP	M24-Au0071309	X	X
4	BH35_0.0-0.1 ph2.9 Day 4	Aug 15, 2024		Leachate - MEP	M24-Au0071310	X	X
5	BH35_0.0-0.1 ph2.9 Day 5	Aug 15, 2024		Leachate - MEP	M24-Au0071311	X	X
6	BH35_0.0-0.1 ph2.9 Day 6	Aug 15, 2024		Leachate - MEP	M24-Au0071312	X	X
7	BH35_0.0-0.1 ph2.9 Day 7	Aug 15, 2024		Leachate - MEP	M24-Au0071313	X	X
8	BH35_0.0-0.1 ph2.9 Day 8	Aug 15, 2024		Leachate - MEP	M24-Au0071314	X	X
9	BH35_0.0-0.1	Aug 15, 2024		Leachate -	M24-Au0071315	X	X

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

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Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
	ph2.9 Day 9			MEP			
10	BH35_0.0-0.1 ph2.9 Day 10	Aug 15, 2024		Leachate - MEP	M24-Au0071316	X	X
11	BH35_0.0-0.1 ph5 Day 1	Aug 15, 2024		Leachate - MEP	M24-Au0071317	X	X
12	BH35_0.0-0.1 ph5 Day 2	Aug 15, 2024		Leachate - MEP	M24-Au0071318	X	X
13	BH35_0.0-0.1 ph5 Day 3	Aug 15, 2024		Leachate - MEP	M24-Au0071319	X	X
14	BH35_0.0-0.1 ph5 Day 4	Aug 15, 2024		Leachate - MEP	M24-Au0071320	X	X
15	BH35_0.0-0.1 ph5 Day 5	Aug 15, 2024		Leachate - MEP	M24-Au0071321	X	X
16	BH35_0.0-0.1 ph5 Day 6	Aug 15, 2024		Leachate - MEP	M24-Au0071322	X	X
17	BH35_0.0-0.1 ph5 Day 7	Aug 15, 2024		Leachate - MEP	M24-Au0071323	X	X
18	BH35_0.0-0.1 ph5 Day 8	Aug 15, 2024		Leachate - MEP	M24-Au0071324	X	X
19	BH35_0.0-0.1	Aug 15, 2024		Leachate -	M24-Au0071325	X	X

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Contact Name: - ALL SRAs/COCs/Reports

Eurofins Analytical Services Manager : Karl Bulow

Sample Detail						AUS Leaching Procedure	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
19	BH35_0.0-0.1 ph5 Day 9	Aug 15, 2024		Leachate - MEP	M24-Au0071325		
20	BH35_0.0-0.1 ph5 Day 10	Aug 15, 2024		Leachate - MEP	M24-Au0071326	X	X
Test Counts						20	20

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

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

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

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
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	
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	
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)	%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	83			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	117			50-150	Pass	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	85			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	79			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	93			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	74			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-Au0071311	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0071311	CP	ug/L	0.67	0.71	7.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0071311	CP	ug/L	0.25	0.26	6.0	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0071314	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M24-Au0071314	CP	ug/L	0.40	0.41	4.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0071314	CP	ug/L	0.12	0.12	1.0	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M24-Au0071317	CP	ug/L	< 0.05	0.05	7.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	M24-Au0071317	CP	ug/L	0.66	0.68	2.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other
G01	The LORs have been raised due to matrix interference
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.

Authorised by:

Harry Bacalis	Analytical Services Manager
Carroll Lee	Senior Analyst-PFAS
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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Figure K