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AECOM

Ongoing Monitoring Report (October 2021 - September 2022)

PFAS OMP - Holsworthy Army Barracks

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PFAS Ongoing Monitoring Program
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Client: Department of Defence

ABN: 68706814312

Prepared by

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List of Acronyms

Acronym	Term
ADWG	Australian Drinking Water Guidelines
AECOM	AECOM Australia Pty Ltd
AFFF	Aqueous Film Forming Foam
ASC NEPM	Assessment of Site Contamination National Environment Protection Measure
BoM	Bureau of Meteorology
CSM	Conceptual Site Model
Defence	Department of Defence
DoH	Department of Health
DSI	Detailed Site Investigation
EPA	Environment Protection Authority
FSANZ	Food Standards Australia New Zealand
GW	Groundwater
GWE	Groundwater Elevation
HEPA	Heads of Environment Protection Authority
HHERA	Human Health and Ecological Risk Assessment
LFS	Liverpool Fire Station
LOR	Limit of Reporting
MW	Monitoring Well
NEMP	National Environmental Management Plan
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NSW	New South Wales
OMP	Ongoing Monitoring Plan
OMR	Ongoing Monitoring Report
PFAS	Per- and poly-fluoroalkyl substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PMAP	PFAS Management Area Plan
QA/QC	Quality Assurance and Quality Control
SAQP	Sample and Analysis Quality Plan
STP	Sewage Treatment Plant
SW	Surface Water
SWL	Standing Water Level

Acronym	Term
TDI	Tolerable Daily Intake
TSS	Total suspended solids

List of Units

Units	Term
˚C	Degrees Celsius
µg/L	Micrograms per litre
µS/cm	MicroSiemens per centimetre
g	Grams
km	Kilometre
L	Litres
m	Metre
m bgs	Metres below ground surface
mbTOC	Metres below top of casing
mg/kg	Milligrams per kilogram
mg/L	Milligrams per litre
mV	Millivolts

Executive Summary

Introduction

AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Defence (Defence) to implement the Ongoing Monitoring Plan (OMP) for monitoring of per- and poly-fluoroalkyl substances (PFAS) at Holsworthy Army Barracks (the 'Site') (**Figure F1** in **Appendix A**).

Objective

The overarching objective of implementing the OMP is to provide information on changes in the location and concentrations of PFAS on-Site, and at the Fire & Rescue NSW Liverpool Fire Station (LFS) and surrounds including the Management Area. The data is required to assist risk management decisions by Defence and State Government agencies to protect human health and the environment, where Defence's historical use of legacy Aqueous Film Forming Foam (AFFF) has led to an identified potentially elevated risk to a receptor, or potential future risk to a receptor.

Monitoring Scope

AECOM completed periodic monitoring of groundwater and surface water between December 2021 and September 2022 in accordance with the sampling and analysis quality plan (SAQP) developed by AECOM (2022a). This monitoring targeted PFAS, namely perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexanesulfonic acid (PFHxS), and included selected locations on-Site and in surrounding off-Site areas, including the Management Area.

Groundwater Results

Groundwater Flow Directions

Groundwater on the Site flows to the north to northwest in the Former 85 Transport Area and generally corresponding to the topography and flows to the northeast in the Cantonment and Driver Training Area and the Sewage Treatment Plant (STP). Groundwater flow at the LFS and surrounds is to the northeast. The flow directions are consistent with previous observations. Note that the groundwater elevation at the LFS and surrounds increased during the monitoring period, which corresponded with above average rainfall.

PFAS Concentrations

Monitoring results indicated that overall, the concentrations of PFAS in groundwater were generally similar to previous results, with the highest PFAS concentrations reported at monitoring wells in the vicinity of the LFS. New maximum PFAS concentrations were reported in two wells (MW117 and MW330) in the Former 85 Transport Area and eight wells (MW113, MW119, MW119P, MW130, MW131, MW133, MW134 and MW136) at the LFS and surrounds. First time detections were reported in one well (MW117) in the Former 85 Transport Area, one well (MW123) in the Cantonment and Driver Training Area and one well (MW136) in the area surrounding the LFS. New exceedances of drinking water criteria were reported in two wells (MW117 and MW330) in the Former 85 Transport Area and three wells (MW119P, MW130 and MW133) in the area surrounding the LFS.

These increased concentrations were considered to be potentially a result of the unprecedented heavy rainfall conditions observed over the monitoring period.

Surface Water Results

Concentrations of PFAS in surface water reported a new first-time detection at one location (SW011, near the STP), new exceedances of the adopted guidance at two locations (SW011, and SW059 near the LFS) and new historical maxima were reported at six locations (SW011, SW012, SW014, SW025, SW059 and SW063), with only two of these locations reporting new maxima that were above the applicable human health and/or ecological screening criteria (SW011 for PFOS and PFOS+PFHxS, and SW059 for PFOS); however, these concentrations were within the same order of magnitude to historical ranges, with the exception of SW011. The notable change in concentrations at SW011 in March 2022 may be associated with the Heathcote Road upgrade works. The PFAS concentrations at SW011 returned to historical ranges in the subsequent sampling event in September 2022.

What is an 'order of magnitude'?

This refers to something decreasing or increasing by multiples of ten. For instance, an increase from 10 to 100 is an order of magnitude increase. When assessing changes in PFAS concentrations at an individual location, all concentrations are considered when determining trends, but order of magnitude changes are discussed separately as they represent a significant change in concentrations from what was reported in the previous event.

If a change is close to established health or environmental criteria, it will also be considered significant.

Interpretive Assessment

Data collected during the monitoring period were compared to historical data for the included sampling locations.

PFAS concentrations within the on-Site and off-Site groundwater and surface water were similar to historical results or same order of magnitude to historical ranges.

PFAS concentrations in groundwater were the highest in the vicinity of LFS, with increases in PFAS concentrations in groundwater reported at three locations near the LFS. The increases are attributed to higher-than-average rainfall events experienced during the monitoring period, which has increased the groundwater levels resulting in longer contact with PFAS impacted soils.

Conceptual Site Model and Risk Summary

The Conceptual Site Model (CSM) was developed during the Detailed Site Investigation (DSI) (CH2M HILL, 2018) and is summarised in the OMP. The CSM described the links between PFAS sources, transport pathways, and possible exposure scenarios.

OMP monitoring between December 2021 and September 2022 has provided additional data to further understand the changing conditions of the PFAS concentrations in groundwater, and surface water.

While there have been localised increases in PFAS concentrations in groundwater and surface water, there is currently no evidence that the data presented in this report indicate that the PFAS sources, pathways and receptors and the understanding of the CSM have changed. Additionally, AECOM considers the overarching risk profile has not changed based on the current land use at the Site and surrounds, including the Management Area.

Conclusions

The sampling program completed in this monitoring period is considered to have been conducted in general accordance with the SAQP to monitor changes in the location and concentrations of PFAS. The following conclusions are based on the data collected during the monitoring period:

- Overall, the concentrations of PFAS in groundwater were generally similar to previous results. An increasing trend of PFAS concentrations was observed in two groundwater monitoring wells (MW119P and MW136) in the perched water and one well (MW119) in the deep alluvial aquifer located down-gradient of the LFS. The increase may be related to increased rainfall over the monitoring period which has increased the groundwater levels in this area resulting in longer contact with PFAS impacted soils. However, the overall risk profile remains unchanged given that there are no identified complete source>receptor>pathway linkages. In locations where new maximum concentrations were reported (MW113, MW117, MW119, MW119P, MW130, MW133,

MW134, MW136 and MW330), increases in PFAS concentrations had previously been observed, and new maximums remained within an order of magnitude of these historic maximum observations.

- PFAS concentrations in surface water were generally similar to historical results. Increases and new maximum concentrations that were reported remained within an order of magnitude of historical observations for the respective locations, with the exception of SW011 where a notable increase was reported in March 2022. It is likely that this increase may be associated with the Heathcote Road upgrade works. The PFAS concentrations at SW011 returned to historical ranges in the subsequent sampling event in September 2022.
- The CSM was reviewed, and no changes were identified to sources, pathways or receptors at the Site, LFS and surrounds.
- Based on the data no changes to the risk profile were identified.

Ongoing monitoring of groundwater and surface water as part of the OMP will continue, to monitor the nature and extent of PFAS, potential migration and any associated changes to the risk profile.

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Defence (Defence) to implement the per- and poly-fluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP) at the Australia Army Holsworthy Barracks (the 'Site') (**Figure F1** in **Appendix A**).

The monitoring targeted PFAS in groundwater and surface water at selected locations on-Site and at the Fire & Rescue NSW Liverpool Fire Station (LFS) and surrounds, including the Management Area.

In order to meet the objectives of the OMP (Defence, 2020a), the monitoring was undertaken in accordance with the *Sampling and Analysis Quality Plan* (SAQP) (AECOM, 2022a).

This report has been prepared in accordance with the *PFAS OMP Annual Interpretive Report Guidance* (Version 0.4) issued in October 2022 (Defence, 2022) based on monitoring data collected between October 2021 and September 2022 (the 'monitoring period').

1.1 Objective

The objective of the monitoring program set out in the OMP is to continue to assess changes in the nature and extent of PFAS within the environment, where Defence's historical use of legacy aqueous film forming foam (AFFF) has led to an identified potentially elevated risk to a receptor, or potential future risk to a receptor.

The assessment of changes in the distribution, concentration, and transport of the contaminants against appropriate guideline values provides an:

- evidence base for targeted and effective risk management decision making, for the purpose of protecting human health and environmental receptors.
- early warning that additional management of PFAS contamination may be warranted in areas not currently understood to be affected by PFAS.

The data will be evaluated to determine environmental variability and trends in PFAS concentrations. This will inform any change to risk profile and recommendations for triggers to review the OMP (Defence, 2020a) or the PFAS Management Area Plan (PMAP) (Defence, 2020b).

1.2 Scope

The scope of works for this interpretive report included assessing changes to the distribution of PFAS over the monitoring period (October 2021 and September 2022) and if these changes have implications for the understanding of the conceptual site model (CSM) and the risk profile with respect to PFAS impacts at the Site. The scope of work included the following sampling carried out at the on-Site and off-Site areas:

- quarterly groundwater and surface water sampling (December 2021)
- biannual groundwater and surface water sampling (March 2022)
- quarterly groundwater and surface water sampling (June 2022)
- biannual groundwater and surface water sampling (September 2022).

This included the evaluation of data reported in the following factual reports:

- *Sampling Event Factual Report, December 2021. PFAS OMP – Holsworthy Barracks.* 3 March 2022 (AECOM, 2022b)
- *Sampling Event Factual Report, March 2022. PFAS OMP – Holsworthy Barracks.* 24 June 2022 (AECOM, 2022c)
- *Sampling Event Factual Report, June 2022*. *PFAS OMP – Holsworthy Barracks*. 14 September 2022 (AECOM, 2022d)
- *Sampling Event Factual Report, September 2022*. *PFAS OMP – Holsworthy Barracks*. 6 December 2022 (AECOM, 2022e).

These reports are included in **Appendix F**. AECOM also compared data collected during this monitoring period (October 2021 and September 2022) to the historical data collected at the sampling locations.

2.0 Site Setting

2.1 Site Description

The Site identification and setting as presented in the Detailed Site Investigation (DSI) (CH2M HILL, 2018) and PMAP) (Defence, 2020b), and publicly available information are summarised in **Table 1** below.

Table 1 Site Identification and Setting Summary

Element	Description
Site ID	0382
Site Location	The Site is located approximately 25 km south west of Sydney. The Site is shown on **Figure F1** in **Appendix A**.
Regional Meteorology	The Bureau of Meteorology (BoM) Bankstown Airport weather station (number 066137), located approximately 5.8 km north west of the Site, has recorded data since 1968 and presents a record of approximately 53 years. Review of the BoM data (BoM, 2023) for the 12-month monitoring period at the closest weather station (Holsworthy Aerodrome [station 068263]) (October 2021 to September 2022) indicates the following: • Monthly mean maximum temperatures varied between 16.3°C (July 2021) and 27.7°C (January 2021). The average monthly mean maximum across the 12-month monitoring period was 22.3°C. • Historically (1968 to 2023) the driest month has been September (averaging 44.5 mm rainfall across the month), and the wettest month has been March (averaging 113.5 mm rainfall across the month). • A total of 2407.2 mm of rainfall was recorded in the monitoring period, with June 2022 being the driest month (5.8 mm), and July 2022 being the wettest month (597 mm)[1]. • During the monitoring period, March 2022 recorded over four times the average monthly rainfall (522.2 mm compared to historical average 113.5 mm) and July 2022 over 12 times the average monthly rainfall (597 mm compared to historical average of 48.4 mm).These conditions are discussed further in **Section 6.3**.
Topography and Hydrology	Holsworthy and the surrounding area are characterised by variable terrain, with topography ranging from gently undulating crests, ridges and plateaus (relief between 10 and 40 m and slopes <10%) to rugged, steep hills (relief between 100 and 200 m and slopes >50%. Ground surface elevations are highest to the south of the range areas, at over 300 m Australian Height Datum (m AHD), and generally decline towards the north, where they are typically less than 10 m AHD (Defence, 2020b). The geology of the Site and surrounding area comprises alluvium overlaid by Hawksbury sandstone or Ashfield shale (Defence, 2020b). Previous investigations have identified the following water bearing zones: • Shallow perched groundwater within fill material/residual soils, and alluvial soils. • Deeper groundwater in alluvial soil, sandstone or shale (Defence 2020b).

[1] Daily rainfall data from Holsworthy Aerodrome (Station ID 068263) (historical data not available for this station)

Element	Description
	The Site is located within the Upper Georges River Catchment. The Georges River flows in a northerly direction towards Liverpool and then easterly before discharging into Botany Bay. The Georges River receives flow from several tributaries draining the Site including: • Harris Creek • Williams Creek • Deadmans Creek • Complete Creek • Anzac Creek. Holsworthy has an extensive stormwater drainage system, with most of the infrastructure in the main barracks area (Defence, 2020b). Site plans indicate that the stormwater drains discharge to either unsealed (e.g. grass, dirt) regions of the Site, to settling ponds, or to creek lines. The ultimate discharge of stormwater from most developed areas of Holsworthy is to Harris or Williams Creeks, except for the north west portion of the Site (including the former 85 Transport area) where surface water run-off is expected to reach the upper portion of Anzac Creek. The DSI (CH2M HILL, 2018) noted that overland flow from the southern part of the Former 85 Transport area (Old Pass Office Area) was uncertain but was inferred to flow towards the Georges River in the west and to Anzac Creek in the north. Additional desktop assessment and site observations during significant rain events by Jacobs as part of the Holsworthy PFAS Mass Flux Study SAQP development confirmed that overland flow from this area drains north, along the eastern side of Moorebank Avenue to Anzac Creek. No overland flow to Georges Creek from this area was observed. Overland flow in the undeveloped area in the southern portion of Holsworthy would drain to Deadmans Creek located approximately 5.7 km to the north west of the Site.
Geology and Hydrogeology	The Site is variably mapped as Triassic age Hawkesbury Sandstone, the Wianamatta Group, Mittagong Formation and Quaternary and Tertiary age alluvium. The Hawkesbury Sandstone is the dominant geology of the Site and surrounding area. There are remnants of Wianamatta Group Ashfield Shale at the Site, and the Mittagong Formation has not been encountered at the Site. The Hawkesbury sandstone aquifers of the Hawkesbury Sandstone are generally unconfined to semi-confined. The shales of the Wianamatta Group overlie the Hawkesbury Sandstone and have largely been eroded away with some significant outcrops remaining in parts of the Site. Groundwater within the Wianamatta Group is typically brackish to saline and are generally considered aquitards. Groundwater movement in the bedrock aquifer is governed by fractures. The Moorebank area where the LFS is located is mainly underlain by Quaternary alluvial sediments which also extend into the northern portion of the Site including the STP. The alluvium variably comprises fluvial sand, silt and clay. During the DSI, the depth to the top of the weathered bedrock was reported to be typically > 1 metres below ground surface (m bgs). Groundwater conditions and flow direction for areas of the Site and surrounding areas are summarised below:

Element	Description
	• Luscombe Airfield – mainly Hawkesbury Sandstone bedrock aquifer at a depth of 4 to 28 m bgs and a localised shallow perched groundwater in fill and an overall northerly groundwater flow direction. • Cantonment Area - mainly Hawkesbury Sandstone bedrock aquifer at a depth of 1.1 to 15 m bgs and a localised shallow perched groundwater in fill and an overall northerly groundwater flow direction. • Former STP – shallow alluvial aquifer at a depth of 1.6 to 4.7 m bgs and an overall northerly groundwater flow direction. The bedrock aquifer has not been characterised in this area. • Western Holsworthy (west of Harris Creek) – two formations including a discontinuous perched groundwater in alluvium at depths from 1.0 to 5.9 m bgs and Ashfield Shale aquifer at depths from 3.8 to 15 m bgs, and a bedrock aquifer primarily within Hawkesbury Sandstone (at depths from 3.8 to 15 m bgs), and also within Ashfield Shale (at depths from 2.5 to 7 m bgs). Groundwater flow direction is overall in a north westerly direction. • Liverpool Fire Station – two formations including a shallow perched waterbody (localised and discontinuous) found close to Anzac Road and an associated open drainage line, with a depth to groundwater ranging from 2.3 m bgs to 4.1 m bgs, and a deeper alluvial aquifer/aquitard (within a clayey alluvial deposit) at a depth of 2.3 m bgs to 7.1 m bgs. The bedrock aquifer has not been characterised in this area.
Vegetation	The Human Health and Ecological Risk Assessment (HHERA) Report (CH2M HILL, 2020) included a review of previous flora studies which identified the following: • Vegetation communities within the Site and immediate surrounds are: - Shale Plains Woodland - Shale/Gravel Transition Forest - Castlereagh Scribbly Gum Woodland - Upper Georges River Sandstone Woodland • 10 threatened ecological communities were listed within a 10 km radius of the Site under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Search Tool (PMST) • 16 areas of ecological constraint with a potentially 'high' risk rating exist within the Site. Flora with high ecological constraint were: a. Nodding geeburg (*Persoonia nutans)* - *Allocasuarina glareicola.*
Land Uses Surrounding the Site	• Holsworthy Barracks: a mixture of Industrial land uses and low and medium density residential properties to the north and west. Heathcote National Park is located to the south of Holsworthy Barracks and forms the southern section of the eastern boundary. • LFS: is bounded by residential dwellings to the east and north, Moorebank Business Park to the west and Defence Joint Unit East facility to the south. The projected land use in the area is not anticipated to materially change within the next 5 years.

2.2 Management Area

The Management Area comprises on-Site and off-Site areas where the PFAS sources were identified. Further details of the PFAS source areas are provided in **Section 2.3**. The Management Area is shown on **Figure F1** in **Appendix A**.

2.3 PFAS Source Areas

The PMAP (Defence, 2020b) provides a roadmap for response management by Defence of potential risks arising from PFAS contamination associated with the Site and surrounding areas. PFAS can travel from a source to human or environmental receptors by surface water and groundwater, these are referred to as ‘migration pathways’.

The PMAP (Defence, 2020b) identified the following locations as PFAS source areas:

- **On-Site areas**
  - Former 85 Transport Area
  - Former Luscombe Sewage Disposal Area
  - Luscombe Airfield Runway
  - Former STP Area
- **Off-Site areas**
  - LFS and surrounding area.

The figure (*Figure 4: PFAS Source Areas*) from PMAP (Defence, 2020b) showing the key areas of concern and potential PFAS sources is provided in **Appendix D**.

3.0 Sampling and Analytical Methodology

3.1 Sampling Methodology

The SAQP (AECOM, 2022a) outlines the proposed schedule and rationale for sampling, prescribing annual groundwater and six-monthly surface water sampling at the Site and Management Area, and provides the list of groundwater monitoring wells and surface water locations sampled during each sampling event, along with the sampling methodology for each of the media.

The current SAQP has been included in **Appendix E.**

A summary of the OMP monitoring events completed in general accordance with the SAQP between December 2021 and September 2022, is provided in **Table 2**.

Table 2 Summary of Monitoring Events

Monitoring Event (Sampling dates)	Scope as per SAQP	Samples Collected	Analysis
December 2021 (Quarterly sampling)	**Off-Site**		
	12 GW samples	11 GW samples	PFAS extended suite (standard level)
	3 SW samples	3 SW samples	
March 2022 (Biannual sampling)	**On-Site**		
	12 GW samples	11 GW samples	PFAS extended suite (standard level)
	5 SW samples	5 SW samples	
	Off-Site		
	12 GW samples	11 GW samples	PFAS extended suite (standard level)
	12 SW samples	12 SW samples	
June 2022 (Quarterly sampling)	**Off-Site**		
	12 GW samples	12 GW samples	PFAS extended suite (standard level)
	3 SW samples	3 SW samples	
September 2022 (Biannual sampling)	**On-Site**		
	12 GW samples	12 GW samples	PFAS extended suite (standard level)
	5 SW samples	4 SW samples	
	Off-Site		
	12 GW samples	12 GW samples	PFAS extended suite (standard level)
	12 SW samples	12 SW samples	

Notes: GW = groundwater, SW = surface water

Some locations could not be sampled during the sampling events. Impediments and changes to the proposed sampling locations encountered are detailed in **Section 3.2**, below.

3.2 Deviations from SAQP

Deviations from the scope outlined in SAQP for the monitoring period are summarised in **Table 3** below.

Table 3 Deviations from SAQP during the monitoring period

SAQP Requirement	Sampling Event Deviation	Impact of deviation on data set
Quarterly Sampling Event – December 2021		
12 groundwater locations are identified to be sampled as part of the quarterly sampling event	Groundwater monitoring well MW134 was noted to be dry during this event and could not be sampled.	Given the purpose of gauging and sampling of MW134 was to assess the presence of perched water and/or PFAS impacts at this location, the absence of water during this sampling event still provides meaningful data to assist in refining the CSM.
Groundwater samples are to be collected using HydraSleeves™ deployed prior to the sampling event	The groundwater sample at monitoring well MW133 was collected using a dedicated disposable bailer as there was insufficient water present in the well for the HydraSleeve™ to deploy.	The change in sampling methodology is not considered to impact the reliability of the data given that the concentrations of PFAS reported during this round were within the same order of magnitude of previous results.
Biannual Sampling Event – March 2022		
24 groundwater locations are identified to be sampled as part of the biannual sampling event	Groundwater monitoring well MW134 was observed to be dry during this event and therefore no samples were collected.	Given the purpose of gauging and sampling of MW134 was to assess the presence of perched water and/or PFAS impacts at this location, the absence of water during this sampling event still provides meaningful data to assist in refining the CSM.
	Groundwater monitoring well MW122 could not be accessed during this event, as one of the access roads to the location was fenced off due to civil infrastructure works and the other access road was flooded, and therefore the location could not be sampled.	The purpose of gauging and sampling MW122 was to monitor PFAS concentrations in groundwater along the northern boundary of the Site. The lack of sampling data at this location does not allow for the evaluation of potential changes in PFAS concentrations since the March 2021 sampling event (the location was inaccessible also during the September 2021 sampling event). Although MW122 was not sampled during this event, this location was sampled previously during the DSI (CH2M Hill, 2018) in March 2018, and under the OMP in October 2020 and in March 2021 (refer to Table T4 in Appendix B). Note that concentrations of PFAS were below the laboratory LOR during each of the previous sampling events at MW122.

SAQP Requirement	Sampling Event Deviation	Impact of deviation on data set
Quarterly Sampling Event – June 2022		
No deviations reported.		
Biannual Sampling Event – September 2022		
17 surface water sample locations are identified to be sampled as part of the biannual sampling event	Surface water location SW030 was not accessible and could not be sampled due to active military dog training exercise taking place in the area, over the period of the sampling event.	The lack of sampling data from SW030 is not considered to have a significant impact on the existing data or present a significant data gap, given representative samples from downstream locations were collected. It is understood that the water in drains at sample locations SW030 and SW038 flow from the Luscombe Airfield area and discharge into Williams Creek. Note that Williams Creek is sampled at the point of exit from the Site, at SW009. Both SW009 and SW038 were sampled during this sampling event.
	Due to bank instability and access conditions at surface water location SW014, geochemical parameters were unable to be collected.	The lack of geochemical parameters at this location is not considered to have a significant impact on the outcomes of the OMP, as geochemical parameters are not critical to the assessment and interpretation of PFAS concentrations at the location.

4.0 Quality Assurance and Quality Control

Data validation pertaining to the data in this report has been previously completed and discussed within the individual factual reports listed in **Section 1.2**.

Data validation procedures employed in the assessment of the field and laboratory Quality Assurance and Quality Control (QA/QC) data, completed as per Section 3.2 of the SAQP (AECOM, 2023d), indicated that the reported analytical results are representative of the sample locations and that the overall quality of the analytical data produced is acceptably reliable (i.e. >95% of the data was suitable for use and DQIs passed acceptance criteria) for the purpose of the factual reports and this OMR.

All data collected during the monitoring period had been reviewed and uploaded to the Defence ESdat database in accordance with the Defence Contamination Management Manual (DCMM) requirements.

5.0 Assessment Criteria

Adopted screening criteria references national guidance in the form of PFAS National Environmental Management Plan (NEMP) (Heads of Environment Protection Authority Australia and New Zealand [HEPA], 2000), Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance. At the time of preparing this report, a number of guidance documents were available in Australia including:

- Heads of EPA (HEPA) Australia and New Zealand, 2020. PFAS National Environmental Management Plan (NEMP) Version 2.0. January 2020.
- Department of Health (DoH), 2017. Health Based Guidance Values for PFAS for use in site investigations in Australia. April 2017. This document is based on the works undertaken by Food Standards Australia New Zealand (FSANZ) in 2017 (FSANZ 2017).
- National Health and Medical Research Council (NHMRC), 2019. Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water. August 2019.
- National Environment Protection Council (NEPC), 2013. National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM) Schedule B1, 1999 as amended in 2013.

The adopted PFAS screening criteria to assess the surface water and groundwater data generated as part of the monitoring are presented in **Table 4** (Human Health) and **Table 5** (Ecological).

Table 4 PFAS Criteria Summary: Human Health

Media	Pathway	Compound	Criteria	Comment / Reference
Water – groundwater	Drinking water	PFOS+PFHxS	0.07 µg/L	The values presented in the PFAS NEMP (2020) are from the DoH (2017), which published final health-based guidance values for PFAS for use in site investigations in Australia. DoH utilised the Tolerable Daily Intake (TDI) for PFOS and PFOA from Food Standards Australia New Zealand (FSANZ) (2017) and the methodology described in Chapter 6.3.3 of the National Health and Medical Research Council's (NHMRC) Australian Drinking Water Guidelines (ADWG) (2022) to determine drinking water values. For PFHxS, DoH (2017) noted that '*FSANZ concluded that there was not enough toxicological and epidemiological information to justify establishing a tolerable daily intake. However, as a precaution, and for the purposes of site investigations, the PFOS tolerable daily intake should apply to PFHxS. In practice, this means that the level of PFHxS exposure should be added to the level of PFOS exposure; and this combined level be compared to the tolerable daily intake for PFOS*'. *All groundwater results were compared to these criteria.*
		PFOA	0.56 µg/L	

Media	Pathway	Compound	Criteria	Comment / Reference
Water – surface water	Recreational use	PFOS+PFHxS	2 µg/L	In August 2019, NHMRC released guidance on the assessment of PFAS in surface water. Rather than adopting an ingestion rate of 0.2 L of water per day (as per the ADWG formula), NHMRC adjusted this rate with consideration of an event frequency (150 events/year) to calculate an annual ingestion rate of 30 L per year. These values were adopted by the HEPA NEMP 2.0 (2020).
		PFOA	10 µg/L	*All surface water results were compared to these criteria.*

Table 5 PFAS Criteria Summary: Ecological

Media	Pathway	Chemical	Criteria	Comment/Reference
Water – surface water and groundwater	Freshwater	PFOS	0.13 µg/L	The values are from the PFAS NEMP (2020) which endorsed the Australian and New Zealand Guidelines for Fresh and Marine Water Quality. The 95% species protection level (for freshwater and interim marine) has been applied for slightly to moderately disturbed systems. *All groundwater and surface water results were compared to these criteria.*
		PFOA	220 µg/L	

It is noted that for the purpose of presenting data within this report AECOM has focused on PFOA, PFOS and PFOS+PFHxS i.e., those PFAS for which there is either human health and/or ecological screening criteria.

6.0 Contextual and Ancillary Information

6.1 PFAS Projects

The following is a summary of works completed during the monitoring period which was provided by Defence's Lead Consultant (LC), Jacobs Group Pty Ltd (Jacobs).

6.1.1 Additional Analytical Data

The LC advised that limited additional analytical data was collected during the current monitoring period, which would not alter any interpretations made within this report.

6.1.2 PFAS Remediation Projects

The LC advised that no remediation works were undertaken at the Site during the monitoring period.

6.2 Infrastructure Projects

The LC noted that the Heathcote Road upgrade works had commenced off-Site.

AECOM reviewed publicly available information from the Transport for NSW Heathcote Road project website, and the relevant information is summarised below:

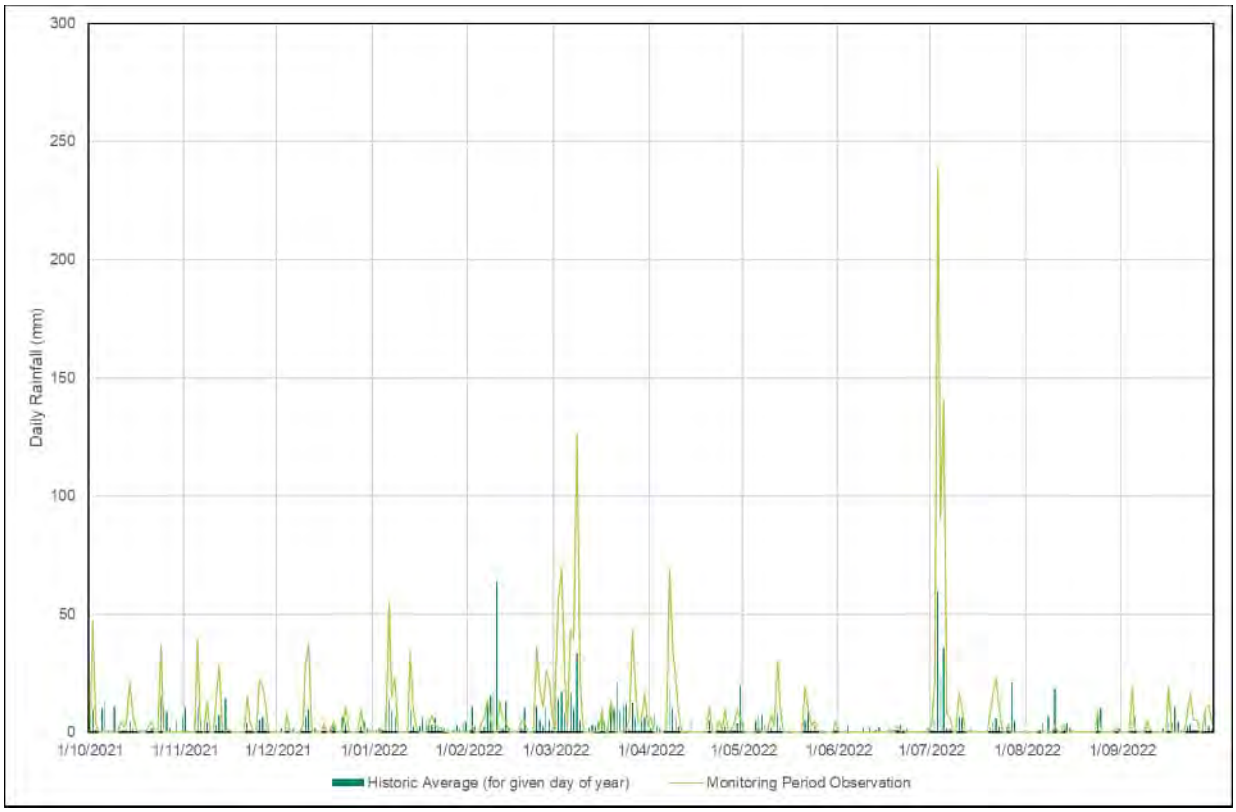
- The works are described in the Heathcote Road Upgrade Infantry Parade to The Avenue, Review of environmental factors (REF) (WSP, 2016) and major earth works commenced in late 2021.
- The works include widening the existing road from two to four lanes, building new and replacing existing bridges at Harris Creek, Williams Creek and the T2 Airport Railway Line (the upgrade design is shown on WSP [2016] Figure 1-2 and is included in **Appendix D**).
- The works will cause temporary disturbance of sediment within Harris Creek, Williams Creek and the drainage line running along Heathcote Road, and also have surface water releases from construction stormwater detention basins.
- An Environmental Protection Licence (EPL) has been issued to the Heathcote Road construction contractor (EPL 21505). The EPL requires monthly discharge monitoring for PFHxS, PFOS, PFOA, pH and turbidity from construction retention basins. Discharge locations are at Harris Creek (next to and downstream of Heathcote Road) and Williams Creek (next to and downgradient of Heathcote Road). Discharges are permitted when rainfall at the premises exceeds a total of 32.2 mm over a five-day period. Discharge limits are reported as 6.5 to 8.5 for pH and 50 nephelometric 50 turbidity units (NTU) for turbidity.
- Soil, sediment and surface water investigations were undertaken as part of an addendum to the REF in 2019 by HAZMAT Services Pty Ltd (HAZMAT, 2019). The following were reported:
    - Detectable concentrations of PFAS in sediment/soil samples were reported in 17 out of 20 primary samples, with PFOS+PFHxS results ranging between 0.2 and 9.7 µg/kg.
    - Concentrations of PFAS were detected above the laboratory limit of reporting (LOR) in a sample collected from a stormwater retention pond located on the west side of the Alec Campbell Drive entrance to the Site, with PFOS+PFHxS at 0.18 µg/L.

OMP sampling location SW009 is located immediately downstream of the roadworks, with SW011 further downstream approximately 750 m from the Heathcote Road.

6.3 Significant Weather Events

The data for the reporting period is presented against historical ranges on record from the BOM monitoring station located at Holsworthy Aerodrome (Station ID 068263) since the weather station opened in 2019 in **Figure 1** below.

Figure 1 Recorded Rainfall (Monitoring Period) Against Historic Average



As noted in **Table 1** in **Section 2.1** the annual rainfall at the Site was 2407.2 mm for the monitoring period, compared to 884.8 mm per annum average for the nearest monitoring station with historical rainfall data (Bankstown Airport [site number 066137] located 6.6 km away from the Site). Rainfall in the monitoring period was significantly higher than average, following a series of significant rainfall events with the largest occurring in March 2022 and July 2022.

Historically, the Site is wettest in March and driest in September. During the monitoring period, March recorded over four times the average monthly rainfall (522.2 mm compared to historical average 113.5 mm) and July over 12 times the average monthly rainfall (597 mm compared to historical average of 48.4 mm).

Additionally, the SAQP defines an extreme or high rainfall event as a cumulative rainfall total of greater than 40 mm within a single 24-hour period. There was a total of 41 wet weather events, which included 11 extreme rainfall events recorded within the monitoring period.

The rainfall activity during the sampling events over the monitoring period for BOM monitoring station (Station ID 068263) and the occurrence of wet weather events (days with rainfall > 15 mm) are summarised in **Table 6**.

Table 6 Rainfall during sampling events

Sampling Event and Date	Recorded rainfall (mm) (BOM, 2023) during sampling days	Wet weather events during the monitoring period (days with rainfall >15 mm)
December 2021 Quarterly Sampling Event (6 December 2021)	0 mm	8 events (recorded between 8 September and 6 December 2021).
March 2022 Biannual Sampling Event (21 to 23 March 2022)	0 mm	17 events (recorded between December 7 and 23 March 2022)
June 2022 Quarterly Sampling Event	0.2 mm	8 events (recorded between 24 March and 15 June 2022)

Sampling Event and Date	Recorded rainfall (mm) (BOM, 2023) during sampling days	Wet weather events during the monitoring period (days with rainfall >15 mm)
(15 June 2022)		
September 2022 Biannual Sampling Event (5 to 7 September 2022)	1.8 mm	8 events (recorded between 15 June and 7 September 2022)

7.0 Monitoring Data Summary

As part of the OMP, the following four scheduled monitoring events were completed by AECOM over the monitoring period:

- 6 December 2021 (December 2021, AECOM, 2022b)
- 21 to 23 March 2022 (March 2022, AECOM, 2022c)
- 15 June 2022 (June 2022, AECOM, 2022d)
- 5 to 7 September 2022 (September 2022, AECOM 2022e).

The groundwater and surface water sample locations are shown on **Figure F2** in **Appendix A**. Results are summarised in following sections and on **Figure F3** to **Figure F10** in **Appendix A**. Groundwater elevations are shown on **Figure F19** to **Figure F22** in **Appendix A**.

The monitoring and analytical results are provided in **Tables T1** to **T5** in **Appendix B**.

In addition to the OMP data, AECOM also considered the historical data for the Management Area and surrounds that are available in the Defence database.

7.1 Groundwater Results

7.1.1 Groundwater Field Observations

Groundwater field observations from the monitoring period are provided in **Table T1** in **Appendix B** and are summarised below.

- Groundwater colour ranged from colourless, light brown, light yellow, brown/orange, brown to dark grey.
- Turbidity was clear or low except for the following:
  - MW002: high turbidity (September 2022)
  - MW120: medium turbidity (March 2022)
  - MW130: medium turbidity (June and September 2022)
  - MW134: high turbidity (June and September 2022)
  - MW136: medium (December 2021 and June 2022) and high turbidity (September 2021 and March 2022)
  - MW301: medium (March 2022), high turbidity (September 2022)
  - MW330: medium turbidity (March 2022)
- Suspended solids were observed in:
  - MW113 and MW119P (December 2021) (orange)
  - MW131 (December 2021) (orange/brown)
  - MW133 (December 2021 and June 2022) (black)
  - MW002 (September 2022)
- Dark orange staining was observed on the HydraSleeve™ of MW129 (September 2022)
- Odours described as either hydrogen sulphur or sulphide were recorded for:
  - MW136 (December, March, June and September 2022)
  - MW134 (June 2022)
- An organic odour was recorded for MW002 and MW005 (March 2022).
- No sheen was recorded in any of the wells sampled.

Wells were observed to be in good condition except for:

- MW002 had no monument (September 2022)
- MW005 was on an angle, had no monument, no J-cap or HydraSleeve™'
- MW112 had been flooded above the gatic in March 2022
- Sediment was noted at the base of wells MW113 (March 2022), MW119 (September 2022), MW121 (March and September 2022), MW130 (September 2022)
- MW124 contained an ant's nest (September 2022)
- MW301 had no J-cap or monument (September 2022),

7.1.2 Groundwater Elevations

The standing water level (SWL) was measured in all monitoring wells, prior to sampling, to evaluate the groundwater elevations (GWE). The SWL and GWE from the four events during the monitoring period are presented in **Table T1** in **Appendix B** and summarised by source area and areas of interest in **Table 7** for each aquifer. Monitoring wells that are gauged and sampled as part of the OMP are screened in the following aquifers:

- Shallow alluvial aquifer (wells in the STP Area: MW002, MW005 and MW301.
- Deep alluvial aquifer (some wells in the LFS area: MW112, MW113, MW115, MW119, MW129, MW130, MW131)
- Bedrock aquifer (wells in Cantonment and Driver Training Area: MW120, MW121, MW122, MW123, MW124, MW323, MW349; and wells in the Former Transport 85 Area: MW117 and MW330).

Perched water is also present in the LFS area: MW112P, MW119P, MW133, MW134 and MW136.

Table 7 Summary of groundwater elevations

Gauging Event	No. Wells	Min. SWL (mbTOC)	Max. SWL (mbTOC)	Min. GWE (mAHD)	Max. GWE (mAHD)
Cantonment and Driver Training Area – Bedrock Aquifer					
March 2022	6*	0.411 (MW123)	8.647 (MW323)	3.268 (MW124)	27.733 (MW323)
September 2022	7	1.184 (MW123)	8.474 (MW323)	2.884 (MW124)	27.906 (MW323)
Former 85 Transport Area – Bedrock Aquifer					
March 2022	2	5.905 (MW330)	14.431 (MW117)	3.699 (MW117)	23.625 (MW330)
September 2022	2	5.624 (MW330)	14.048 (MW117)	4.082 (MW117)	23.906 (MW330)
Former STP Area – Shallow Alluvial Aquifer					
March 2022	3	0.871 (MW301)	1.830 (MW005)	1.327 (MW005)	2.512 (MW301)
September 2022	3	1.151 (MW301)	1.801 (MW005)	1.356 (MW005)	2.232 (MW301)
Liverpool Fire Station and Surrounds – Deep Alluvial Aquifer					
December 2021	7	1.721 (MW129)	5.732 (MW115)	7.537 (MW131)	8.348 (MW115)
March 2022	7	1.242 (MW129)	5.140 (MW115)	7.769 (MW131)	8.940 (MW115)
June 2022	7	1.138 (MW129)	4.874 (MW115)	8.388 (MW129)	9.206 (MW115)
September 2022	7	1.021 (MW129)	4.637 (MW115)	8.505 (MW129)	9.443 (MW115)

Gauging Event	No. Wells	Min. SWL (mbTOC)	Max. SWL (mbTOC)	Min. GWE (mAHD)	Max. GWE (mAHD)
Liverpool Fire Station and surrounds – Perched Water					
December 2021	5	2.215 (MW112P)	4.900 (MW134)	7.880 (MW119P)	11.215 (MW112P)
March 2022	5	1.752 (MW112P)	4.900 (MW134)	8.310 (MW134)	11.678 (MW112P)
June 2022	5	1.930 (MW112P)	3.436 (MW134)	8.696 (MW119P)	11.500 (MW112P)
September 2022	5	1.821 (MW112P)	3.464 (MW134)	8.973 (MW119P)	11.609 (MW112P)

Note: mAHD = metres relative to Australian Height datum, mbTOC = metres below Top of Casing

Min = Minimum, Max = Maximum

*No SWL data is available for MW122 during the March 2022 event as the well was not accessible.

Groundwater depths for the monitoring period were generally consistent with the previous 12-month monitoring period with the exception of increased groundwater elevation in the perched water wells and deep alluvial wells in the LFS and surrounds (refer to **Section 8.1**).

7.1.3 Trend Groundwater Flow Direction

Based on the SWL and survey data, the interpreted potentiometric contours for the December 2021 to September 2022 monitoring events are presented on **Figure F19**, **Figure F20** series, **Figure F21** and **Figure F22** series, in **Appendix A**. These figures provide groundwater elevation contours and inferred groundwater flow direction for the bedrock aquifer, and the deep alluvial aquifer, and inferred groundwater flow direction for the shallow alluvial aquifer. No elevation contours are presented for the perched water around the LFS due to the discontinuous nature of the perched water in that area. The contours are generally similar to the DSI (CH2M Hill, 2018) with inferred groundwater flow direction:

- to the north to northwest in the Former 85 Transport Area and generally corresponding to the topography
- to the northeast in the Cantonment and Driver Training Area and the LFS.

7.1.4 Groundwater Quality Parameters

Groundwater quality parameters were measured during the collection of groundwater samples. The stabilised readings of groundwater quality parameters from the four sampling events during the monitoring period are presented in **Table T2** in **Appendix B** and summarised below in **Table 8** for each source area and area of interest.

The readings presented in **Table 8** indicate:

- Poorly to moderately oxygenated conditions
- Fresh to brackish groundwater conditions
- Acidic to neutral conditions
- Mildly reducing to oxidising conditions.

Table 8 Summary of groundwater quality parameters

Sampling Event	Dissolved Oxygen (mg/L)		Temperature (°C)		Electrical Conductivity (µS/cm)		pH (pH units)		Reduction-Oxidation Potential, Corrected (mV)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Cantonment and Driver Training Area										
March 2022	0.75 (MW123)	2.59 (MW124)	20.5 (multiple)	23.8 (MW123)	740.0 (MW121)	9,147 (MW323)	5.65 (MW124)	6.45 (MW323)	116.5 (MW349)	302.9 (MW124)
September 2022	1.22 (MW123)	4.26 (MW122)	14.5 (MW123)	18.7 (MW323)	375.1 (MW122)	8,155 (MW323)	5.41 (MW349)	6.49 (MW120)	197 (MW120)	380.8 (MW122)
Former 85 Transport Area										
March 2022	0.04 (MW117)	2.39 (MW330)	18.6 (MW117)	24.5 (MW330)	1,116 (MW117)	4,549 (MW330)	4.12 (MW330)	5.35 (MW117)	299.0 (MW117)	488.8 (MW330)
September 2022	1.42 (MW117)	3.85 (MW330)	18.0 (MW117)	19.0 (MW330)	634.0 (MW117)	4,613 (MW330)	4.82 (MW330)	5.26 (MW117)	388.3 (MW117)	443.5 (MW330)
Former STP Area										
March 2022	0.80 (MW002)	1.54 (MW301)	20.8 (MW002)	21.9 (MW301)	295.9 (MW002)	3,813 (MW005)	6.13 (MW005)	6.24 (MW301)	90.7 (MW002)	217.5 (MW301)
September 2022	0.62 (MW301)	2.13 (MW005)	14.5 (MW005)	14.7 (MW301)	272.0 (MW002)	2,378 (MW005)	6.08 (MW002)	6.14 (MW301)	165.8 (MW005)	253.7 (MW301)
Liverpool Fire Station and surrounds – Deep Alluvial Aquifer										
December 2021	1.58 (MW112)	4.08 (MW119)	18.7 (MW119)	21.0 (MW130)	248.9 (MW113)	3,046 (MW112)	4.81 (MW113)	6.43 (MW119)	147.3 (MW131)	358.4 (MW130)
March 2022	1.13 (MW131)	4.56 (MW115)	21.0 (MW113)	22.6 (MW129)	280.3 (MW113)	2,586 (MW129)	5.07 (MW115)	6.89 (MW131)	46.7 (MW130)	343.3 (MW115)
June 2022	0.00 (MW130)	3.35 (MW119)	17.4 (MW129)	20.8 (MW115)	280.3 (MW113)	3,257 (MW129)	5.45 (multiple)	6.81 (MW119)	127.6 (MW131)	280.3 (MW119)
September 2022	1.61 (MW113)	4.89 (MW119)	16.8 (MW129)	24.2 (MW112)	192.7 (MW113)	1,685 (MW129)	4.26 (MW130)	7.11 (MW119)	338.2 (MW115)	386.3 (MW129)

Sampling Event	Dissolved Oxygen (mg/L)		Temperature (°C)		Electrical Conductivity (µS/cm)		pH (pH units)		Reduction-Oxidation Potential, Corrected (mV)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Liverpool Fire Station and surrounds – Perched Water										
December 2021	1.16 (MW112P)	4.52 (MW119P)	18.5 (MW119P)	22.0 (MW133)	418.9 (MW112P)	3,386 (MW136)	4.87 (MW112P)	6.53 (MW133)	82.6 (MW133)	353.5 (MW119P)
March 2022	1.49 (MW136)	4.11 (MW112P)	22.7 (MW136)	23.4 (multiple)	133.2 (MW112P)	991.0 (MW119P)	4.93 (MW119P)	6.54 (MW136)	-28.3 (MW136)	326.0 (MW119P)
June 2022	0.30 (MW136)	3.51 (MW119P)	17.5 (MW112P)	21.8 (MW134)	284.0 (MW112P)	1,028 (MW119P)	5.12 (MW112P)	6.37 (MW134)	64.3 (MW136)	316.4 (MW119P)
September 2022	0.78 (MW136)	3.62 (MW119P)	16.7 (MW119P)	19.9 (MW133)	213.8 (MW133)	611.0 (MW119P)	4.46 (MW119P)	6.07 (MW136)	170.8 (MW136)	436.1 (MW119P)

7.1.5 Groundwater Analytical Results

Groundwater analytical results from the monitoring period as well as relevant historical groundwater analytical results are presented in **Table T3** in **Appendix B**. Groundwater results from the monitoring period are presented spatially on **Figure F3** to **Figure F10** in **Appendix A**.

The monitoring activities are summarised in the OMP Sampling Event Factual Reports provided in **Appendix F**. The interpretive assessment of the groundwater analytical results is discussed in **Section 8.3** and **Section 8.4**.

Additionally, historical groundwater concentrations of PFOS+PFHxS and PFOA have been displayed graphically on temporal trend graphs, by PFAS source area and areas of interest, in **Appendix C** for the areas and locations in **Table 9**, below.

Table 9 Temporal trend graphs of groundwater locations

Graph ID	Source Areas and Areas of Interest	Groundwater locations
G1, G2	Cantonment and Driver Training Area	MW120, MW121, MW122, MW123, MW124, MW323, MW349
G3, G4	Former 85 Transport Area	MW117, MW330
G5, G6	Former STP Area	MW002, MW005, MW301
G7, G8	Liverpool Fire Station - Perched Water	MW112P, MW119P, MW133, MW134, MW136
G9, G10	Liverpool Fire Station - Deep Alluvial Aquifer	MW112, MW113, MW115, MW119, MW129, MW130, MW131

A summary of groundwater results from the monitoring period is provided in **Table 10** (bedrock and deep alluvial aquifers) and **Table 11** (perched water and deep alluvial aquifer) for locations within each source area and area of interest.

Deviations from the historical dataset for groundwater are summarised in **Table 12** to **Table 16**.

Table 10 Summary of PFOA, PFOS and PFOS+PFHxS Concentrations in Groundwater: bedrock and deep alluvial aquifers

Sampling Event	No. of Samples[1]	Compound	Concentration Range (µg/L) in Sampling Event	No. of Samples[1] with Concentration > LOR	No. of Samples[1] with Exceedances of Human Health Criteria	No. of Samples[1] with Exceedances of Ecological Criteria
Cantonment and Driver Training Area						
March 2022	6 Primary, 3 QC	PFOA	<LOR (multiple)	0	0	0
		PFOS	<LOR (multiple) to 0.03 µg/L (MW349)	2	NA	0
		PFHxS+PFOS	<LOR (multiple) to 0.09 µg/L (MW349)	2	2	NA
September 2022	7 Primary	PFOA	<LOR (multiple)	0	0	0
		PFOS	<LOR (multiple) to 0.05 µg/L (MW349)	2	NA	0
		PFHxS+PFOS	<LOR (multiple) to 0.36 µg/L (MW349)	2	1	NA
Former 85 Transport Area						
March 2022	2 Primary, 1 QC	PFOA	<LOR (MW117) to 3.9 µg/L (MW330)	2	2	0
		PFOS	0.14 µg/L (MW117) to 4.2 µg/L (MW330)	3	NA	3
		PFHxS+PFOS	0.19 µg/L (MW117) to 67 µg/L (MW330)	3	3	NA
September 2022	2 Primary	PFOA	0.04 µg/L (MW117) to 3.24 µg/L (MW330)	2	1	0
		PFOS	1.47 µg/L (MW117) to 10.3 µg/L (MW330)	2	NA	2
		PFHxS+PFOS	1.95 µg/L (MW117) to 37.1 µg/L (MW330)	2	2	NA
Liverpool Fire Station and surrounds - Deep Alluvial Aquifer						
December 2021	7 Primary, 2 QC	PFOA	<LOR (multiple) to 15.2 µg/L (MW113)	5	4	0
		PFOS	0.02 µg/L (multiple) to 210 µg/L (MW115)	9	NA	5
		PFHxS+PFOS	0.02 µg/L (MW131) to 449 µg/L (MW113)	9	6	NA
March 2022	7 Primary	PFOA	<LOR (multiple) to 11.2 µg/L (MW115)	4	3	0
		PFOS	<LOR (MW130) to 1240 µg/L (MW113)	6	NA	4
		PFHxS+PFOS	<LOR (MW130) to 1380 µg/L (MW113)	6	5	NA
June 2022	7 Primary, 1 QC	PFOA	<LOR (multiple) to 15.7 µg/L (MW115)	4	4	0
		PFOS	<LOR (MW130) to 580 µg/L (MW113)	6	NA	4
		PFHxS+PFOS	<LOR (MW130) to 780 µg/L (MW113)	6	5	NA

Sampling Event	No. of Samples[1]	Compound	Concentration Range (µg/L) in Sampling Event	No. of Samples[1] with Concentration > LOR	No. of Samples[1] with Exceedances of Human Health Criteria	No. of Samples[1] with Exceedances of Ecological Criteria
September 2022	7 Primary, 4 QC	PFOA	<LOR (multiple) to 14.2 µg/L (MW113)	6	5	0
		PFOS	0.02 µg/L (MW130) to 341 µg/L (MW115)	11	NA	6
		PFHxS+PFOS	0.03 µg/L (multiple) to 531 µg/L (MW115)	11	6	NA

Notes:

[1] = Sample counts include intra-laboratory and inter-laboratory duplicates

multiple = the value applies to multiple locations

NA = Not applicable – where there are no applicable Human Health screening criteria for PFOS, and no applicable Ecological screening criteria for the Sum of PFOS and PFHxS.

Table 11 Summary of PFOA, PFOS and PFOS+PFHxS Concentrations in Groundwater: shallow alluvial aquifer and perched water

Sampling Event	No. of Samples[1]	Compound	Concentration Range (µg/L) in Sampling Event	No. of Samples[1] with Concentration > LOR	No. of Samples[1] with Exceedances of Human Health Criteria	No. of Samples[1] with Exceedances of Ecological Criteria
Former STP Area – Shallow Alluvial Aquifer						
March 2022	3 Primary	PFOA	<LOR (MW301) to 0.21 µg/L (MW002)	2	0	0
		PFOS	0.04 µg/L (multiple) to 0.12 µg/L (MW002)	3	NA	0
		PFHxS+PFOS	0.07 µg/L (MW005) to 0.16 µg/L (multiple)	3	2	NA
September 2022	3 Primary	PFOA	<LOR (MW301) to 0.17 µg/L (MW002)	2	0	0
		PFOS	0.03 µg/L (MW301) to 0.11 µg/L (MW005)	3	NA	0
		PFHxS+PFOS	0.11 µg/L (MW002) to 0.16 µg/L (MW005)	3	3	NA
Liverpool Fire Station and surrounds - Perched Water						
December 2021	4 Primary	PFOA	<LOR (MW136) to 6.06 µg/L (MW119P)	3	2	0
		PFOS	0.05 µg/L (MW136) to 168 µg/L (MW133)	4	NA	3
		PFHxS+PFOS	0.13 µg/L (MW136) to 190 µg/L (MW133)	4	4	NA
March 2022	4 Primary	PFOA	0.02 µg/L (MW136) to 9.02 µg/L (MW119P)	4	1	0
		PFOS	0.03 µg/L (MW136) to 156 µg/L (MW119P)	4	NA	3
		PFHxS+PFOS	0.33 µg/L (MW136) to 332 µg/L (MW119P)	4	4	NA
June 2022	5 Primary, 1 QC	PFOA	0.02 µg/L (multiple) to 13.4 µg/L (MW119P)	6	2	0
		PFOS	0.05 µg/L (MW136) to 765 µg/L (MW133)	6	NA	4
		PFHxS+PFOS	0.51 µg/L (MW136) to 808 µg/L (MW133)	6	6	NA
September 2022	5 Primary	PFOA	0.01 µg/L (MW136) to 14.6 µg/L (MW119P)	5	2	0
		PFOS	0.08 µg/L (MW136) to 530 µg/L (MW133)	5	NA	4
		PFHxS+PFOS	0.40 µg/L (MW136) to 561 µg/L (MW133)	5	5	NA

Notes:

[1] = Sample counts include intra-laboratory and inter-laboratory duplicates

multiple = the result was obtained at multiple locations

NA = Not applicable – where there are no applicable Human Health screening criteria for PFOS, and no applicable Ecological screening criteria for the Sum of PFOS and PFHxS.

During the monitoring period, the following first-time detections of PFOS, PFOS+PFHxS and/or PFOA were reported as presented in **Table 12**.

Table 12 Groundwater Results - First-time Detections of PFOS, PFOS+PFHxS and/or PFOA

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
Mar 2022	LFS and surrounds - Perched Water	MW136	PFOA (0.02 µg/L)
Sep 2022	Cantonment and Driver Training Area	MW123	PFOS (0.02 µg/L)
		MW123	PFOS+PFHxS (0.02 µg/L)
	Former 85 Transport Area	MW117	PFOA (0.04 µg/L)

The new exceedances of drinking water guidelines reported during the monitoring period are presented in Table 13**.**

Table 13 Groundwater Results - New Exceedances (Drinking Water) of PFOS+PFHxS and/or PFOA

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
Dec 2021	LFS and surrounds - Deep Alluvial Aquifer	MW130	PFOS+PFHxS (0.18 µg/L)
	LFS and surrounds - Perched Water	MW133	PFOA (2.88 µg/L)
Jun 2022	LFS and surrounds - Deep Alluvial Aquifer	MW119	PFOA (0.63 µg/L)

The new exceedances of ecological (freshwater 95%) guidelines reported during the monitoring period are presented in **Table 14**.

Table 14 Groundwater Results – New Exceedances (Freshwater 95%) of PFOS and/or PFOA

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
Mar 2022	Former 85 Transport Area	MW117	PFOS (0.14 µg/L)
		MW330	PFOS (4.2 µg/L)

The new maximum concentrations of PFOS, PFOS+PFHxS and/or PFOA reported during the monitoring period are presented in **Table 15**.

Table 15 Groundwater Results – New Maximum Concentrations of PFOS, PFOS+PFHxS and/or PFOA

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
Dec 2021	LFS and surrounds - Deep Alluvial Aquifer	MW130	PFOS (0.11 µg/L)
		MW130	PFOS+PFHxS (0.18 µg/L)
	LFS and surrounds - Perched Water	MW133	PFOA (2.88 µg/L)
		MW133	PFOS (168 µg/L)
		MW133	PFOS+PFHxS (190 µg/L)
Mar 2022	Former 85 Transport Area	MW117	PFOS (0.14 µg/L)
		MW117	PFOS+PFHxS (0.19 µg/L)
		MW330	PFOA (3.9 µg/L)
		MW330	PFOS (4.2 µg/L)
		MW330	PFOS+PFHxS (67 µg/L)

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
	LFS and surrounds - Deep Alluvial Aquifer	MW113	PFOS (1240 µg/L)
		MW113	PFOS+PFHxS (1380 µg/L)
		MW119	PFOS (32.8 µg/L)
		MW119	PFOS+PFHxS (37.4 µg/L)
	LFS and surrounds - Perched Water	MW119P	PFOA (9.02 µg/L)
		MW119P	PFOS (156 µg/L)
		MW119P	PFOS+PFHxS (332 µg/L)
		MW136	PFOS+PFHxS (0.33 µg/L)
Jun 2022	LFS and surrounds - Deep Alluvial Aquifer	MW119	PFOA (0.63 µg/L)
		MW131	PFOS (0.09 µg/L)
	LFS and surrounds - Perched Water	MW119P	PFOA (13.4 µg/L)
		MW119P	PFOS (200 µg/L)
		MW119P	PFOS+PFHxS (457 µg/L)
		MW133	PFOA (4.8 µg/L)
		MW133	PFOS (765 µg/L)
		MW133	PFOS+PFHxS (808 µg/L)
		MW134	PFOS (0.52 µg/L)
		MW136	PFOA (0.03 µg/L)
		MW136	PFOS+PFHxS (0.7 µg/L)
Sep 2022	Former 85 Transport Area	MW117	PFOS (1.47 µg/L)
		MW117	PFOS+PFHxS (1.95 µg/L)
		MW330	PFOS (10.3 µg/L)
	LFS and surrounds - Perched Water	MW119P	PFOA (14.6 µg/L)

The new minimum concentrations of PFOS, PFOS+PFHxS and/or PFOA reported during the monitoring period are presented in **Table 16**.

Table 16 Groundwater Results – New Minimum Concentrations of PFOS, PFOS+PFHxS and/or PFOA

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
Dec 2021	LFS and surrounds - Deep Alluvial Aquifer	MW112	PFOA (2.43 µg/L)
	LFS and surrounds - Perched Water	MW112P	PFOA (0.19 µg/L)
Mar 2022	Cantonment and Driver Training Area	MW349	PFOS (0.02 µg/L)
		MW349	PFOS+PFHxS (0.08 µg/L)
	Former STP Area	MW005	PFOA (0.01 µg/L)
		MW005	PFOS+PFHxS (0.07 µg/L)
		MW301	PFOS (0.04 µg/L)
	LFS and surrounds - Perched Water	MW112P	PFOA (0.05 µg/L)
		MW112P	PFOS+PFHxS (8.75 µg/L)

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
		MW133	PFOA (0.03 µg/L)
		MW133	PFOS+PFHxS (4.43 µg/L)
Sep 2022	Former STP Area	MW301	PFOS (0.03 µg/L)
	LFS and surrounds - Deep Alluvial Aquifer	MW112	PFOA (1.56 µg/L)
		MW112	PFOS+PFHxS (54.4 µg/L)

7.2 Surface Water Results

7.2.1 Surface Water Field Observations

Surface water field observations from the monitoring period are presented in **Table T4** in **Appendix B** and summarised below. Note that no notable estate works, or training activities were observed in the vicinity of the sampling locations during the four sampling events.

December 2021

- Surface water was observed to range from light brown (SW059) to brown (SW001 and SW111) with low turbidity.
- Green algae were observed on the surface of SW001 and SW111.
- No odours or sheens were observed at the locations sampled.

March 2022

- Surface water was observed to range from colourless (SW103 to SW105, SW038), brown (SW009, SW011, SW017), yellow/brown (SW030) and the remainder were light brown.
- Turbidity was observed to be low in most locations except for no turbidity (clear) at SW038, SW103 to SW105 and medium turbidity at SW011.
- An organic odour was observed at SW015. No other odours were observed at the locations sampled.
- Algal growth was observed on the water surface at SW011.
- Foaming was observed on the water surface at SW030.
- Organic debris (leaf litter) was observed in the water column in SW103.

June 2022

- Surface water was observed to be clear and colourless (SW059 and SW111) or orange and highly turbid (SW001).
- Suspended solids were observed at SW001.
- No odours or sheens were observed at the locations sampled.

September 2022

- Surface water was observed to range from light brown (SW011, SW014, SW063), green (SW103 to SW105), brown/orange (SW001) and colourless (remaining locations).
- Turbidity was observed to be low in most locations except for high turbidity at SW001, SW103 to SW105 and medium turbidity at SW011.
- An organic odour was observed at SW015. No other odours were observed at the locations sampled.
- Algal growth was observed on the water surface at SW011.
- Foaming was observed on the water surface at SW030.

- Organic debris (leaf litter) was observed in the water column in SW103.

7.2.2 Surface Water Quality Parameters

Surface water quality parameters were measured during the collection of surface water samples. The surface water quality parameters from the four sampling events during the monitoring period are presented in **Table T4** in **Appendix B** and summarised below in **Table 17** for locations within each sub-catchment.

The readings presented in **Table 17** indicate:

- Poorly to moderately well oxygenated conditions
- Generally fresh to marginally brackish water conditions
- Moderately acidic to neutral conditions
- Mostly reducing conditions.

Table 17 Summary of surface water quality parameters

Sampling Event	Dissolved Oxygen (mg/L)		Temperature (°C)		Electrical Conductivity (µS/cm)		pH (pH units)		Reduction-Oxidation Potential, Corrected (mV)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Anzac Creek Sub-Catchment										
December 2021	2.27 (SW059)	7.14 (SW111)	18.1 (SW001)	20.0 (SW111)	286.2 (SW111)	374.2 (SW001)	6.29 (SW001)	6.94 (SW111)	250.3 (SW059)	323.2 (SW001)
March 2022	1.02 (SW001)	2.85 (SW111)	21.7 (SW001)	22.5 (multiple)	192.4 (SW111)	405.9 (SW001)	6.60 (SW111)	7.01 (SW001)	192.1 (SW059)	292.9 (SW111)
June 2022	1.92 (SW001)	4.52 (SW111)	10.4 (SW059)	11.2 (SW001)	247.5 (SW111)	372.2 (SW059)	6.86 (SW059)	6.97 (SW001)	251.3 (SW001)	268.1 (SW111)
September 2022	5.55 (SW001)	6.20 (SW111)	14.6 (SW001)	17.5 (SW111)	178.7 (SW001)	199.7 (SW059)	6.57 (SW059)	7.33 (SW001)	352.6 (SW111)	375.2 (SW059)
Georges River Sub-Catchment										
March 2022	1.42 (SW103)	7.40 (SW063)	21.2 (multiple)	25.6 (SW062)	58.5 (SW104)	192.2 (SW063)	6.46 (multiple)	6.83 (SW062)	288.1 (SW104)	316.7 (SW025)
September 2022	0.00 (SW105)	7.54 (SW062)	13.5 (SW104)	16.0 (SW025)	130.6 (SW104)	328.1 (SW063)	6.79 (SW104)	7.26 (SW062)	352.2 (SW063)	425.4 (SW103)
Harris Creek Sub-Catchment										
March 2022	5.75 (SW015)	5.80 (SW017)	22.1 (SW017)	22.8 (SW015)	140.1 (SW015)	249.9 (SW017)	5.88 (SW015)	6.35 (SW017)	262.7 (SW017)	307.1 (SW015)
September 2022	6.10 (SW015)	6.42 (SW017)	14.2 (SW015)	14.9 (SW017)	159.1 (SW015)	252.6 (SW017)	6.16 (SW017)	6.17 (SW015)	292.1 (SW015)	303.6 (SW017)
Williams Creek Sub-Catchment										
March 2022	1.17 (SW011)	6.33 (SW038)	19.2 (SW038)	26.5 (SW009)	68.4 (SW030)	1,304 (SW011)	5.90 (SW009)	7.05 (SW038)	59.3 (SW011)	315.4 (SW009)
September 2022	5.85 (SW038)	6.74 (SW011)	13.4 (SW009)	16.8 (SW038)	199.5 (SW009)	1,446 (SW012)	5.95 (SW009)	6.94 (SW038)	266.3 (SW009)	320 (SW012)
Williams Creek and Harris Creek Sub-Catchment										
March 2022	2.25 (SW014)		25.4 (SW014)		462.4 (SW014)		6.55 (SW014)		316.1 (SW014)	

Sampling Event	Dissolved Oxygen (mg/L)		Temperature (°C)		Electrical Conductivity (µS/cm)		pH (pH units)		Reduction-Oxidation Potential, Corrected (mV)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
September 2022	n/a – water quality parameters not collected									

7.2.3 Surface Water Analytical Results

Surface water analytical results from the monitoring period as well as relevant historical surface water analytical results are presented in **Table T5** in **Appendix B**. Surface water results from the monitoring period are presented spatially on **Figure F11** to **Figure F18** in **Appendix A**.

The monitoring activities are summarised in the OMP Sampling Event Factual Reports provided in **Appendix F**. The interpretive assessment of the surface water analytical results is discussed in **Section 8.5** and **Section 8.6**, below.

Additionally, historical surface water concentrations of PFOS+PFHxS and PFOA are displayed graphically on temporal trend graphs, by sub-catchment set out in **Appendix C** for the locations in **Table 18**.

Table 18 Temporal trend graphs of surface water locations

Graph ID	Sub-catchment / Area of interest	Surface water locations
G11, G12	Anzac Creek Sub-Catchment	SW001, SW059, SW111
G13, G14	Georges River Sub-Catchment	SW025, SW062, SW063, SW103, SW104, SW105
G15, G16	Harris Creek Sub-Catchment	SW015, SW017
G17, G18	Williams Creek Sub-Catchment	SW0009, SW011, SW012, SW030, SW038
G19, G20	Williams Creek and Harris Creek Sub-Catchment	SW014

A summary of surface water results from the monitoring period is provided in **Table 19** for locations within each sub-catchment.

Deviations from the historical dataset for surface water are summarised in **Table 20** to **Table 24**.

Table 19 Summary of PFOA, PFOS and PFOS+PFHxS concentrations in surface water

Sampling Event	No. of Samples[1]	Compound	Concentration Range (µg/L) in Sampling Event	No. of Samples[1] with Concentration > LOR	No. of Samples[1] with Exceedances of Human Health Criteria	No. of Samples[1] with Exceedances of Ecological Criteria
Anzac Creek Sub-Catchment						
December 2021	3 Primary, 2 QC	PFOA	0.01 µg/L (SW111) to 0.05 µg/L (SW001)	3	0	0
		PFOS	0.06 µg/L (SW111) to 0.76 µg/L (SW001)	4	NA	2
		PFHxS+PFOS	0.09 µg/L (SW111) to 1.26 µg/L (SW001)	4	0	NA
March 2022	3 Primary	PFOA	0.01 µg/L (multiple) to 0.02 µg/L (SW001)	3	0	0
		PFOS	0.05 µg/L (SW111) to 0.27 µg/L (SW001)	3	NA	2
		PFHxS+PFOS	0.08 µg/L (SW111) to 0.42 µg/L (SW001)	3	0	NA
June 2022	3 Primary, 2 QC	PFOA	0.02 µg/L (multiple) to 0.07 µg/L (SW001)	5	0	0
		PFOS	0.05 µg/L (SW111) to 2.06 µg/L (SW001)	5	NA	2
		PFHxS+PFOS	0.1 µg/L (SW111) to 2.73 µg/L (SW001)	5	1	NA
September 2022	3 Primary, 2 QC	PFOA	0.01 µg/L (multiple) to 0.02 µg/L (SW001)	5	0	0
		PFOS	0.04 µg/L (multiple) to 0.87 µg/L (SW001)	5	NA	1
		PFHxS+PFOS	0.07 µg/L (multiple) to 1.02 µg/L (SW001)	5	0	NA
Georges River Sub-Catchment						
March 2022	6 Primary	PFOA	<LOR (multiple)	0	0	0
		PFOS	<LOR (multiple) to 0.05 µg/L (SW105)	3	NA	0
		PFHxS+PFOS	<LOR (multiple) to 0.07 µg/L (SW105)	3	0	NA
September 2022	6 Primary, 2 QC	PFOA	<LOR (multiple)	0	0	0
		PFOS	0.01 µg/L (SW062) to 0.09 µg/L (SW105)	7	NA	0
		PFHxS+PFOS	0.01 µg/L (SW062) to 0.15 µg/L (SW103)	7	0	NA
Harris Creek Sub-Catchment						
March 2022	2 Primary, 1 QC	PFOA	<LOR (multiple)	0	0	0
		PFOS	0.02 µg/L (SW017) to 0.03 µg/L (SW015)	3	NA	0
		PFHxS+PFOS	0.04 µg/L (SW017) to 0.08 µg/L (SW015)	3	0	NA

Sampling Event	No. of Samples[1]	Compound	Concentration Range (µg/L) in Sampling Event	No. of Samples[1] with Concentration > LOR	No. of Samples[1] with Exceedances of Human Health Criteria	No. of Samples[1] with Exceedances of Ecological Criteria
September 2022	2 Primary	PFOA	<LOR (multiple)	0	0	0
		PFOS	0.03 µg/L (SW015) to 0.04 µg/L (SW017)	2	NA	0
		PFHxS+PFOS	0.06 µg/L (SW015) to 0.08 µg/L (SW017)	2	0	NA
Williams Creek Sub-Catchment						
March 2022	5 Primary, 3 QC	PFOA	<LOR (multiple) to 0.16 µg/L (SW011)	5	0	0
		PFOS	0.06 µg/L (SW012) to 0.83 µg/L (SW030)	8	NA	5
		PFHxS+PFOS	0.12 µg/L (SW012) to 3.52 µg/L (SW011)	8	1	NA
September 2022	4 Primary	PFOA	<LOR (multiple) to 0.02 µg/L (SW038)	2	0	0
		PFOS	0.09 µg/L (SW009) to 0.44 µg/L (SW038)	4	NA	1
		PFHxS+PFOS	0.18 µg/L (SW009) to 0.90 µg/L (SW038)	4	0	NA
Williams Creek and Harris Creek Sub-Catchments						
March 2022	1 Primary	PFOA	<LOR (SW014)	0	0	0
		PFOS	0.04 µg/L (SW014)	1	NA	0
		PFHxS+PFOS	0.08 µg/L (SW014)	1	0	NA
September 2022	1 Primary	PFOA	<LOR (SW014)	0	0	0
		PFOS	0.09 µg/L (SW014)	1	NA	0
		PFHxS+PFOS	0.15 µg/L (SW014)	1	0	NA

Notes:

[1] = Sample counts include intra-laboratory and inter-laboratory duplicates

multiple = the value applies to multiple locations

NA = Not applicable – where there are no applicable Human Health screening criteria for PFOS, and no applicable Ecological screening criteria for the Sum of PFOS and PFHxS.

During the monitoring period, the following first-time detections of PFOS, PFOS+PFHxS and/or PFOA were reported as presented in **Table 20**.

Table 20 Surface Water Results - First-time Detections of PFOS, PFOS+PFHxS and/or PFOA

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
Mar 2022	Williams Creek Sub-Catchment	SW011	PFOA (0.16 µg/L)

The new exceedances of human health recreational guidelines reported during the monitoring period are presented in **Table 21**.

Table 21 Surface Water Results - New Exceedances (Recreational) of PFOS+PFHxS and/or PFOA

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
Mar 2022	Williams Creek Sub-Catchment	SW011	PFOS+PFHxS (3.52 µg/L)

The new exceedances of ecological (freshwater 95%) guidelines reported during the monitoring period are presented in **Table 22**.

Table 22 Surface Water Results – New Exceedances (Freshwater 95%) of PFOS and/or PFOA

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
Mar 2022	Anzac Creek Sub-Catchment	SW059	PFOS (0.15 µg/L)
	Williams Creek Sub-Catchment	SW011	PFOS (0.24 µg/L)

The new maximum concentrations of PFOS, PFOS+PFHxS and/or PFOA reported during the monitoring period are presented in **Table 23**.

Table 23 Surface Water Results – New Maximum Concentrations of PFOS, PFOS+PFHxS and/or PFOA

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
Mar 2022	Anzac Creek Sub-Catchment	SW059	PFOS (0.15 µg/L)
		SW059	PFOS+PFHxS (0.21 µg/L)
	Williams Creek Sub-Catchment	SW011	PFOS (0.24 µg/L)
		SW011	PFOS+PFHxS (3.52 µg/L)
		SW012	PFOS (0.06 µg/L)
		SW012	PFOS+PFHxS (0.12 µg/L)
Jun 2022	Anzac Creek Sub-Catchment	SW059	PFOS (0.16 µg/L)
		SW059	PFOS+PFHxS (0.32 µg/L)
Sep 2022	Georges River Sub-Catchment	SW025	PFOS+PFHxS (0.07 µg/L)
		SW063	PFOS+PFHxS (0.06 µg/L)
	Williams Creek Sub-Catchment	SW012	PFOS+PFHxS (0.22 µg/L)
	Williams Creek and Harris Creek Sub-Catchments	SW014	PFOS+PFHxS (0.15 µg/L)

The new minimum concentrations of PFOS, PFOS+PFHxS and/or PFOA reported during the monitoring period are presented in **Table 24**.

Table 24 Surface Water Results – New Minimum Concentrations of PFOS, PFOS+PFHxS and/or PFOA

Sampling Event	Area	Location	Analyte/s & Reported Concentrations
Dec 2021	Anzac Creek Sub-Catchment	SW111	PFOS (0.06 µg/L)
		SW111	PFOS+PFHxS (0.09 µg/L)
Mar 2022	Anzac Creek Sub-Catchment	SW111	PFOS (0.05 µg/L)
		SW111	PFOS+PFHxS (0.08 µg/L)
	Harris Creek Sub-Catchment	SW017	PFOS+PFHxS (0.04 µg/L)
	Williams Creek Sub-Catchment	SW009	PFOS+PFHxS (0.16 µg/L)
		SW038	PFOS+PFHxS (0.37 µg/L)
Sep 2022	Anzac Creek Sub-Catchment	SW111	PFOS (0.04 µg/L)
		SW111	PFOS+PFHxS (0.07 µg/L)
	Williams Creek Sub-Catchment	SW012	PFOS (0.12 µg/L)
	Williams Creek and Harris Creek Sub-Catchments	SW014	PFOS (0.09 µg/L)

8.0 Discussion / Interpretive Analysis

8.1 Groundwater Level and Flow

The SWLs were measured in the groundwater monitoring wells to evaluate the groundwater elevations (m AHD). Depth to groundwater measurements collected during the current monitoring period are presented in **Table T1** (in **Appendix B**) and the inferred potentiometric contours for the December 2021 to September 2022 sampling events are presented on **Figure F19** to **Figure F22** (**Appendix A**).

A summary of groundwater elevation changes over the monitoring period is provided by PFAS source area below:

- Cantonment and Driver Training Area: groundwater elevations decreased by an average of 0.11 m
- Former 85 Transport Area: groundwater elevations decreased by an average of 0.38 m
- Former STP Area: groundwater elevations increased by an average of 0.11 m
- LFS and surrounds: groundwater elevations increased by an average of 0.86 m in the perched water and 1.10 m in the deep alluvial aquifer.

The increased groundwater elevations over the monitoring period in the perched water and deep alluvial aquifers in LFS and surrounds is potentially attributed to the significant rainfall recorded over the monitoring period including extreme rainfall events in March 2022 and July 2022. There were smaller increases or minor decreases in groundwater elevation within the on-Site wells as they were mainly screened in bedrock or residual aquifers with lower permeability and slower recharge compared to the alluvial aquifer.

The inferred groundwater flow directions in sampling events over the monitoring period were similar to the previous monitoring events, namely north to northwest in the Former 85 Transport Area and generally corresponding to site topography, and northeast in the Cantonment and Driver Training Area and the LFS.

8.2 Groundwater Physicochemical Properties

The water quality parameters reported during the monitoring period were generally within previous data ranges and representative of the aquifers.

8.3 Groundwater Results

8.3.1 Overview

The December 2021 to September 2022 groundwater results for PFOS+PFHxS and PFOA compared to assessment criteria are provided in **Figures F3** and **Figure F10** (in **Appendix A**) and presented in **Table T3** (in **Appendix B**). The data has been used to evaluate the nature and extent of PFAS contamination associated with source areas, a summary of the changes is discussed below.

8.3.2 PFAS Extent in Groundwater

A summary of groundwater concentrations changes by PFAS source area is provided below:

- **Cantonment and Driver Training Area**: Concentrations of PFOA and PFOS+PFHxS are typically the lowest within the Site with low detections above the LOR historically only at MW349 (maximum concentration of 0.36 µg/L) which is located down hydraulic gradient and to the east of the Cantonment Area. There was a first-time detection at MW123 (off-Site) located down hydraulic gradient of the Cantonment and Driver Trainer Area and adjacent to Harris Creek.
- **Former 85 Transport Area**: The highest on-Site concentrations of PFOA and PFOS+PFHxS are located within the Former 85 Transport area (MW330 - PFHxS+PFOS concentration of 67 µg/L) with the groundwater impacts extending to the west towards the Georges River (MW117). During the monitoring period there were first-time detections of PFOA, new exceedances of PFOS and new maximum concentrations for PFOS and PFOS+PFHxS at MW117. New exceedances for

PFOS and new maximum concentrations for PFOA, PFOS and PFOS+PFHxS were reported at MW330.

- **Former STP Area**: Concentrations of PFOA and PFOS+PFHxS have been historically detected at all three wells within the Former STP Area with a maximum PFHxS+PFOS concentration of 0.16 µg/L. For the monitoring period the results were within the historical range, or lower and new minimum concentrations of PFOA and PFOS+PFHxS at MW005 and PFOS in MW301.
- **Liverpool Fire Station –** The highest concentrations within the Management Area were reported at LFS and surrounds in the perched water and deep alluvial aquifers with maximum concentrations of PFHxS+PFOS reported at 1,380 µg/L and 808 µg/L respectively. The concentrations exceeding the assessment extend down hydraulic gradient of the LFS to the north east and east towards Anzac Creek. The concentrations during the monitoring period remained within the historical range or higher with the following new first-time detections or exceedances and maximum concentrations:
  - Perched Water:
    - new first-time detections of PFOA at MW136
    - new exceedances of PFOA at MW133
    - new maximum concentrations of PFOA, PFOS and PFOS+PFHxS at MW133 and MW119P
    - new maximum concentrations of PFOS+PFHxS at MW136
    - new maximum concentrations of PFOS at MW134
  - Deep Alluvial Aquifer:
    - new exceedances of PFOA and new maximum concentrations of PFOA, PFOS and PFOS+PFHxS in MW119.
    - new maximum concentrations of PFOS and PFOS+PFHxS in MW113
    - new maximum concentrations of PFOS in MW131.

Overall, there appears to be no change in the extent of PFAS impacts in groundwater within the Management Area based on the current monitoring network. The exception is the following:

- LFS and surrounds where the concentrations have increased in some wells.
- MW117 in the area of Former 85 Transport Area, where new maximum was reported for PFOS and PFOS+PFHxS in September 2022.

The increases are likely to be attributed to higher-than-average rainfall events experienced during the monitoring period in particular for the LFS, which has increased the groundwater levels resulting in longer contact with PFAS impacted soils.

8.4 Groundwater Temporal Trend Analysis

Temporal trend graphs and Mann Kendall analysis are presented in **Appendix C** for PFOS+PFHxS and PFOA concentrations in selected groundwater sampling locations indicative of a source area or area of interest (as presented in **Table 9**, in **Section 7.1.5**).

The Mann Kendall analysis was used to assess the trends in the concentrations in groundwater, and whether they have a monotonic upward or downward trend. The significance of these trends is determined by the confidence factor, or *p* value, of the analysis, as follows.

- a confidence factor over 95% indicates that there is an increasing or decreasing trend
- a confidence factor over 90% indicates the there is a ‘probably increasing’ or ‘probably decreasing’ trend
- a confidence factor less than 90% indicates ‘Stable’ or ‘No Change’.

Trend analysis was only undertaken for locations which were sampled in the monitoring period and for locations which were consistently greater than the LOR. The data used in this analysis was sourced from OMP events both historically and during the monitoring period for each sample location. Where sample results were less than the LOR, half the LOR[2] was adopted for the Mann Kendall analysis.

A summary of PFOS+PFHxS and PFOA concentrations for the select locations (including historical ranges and concentrations from the OMP events during the monitoring period) and trend analysis results are presented in the following sections.

8.4.1 Cantonment and Driver Training Area

The Cantonment and Driver Training Area is located in the northern portion of the Site and is located between Harris Creek to the west and Williams Creek to the east. The concentrations in PFOS+PFHxS and PFOA in groundwater in the vicinity of the Cantonment and Driver Training Area are either less than the LOR or appear to be generally stable.

The temporal trend graphs show that the groundwater concentrations in this area are lower than the previous monitoring period, and therefore within historical concentration ranges at each of the monitoring locations. Refer to **Graph G1** and **Graph G2** and the relevant Mann Kendall analysis in **Appendix C**, and **Table 25** below.

Table 25 Summary of Trend Analysis: Cantonment and Driver Training Area

Location ID	Analyte	Historical Range	OMP Events (Current Period)	Mann Kendall Analysis	
		Min – Max (µg/L)	Min – Max (µg/L)	Trend	Confidence Factor
MW120	PFOS+PFHxS	< LOR	< LOR	Not assessed*	
	PFOA	< LOR	< LOR	Not assessed*	
MW121	PFOS+PFHxS	< LOR	< LOR	Not assessed*	
	PFOA	< LOR	< LOR	Not assessed*	
MW122	PFOS+PFHxS	< LOR	< LOR	Not assessed*	
	PFOA	< LOR	< LOR	Not assessed*	
MW123	PFOS+PFHxS	< LOR	< LOR – 0.02	Not assessed*	
	PFOA	< LOR	< LOR	Not assessed*	
MW124	PFOS+PFHxS	< LOR – 0.02	< LOR	*Stable*	*86.4 %*
	PFOA	< LOR	< LOR	Not assessed*	
MW323	PFOS+PFHxS	< LOR – 0.09	< LOR	Not assessed*	
	PFOA	< LOR	< LOR	Not assessed*	
MW349	PFOS+PFHxS	0.22 – 0.4	0.09 – 0.36	Stable	50.0 %
	PFOA	< LOR – 0.01	< LOR	Not assessed*	

Note:
Only one result is reported in the Min-Max Range where the values are the same.
Italics: indicate low confidence in the Mann Kendall trend analysis given concentrations are within 1 to 2 orders of magnitude of the LOR.
* Insufficient sample numbers at this location to allow for statistical assessment.

8.4.2 Former 85 Transport Area

The Former 85 Transport Area has the highest on-site PFAS concentrations and is located in the western portion of the Site which is bound by the Georges River to the west.

[2] where multiple LOR thresholds were present for a sample location, the average of half the LOR values was used.

Although concentrations PFOS+PFHxS and PFOA increased during the monitoring period at MW330, there is insufficient data to confirm an increasing trend. Refer to **Graph G3** and **Graph G4** and the relevant Mann Kendall analysis (in **Appendix C**), and **Table 26** below.

Table 26 Summary of Trend Analysis: Former 85 Transport Area

Location ID	Analyte	Historical Range	OMP Events (Current Period)	Mann Kendall Analysis	
		Min – Max (µg/L)	Min – Max (µg/L)	Trend	Confidence Factor
MW117	PFOS+PFHxS	0.01 – 0.08	0.19 – 1.95	No trend	75.8 %
	PFOA	< LOR	< LOR – 0.04	Not assessed*	
MW330	PFOS+PFHxS	40.03 – 40.05	37.1 – 67.0	Stable	62.5 %
	PFOA	0.98 – 1.45	3.24 – 3.9	No trend	83.3 %

Note:
Only one result is reported in the Min-Max Range where the values are the same.
* Insufficient sample numbers or detections above the LOR at this location to allow for statistical assessment.

8.4.3 Former STP Area

The Former STP Area is located in the northern most part of the Site where Harris Creek and Williams Creek merge before discharging into the Georges River.

Concentrations are shown to be stable or decreasing in the Former STP Area. Refer to temporal trend **Graph G5** and **Graph G6** in **Appendix C** and the relevant Mann Kendall analysis (in **Appendix C**), and **Table 27** below.

Table 27 Summary of Trend Analysis: Former STP Area

Location ID	Analyte	Historical Range	OMP Events (Current Period)	Mann Kendall Analysis	
		Min – Max (µg/L)	Min – Max (µg/L)	Trend	Confidence Factor
MW002	PFOS+PFHxS	0.05 – 0.24	0.11 – 0.16	*Stable*	*50.0 %*
	PFOA	0.05 – 0.35	0.17 – 0.21	*Stable*	*64.0 %*
MW005	PFOS+PFHxS	0.22	0.07 – 0.16	Not assessed*	
	PFOA	0.03	0.01 – 0.02	Not assessed*	
MW301	PFOS+PFHxS	0.12 – 0.82	0.12 – 0.16	*Decreasing*	*95.2 %*
	PFOA	< LOR – 0.02	< LOR	*Decreasing*	*97.2 %*

Note:
Only one result is reported in the Min-Max Range where the values are the same.
Italics: indicate low confidence in the Mann Kendall trend analysis given concentrations are within 1 to 2 orders of magnitude of the LOR.
* Insufficient sample numbers at this location to allow for statistical assessment.

8.4.4 Liverpool Fire Station and surrounds - Perched Water

The LFS is located over 2 km north of the Site and is an off-Site source of PFAS contamination. It is located within the Anzac Creek catchment which drains in the Georges River to the north.

The changes in PFOS+PFHxS and PFOA concentrations in the perched groundwater show an increasing trend at MW119P and MW136. The increasing trend in these wells are consistent with the previous 12-month monitoring period. PFOS+PFHxS and PFOA concentrations at all other locations remained stable or were potentially decreasing.

Refer to **Graph G7** and **Graph G8** and the relevant Mann Kendall analysis (in in **Appendix C)**, and **Table 28** below.

Table 28 Summary of Trend Analysis: Liverpool Fire Station and surrounds - Perched Water

Location ID	Analyte	Historical Range	OMP Events (Current Period)	Mann Kendall Analysis	
		Min – Max (µg/L)	Min – Max (µg/L)	Trend	Confidence Factor
MW112P	PFOS+PFHxS	23.8 – 56.0	8.75 – 36.3	Probably Decreasing	90.7 %
	PFOA	*0.22 – 0.4*	*0.05 – 0.26*	*Stable*	*89.2 %*
MW119P	PFOS+PFHxS	12.2 – 226	182 – 457	Increasing	99.5 %
	PFOA	0.4 – 6.4	6.06 – 14.6	Increasing	99.9 %
MW133	PFOS+PFHxS	5.64	4.43 – 808	No trend	75.8 %
	PFOA	0.05	0.03 – 4.8	No trend	75.8 %
MW134	PFOS+PFHxS	0.89 – 1.6	1.31 – 1.56	Stable	37.5 %
	PFOA	*0.02 – 0.03*	*0.02*	*Stable*	*50.0 %*
MW136	PFOS+PFHxS	*0.032 – 0.15*	*0.13 – 0.7*	*Increasing*	*97.5 %*
	PFOA	*<LOR*	*< LOR – 0.03*	*Increasing*	*97.5 %*

Note:
Only one result is reported in the Min-Max Range where the values are the same.
Italics: indicate low confidence in the Mann Kendall trend analysis given concentrations are within 1 to 2 orders of magnitude of the LOR.

8.4.5 Liverpool Fire Station and surrounds - Deep Alluvial Aquifer

PFOS+PFHxS and PFOA concentrations in the alluvial screened wells also showed an increasing trend at MW119 and an increasing trend of PFOS+PFHxS at MW113. MW113 is located on the LFS property and MW119 is located around 500 m east of the LFS and adjacent to Anzac Creek. The increasing trends in these wells are consistent with the previous 12-month monitoring period. The remaining wells were either stable or there was no trend.

Refer to **Graph G9** and **Graph G10** and the relevant Mann Kendall analysis (in in **Appendix C)**, and **Table 29** below.

Table 29 Summary of Trend Analysis: Liverpool Fire Station and surrounds - Deep Alluvial Aquifer

Location ID	Analyte	Historical Range	OMP Events (Current Period)	Mann Kendall Analysis	
		Min – Max (µg/L)	Min – Max (µg/L)	Trend	Confidence Factor
MW112	PFOS+PFHxS	65.2 - 123	54.4 – 118	Stable	85.4 %
	PFOA	3.03 – 4.75	1.56 – 4.72	Stable	89.2 %
MW113	PFOS+PFHxS	120 – 488	449 – 1380	Increasing	98.6 %
	PFOA	3.7 – 17.8	10.6 – 15.2	No trend	70.0 %
MW115	PFOS+PFHxS	273 – 687	343 – 561	No trend	50.0 %
	PFOA	8.78 – 16.1	10.4 – 15.7	Stable	56.9 %
MW119	PFOS+PFHxS	2.82 – 29.8	12.8 – 37.4	Increasing	96.4 %
	PFOA	0.08 – 0.55	0.37 – 0.63	*Increasing*	*98.6 %*
MW129	PFOS+PFHxS	< LOR – 0.06	0.03	*No trend*	*89.2 %*
	PFOA	< LOR	< LOR	Not assessed*	
MW130	PFOS+PFHxS	< LOR – 0.03	< LOR – 0.18	*No trend*	*53.5 %*
	PFOA	< LOR	< LOR	Not assessed*	
MW131	PFOS+PFHxS	< LOR – 0.11	0.04 – 0.11	*No trend*	*89.2 %*
	PFOA	< LOR	< LOR	Not assessed*	

Note:
Only one result is reported in the Min-Max Range where the values are the same.
Italics: indicate low confidence in the Mann Kendall trend analysis given concentrations are within 1 to 2 orders of magnitude of the LOR.
* Insufficient sample numbers or detections above the LOR at this location to allow for statistical assessment.

8.5 Surface Water Results

The results for PFOS+PFHxS and PFOA for sampling events completed in December 2021 to September 2022, compared to screening criteria are provided in **Figure F11** to **Figure F18** (in **Appendix A**).

The PFAS concentrations in surface water are historically generally highest in the following locations:

- Williams Creek Sub-Catchment:
  - Tributaries of Williams Creek downstream of the Luscombe Airfield (PFOS+PFHxS ranging between 0.1 µg/L and 4.3 µg/L in SW038 and SW030 since sampling in 2018)
  - Williams Creek downstream of the Cantonment and Driver Training Area and the STP (PFOS+PFHxS ranging between 0.04 µg/L and 0.48 µg/L in SW009, SW011 and SW012 since sampling in 2017)
- Anzac Creek Sub-Catchment:
  - Within the stormwater drain adjacent to the LFS (PFOS+PFHxS ranging between 0.13 µg/L and 10.8 µg/L in SW001 since sampling in 2018)
  - Down-stream of the LFS in Anzac Creek (PFOS+PFHxS ranging between 0.09 µg/L and 0.18 µg/L in SW059 since sampling in 2018).

All other locations were typically less than the LOR and/or the assessment criteria, except for locations within the drains at the Former 85 Transport Area (PFOS+PFHxS ranging between 0.02 µg/L and 0.64 µg/L in SW103, SW104 and SW105 since sampling in 2018).

A summary of surface water concentrations changes by sub-catchment compared to the historical data are provided below:

- Anzac Creek Sub-Catchment: Concentrations of PFOA and PFOS+PFHxS fluctuated and were variable in comparison to the historical range. During the monitoring period there were:
  - new exceedances reported for PFOS and new maximum concentrations of PFOS and PFOS+PFHxS in SW059 although within the same order of magnitude
  - new minimum concentrations of PFOS+PFHxS and PFOS at SW111.
- Georges River Sub-Catchment: Concentrations of PFOA and PFOS+PFHxS fluctuated but were generally within the historical range except for new maximum concentrations of PFOS+PFHxS at SW025 and SW063 and were within the same order of magnitude.
- Harris Creek Sub-Catchment: Concentrations of PFOA and PFOS+PFHxS were within the historical range or lower. During the monitoring period there were new minimum concentrations at Harris Creek Sub-Catchment in SW017.
- Williams Creek Sub-Catchment: Concentrations of PFOA and PFOS+PFHxS fluctuated and were variable in comparison to the historical range. During the monitoring period there were:
  - first time detections of PFOA, new exceedances of PFOS+PFHxS and PFOS and new maximum concentrations of PFOS+PFHxS and PFOS at SW011, with PFOS+PFHxS one order of magnitude higher than the previous highest result (3.52 µg/L in March 2022 compared to historical maximum of 0.16 µg/L)
  - new maximum concentrations of PFOS+PFHxS and PFOS, and new minimum concentrations at SW012 although within the same order of magnitude
  - new minimum concentrations of PFOS+PFHxS at SW009 and SW038.

The notable change in concentrations at SW011 in March 2022 may be associated with the Heathcote Road upgrade works.

- Williams Creek and Harris Creek Sub-Catchment: Concentrations of PFOA remained below the limit of reporting during the monitoring period which is consistent with historical results. PFOS+PFHxS and PFOS fluctuated during the monitoring period, with new maximum concentrations of PFOS+PFHxS and new minimum concentrations of PFOS at SW014.

It is noted that PFAS concentrations in surface water are dependent on the conditions at the time of sampling (such as flow rate). Temporal trend analysis is summarised in the below section to describe overall trends within each sub-catchment.

8.6 Surface Water Temporal Trend Analysis

Surface water temporal trend graphs for PFOS+PFHxS and PFOA concentrations are provided on **Graph G11** to **Graph G20** (in **Appendix C**) and discussed in the following sub-sections.

Locations with PFAS concentrations consistently below LOR were excluded from the temporal graphs. Additionally, the 30-day average daily rainfall total (in mm) has been included on the temporal trend graphs to allow for assessment of the potential for influence of rainfall on PFAS concentrations.

Note that Mann Kendall analysis was not used to assess the trends in PFAS concentrations in surface water, in accordance with the *PFAS OMP Annual Interpretive Report Guidance* (Defence, 2022).

The temporal trends are discussed for each sub-catchment within the following sub-sections.

8.6.1 Temporal Trend - Anzac Creek Sub-Catchment

PFOS+PFHxS and PFOA concentrations in the Anzac Creek Sub-Catchment locations that were assessed, have been historically observed to be highly variable. The concentrations reported during the current monitoring period were within historic ranges for the catchment although there were results above and below the ranges for individual locations. Refer to **Graph G11** and **Graph G12** in **Appendix C.**

8.6.2 Temporal Trend - Georges River Sub-Catchment

PFOS+PFHxS and PFOA concentrations in the Georges River Sub-Catchment locations that were assessed, have been historically observed to be highly variable and fluctuated over the monitoring period. There was no overall decreasing or increasing trend historically or during the monitoring period. Note that the higher PFAS concentrations in the Georges River sub-catchment are located in the on-Site drains (in particular locations SW103, SW104 and SW105) within the Former 85 Transport Area. Refer to **Graph G13** and **Graph G14** in **Appendix C**.

8.6.3 Temporal Trend – Harris Creek Sub-Catchment

PFOS+PFHxS concentrations in the Harris Creek Sub-Catchment locations that were assessed, have been historically observed to be highly variable and fluctuated over the monitoring period. There was no overall decreasing or increasing trend historically or during the monitoring period. PFOA concentrations have remained below the laboratory limit of reporting since September 2020. Refer to **Graph G15** and **Graph G16** in **Appendix C.**

8.6.4 Temporal Trend – Williams Creek Sub-Catchment

PFOS+PFHxS and PFOA concentrations in the Williams Creek Sub-Catchment locations that were assessed, have been historically observed to be highly variable and fluctuated over the monitoring period. There was no overall decreasing or increasing trend historically or during the monitoring period. Refer to **Graph G17** and **Graph G18** in **Appendix C.**

8.6.5 Temporal Trend – Williams Creek and Harris Creek Sub-Catchment

PFOS+PFHxS concentrations in the Williams Creek and Harris Creek Sub-Catchment locations that were assessed, were observed to increase over the monitoring period, however the PFOS+PFHxS concentrations have fluctuated in the past. PFOA concentrations have remained below the laboratory limit of reporting since commencement of the OMP. Refer to **Graph G19** and **Graph G20** in **Appendix C.**

9.0 Conceptual Site Model

The CSM was developed and reported in the DSI (CH2M Hill, 2018) and summarised in the OMP (Defence, 2020a). The CSM summaries the linkages between sources, exposure pathways and receptors.

The OMP monitoring data generated during the monitoring period (October 2021 to December 2022) has provided additional data to further understand the changing conditions of the PFAS concentrations in groundwater and surface water. Although, some localised changes were noted, in particular perched water and groundwater concentrations in the vicinity of the LFS and select surface water sample locations within the Williams Creek and Anzac Creek sub-catchments, the PFAS concentrations in groundwater and surface water remain similar to that reported in the DSI (CH2M Hill, 2018), and the transport mechanisms remain unchanged from that reported in the DSI (CH2M Hill, 2018).

As per the previous 12-month monitoring period, the Mann Kendall analysis indicated a continued increasing trend in PFOS+PFHxS and PFOA in MW119 and MW119P which are screened in the deep alluvial aquifer and perched groundwater respectively and MW136 which was screened in perched water. All three wells with the increasing trend were located between the LFS and Anzac Creek.

The following new maximums or increasing trends in PFAS concentrations were noted during this monitoring period in groundwater:

- **Cantonment and Driver Training Area**: First time detections of PFOS and PFOS+PFHxS were reported in groundwater located down hydraulic gradient (northwest) of the Cantonment and Driver Training Area (MW123). There was insufficient data to undertake Mann Kendall analysis to assess a trend. As the concentrations were less than the criteria it does not constitute a change to the risk profile or the CSM.
- **Former 85 Transport Area**: First time detections of PFOA and new maximum concentrations for PFOS and PFOS+PFHxS (MW117) were reported in groundwater located west of the Former 85 Transport Area and new maximum concentrations for PFOA, PFOS and PFOS+PFHxS (MW330) were reported within the Former 85 Transport Area. A stable or no trend was shown by the Mann Kendall analysis and does not constitute a change to the risk profile or the CSM.
- **LFS and surrounds - Perched Water**: First-time detections of PFOA (MW136), new maximum concentrations of PFOA, PFOS and PFOS+PFHxS (MW133 and MW119P) and PFOS+PFHxS (MW136) down hydraulic gradient of the LFS in the perched groundwater. New maximum concentrations of PFOS were also detected within the perched groundwater in the LFS (MW134). Mann Kendall analysis indicated an increasing trend in PFOS+PFHxS and PFOA in the perched groundwater down hydraulic gradient of the LFS (MW119P and MW136).
- **LFS and surrounds - Deep Alluvial Aquifer**: New maximum concentrations of PFOS and PFOS+PFHxS (MW119 and MW130), and PFOS (MW131) were reported in the deep alluvial aquifer down hydraulic gradient of the LFS. New maximum concentrations of PFOS and PFOS+PFHxS were also reported within the deep alluvial aquifer within the LFS (MW113). Mann Kendall analysis indicated an increasing trend in PFOS+PFHxS and PFOA in one alluvial screened well located down hydraulic gradient of the LFS (MW119).

Generally, concentrations of PFAS within surface water remain consistent with previous monitoring, with new maximum concentrations limited in magnitude compared with historic observations, with the exception of one location (SW011) in Williams Creek Sub-Catchment which increased by one order of magnitude in March 2022 for PFOS+PFHxS but returned to previous range in the following round. It is likely that this increase may be associated with the Heathcote Road upgrade works. The PFAS concentrations at SW011 returned to historical ranges in the subsequent sampling event in September 2022. Therefore, there is no change to the CSM.

The reason for the increasing trend in PFAS concentrations at and down-gradient of the LFS is unclear. There was above average rainfall during the monitoring period with extreme rainfall periods in March 2022 and July 2022 which could have influenced mobilisation and transport of PFAS, particularly in the perched groundwater. The rainfall occurred along with both increases at some monitoring wells and decreases at others in PFAS concentrations, with no clear indication of the changes to concentrations when compared to rainfall.

Overall, data presented in this report indicates that the PFAS source > receptor > pathway linkages have not changed since the DSI (CH2M Hill, 2018).

10.0 Discussion

10.1 Risk Profile Review

The data collected during OMP monitoring between October 2021 and September 2022 indicates that the risk profile to human health receptors within the Management Area and surrounds remains generally unchanged since the DSI (CH2M Hill, 2018), HHERA (CH2M Hill, 2020) and HHERA Addendum (CH2M Hill, 2021). This is based on the following assessment of the OMP data.

Groundwater

The PFAS impacts in groundwater are generally similar to historical results with the exception of continued increasing trends of PFOS+PFHxS and PFOA concentrations at two groundwater monitoring wells (MW136 and MW119P) located to the east and hydraulically down-gradient of the LFS. An increasing trend of PFOS+PFHxS and PFOA concentrations also continued to be reported at one of the alluvial screened well (MW119). The increase may be related to increased rainfall over the monitoring period which has increased the groundwater levels in this area resulting in longer contact with PFAS impacted soils. However, data presented in this report indicates that the PFAS source > receptor > pathway linkages have not changed since the DSI (CH2M Hill, 2018).

Surface Water

PFAS concentrations at surface water locations were generally similar to historical results with the new maximum concentrations limited in magnitude when compared with historical observations, with the exception of SW011. The notable change in concentrations at SW011 in March 2022 may be associated with the Heathcote Road upgrade works. The PFAS concentrations at SW011 returned to historical ranges in the subsequent sampling event in September 2022.

Given that the PFAS concentrations at SW011 returned to historical ranges in September 2022 sampling the reported results in March 2022 do not constitute a change to the understanding of the CSM.

10.2 Assessment of current OMP

Following a review of the data collected during the current monitoring period, there has been no significant changes to the understanding of risks associated with PFAS at the Management Area and surrounds and the spatial distribution of PFAS. Based on this, the monitoring program is considered suitable and there are no triggers to the requirement of a review of the OMP.

11.0 Conclusions

Groundwater and surface water sampling were completed in accordance with the SAQP (AECOM, 2022a) and to meet the objectives of the OMP (Defence, 2020a) between October 2021 and September 2022.

The groundwater elevation at the LFS and surrounds increased during the monitoring period, which corresponded with above average rainfall.

Overall, the concentrations of PFAS in groundwater were generally similar to previous results. An increasing trend of PFAS concentrations has continued in two groundwater monitoring wells (MW119P and MW136) in the perched groundwater and one well (MW119) in the deep alluvial aquifer located down-gradient of the LFS. The increase may be related to increased rainfall over the monitoring period which has increased the groundwater levels in this area resulting in longer contact with PFAS impacted soils. However, the overall risk profile remains unchanged given that there are no complete source>receptor>pathway linkages present.

In locations where new maximum concentrations were reported (MW113, MW117, MW119, MW119P, MW130, MW133, MW134, MW136 and MW330), increases in PFAS concentrations had previously been observed. New maximums remained within an order of magnitude of these historic maximum observations.

PFAS concentrations in surface water were generally similar to historical results. Increases and new maximum concentrations (SW011, SW012, SW014, SW025, SW059 and SW063) that were reported remained within an order of magnitude of historical observations for the respective locations. The notable change in concentrations at SW011 in March 2022 may be associated with the Heathcote Road upgrade works. The PFAS concentrations at SW011 returned to historical ranges in the subsequent sampling event in September 2022.

The CSM was reviewed, and no changes to the PFAS source > receptor > pathway linkages were identified at the Site, LFS and surrounds.

Based on the data, AECOM considers that the risk profile to human health receptors within the Management Area remains generally unchanged since the DSI (CH2M Hill, 2018), HHERA (CH2M Hill, 2020) and HHERA Addendum (CH2M Hill, 2021).

AECOM notes that the data collected during the monitoring period are considered to be representative of conditions at the time of sampling, and suitable for meeting the objectives of the OMP.

12.0 References

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Appendix A

Figures

AECOM

N

0 360 720 m

Legend

- Site Boundary
- Primary Source Area
- Management Area

FIGURE F1:
SITE LAYOUT

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area
- Groundwater Sampling Location
- Surface Water Sampling Lcation

Note that sampling locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134 and MW136 are not shown due to privacy considerations

FIGURE F2:
SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Groundwater - PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 1 - 10
- > 0.07 - 1
- Limit of Reporting - 0.07
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

Note that sampling locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134 and MW136 are not shown due to privacy considerations

FIGURE F3:
GROUNDWATER RESULTS – PFOS + PFHXS (DECEMBER 2021)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octoler 2021 - Septemler 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
6061

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Groundwater - PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > 0.1 - 0.56
- Limit of Reporting - 0.1
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

Note that sampling locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134 and MW136 are not shown due to privacy considerations

FIGURE F4:
GROUNDWATER RESULTS – PFOA
(DECEMBER 2021)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (NSW)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Groundwater - PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 1 - 10
- > 0.07 - 1
- Limit of Reporting - 0.07
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

Note that sampling locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134 and MW136 are not shown due to privacy considerations

FIGURE F5:
GROUNDWATER RESULTS – PFOS + PFHXS (MARCH 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octoler r 2 - Septemle r 2
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
6

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Groundwater - PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > 0.1 - 0.56
- Limit of Reporting - 0.1
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

Note that sampling locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134 and MW136 are not shown due to privacy considerations

FIGURE F6:
GROUNDWATER RESULTS – PFOA
(MARCH 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octo e 2 - Sp tem e 2
Holsworthy Ba ra ks (0
CLIENT NAME:
Depa t entD f ef nce
PROJECT NUMBER:
60

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Groundwater - PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 1 - 10
- > 0.07 - 1
- Limit of Reporting - 0.07
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

Note that sampling locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134 and MW136 are not shown due to privacy considerations

FIGURE F7:
GROUNDWATER RESULTS – PFOS + PFHXS (JUNE 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octoler 2021 - Septemler 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
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AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Groundwater - PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > 0.1 - 0.56
- Limit of Reporting - 0.1
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

Note that sampling locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134 and MW136 are not shown due to privacy considerations

FIGURE F8:
GROUNDWATER RESULTS – PFOA
(JUNE 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (NSW)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
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AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Groundwater - PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 1 - 10
- > 0.07 - 1
- Limit of Reporting - 0.07
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

Note that sampling locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134 and MW136 are not shown due to privacy considerations

FIGURE F9:
GROUNDWATER RESULTS – PFOS + PFHXS (SEPTEMBER 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octo e 2 - Se tem e 2
Holsworthy Ba ra ks (0
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60 2

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Groundwater - PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > 0.1 - 0.56
- Limit of Reporting - 0.1
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

Note that sampling locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134 and MW136 are not shown due to privacy considerations

FIGURE F10:
GROUNDWATER RESULTS – PFOA
(DECEMBER 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octo e 2 - Sep temb e 2
Holsworthy Ba ra ks (0
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

FIGURE F11:
SURFACE WATER RESULTS – PFOS + PFHXS
(DECEMBER 2021)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (Q4)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Surface Water - PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > 0.1 - 0.56
- Limit of Reporting - 0.1
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

FIGURE F12:
SURFACE WATER RESULTS – PFOA
(DECEMBER 2021)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octo e 2 - Se tem e 2
Holsworthy Ba ra ks (0
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Surface Water - PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 2 - 10
- > 0.1 - 2
- Limit of Reporting - 0.1
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

FIGURE F13:
SURFACE WATER RESULTS – PFOS + PFHXS
(MARCH 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octo e 2 - Se tem e 2
Holsworthy Ba ra ks (0
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

FIGURE F14:
SURFACE WATER RESULTS – PFOA
(MARCH 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octo e 2 - Sp tem e 2
Holsworthy Ba ra ks (0
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60 2

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Surface Water - PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 2 - 10
- > 0.1 - 2
- Limit of Reporting - 0.1
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

FIGURE F15:
SURFACE WATER RESULTS – PFOS + PFHXS
(JUNE 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octo e 2 - Se tem e 2
Holsworthy Ba ra ks (0
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Surface Water - PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > 0.1 - 0.56
- Limit of Reporting - 0.1
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

FIGURE F16:
SURFACE WATER RESULTS – PFOA
(JUNE 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octo e 2 - Sp tem e 2
Holsworthy Ba ra ks (0
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60 2

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Surface Water - PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 2 - 10
- > 0.1 - 2
- Limit of Reporting - 0.1
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

FIGURE F17:
SURFACE WATER RESULTS – PFOS + PFHXS (SEPTEMBER 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octo e 2 - Sp tem e 2
Holsworthy Ba ra ks (0
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 400 800 m

Legend

- Site Boundary
- Primary Source Area

Surface Water - PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > 0.1 - 0.56
- Limit of Reporting - 0.1
- < Limit of Reporting
- Not Sampled/Accessed or in Scope

FIGURE F18:
SURFACE WATER RESULTS – PFOA
(SEPTEMBER 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
Octo e 2 - Sp tem e 2
Holsworthy Ba ra ks (0
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60 2

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 30 60 m

Legend

- Site Boundary
- Primary Source Area
- Groundwater Contours (mAHD)
- Inferred Groundwater Flow Direction
- Groundwater Location (Gauged)
- 8.348 Groundwater Elevation (mAHD)

Due to privacy considerations, locations MW119, MW129, MW130, MW131 cannot be shown.

FIGURE F19: GROUNDWATER ELEVATION PLAN DEEP ALLUVIAL DECEMBER 2021

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 230 460 m

Legend

- Site Boundary
- Primary Source Area
- 10 m AHD Topographical Contour
- Groundwater Contour (March 2022)
- Inferred Groundwater Flow Direction
- Groundwater location (gauged)
- 15.415 Groundwater Elevation (mAHD)

FIGURE F20-1:
GROUNDWATER ELEVATION PLAN BEDROCK (MARCH 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 30 60 m

Legend

- Site Boundary
- Primary Source Area
- Groundwater Contours (mAHD)
- Inferred Groundwater Flow Direction
- Groundwater location (gauged)
- 15.415 Groundwater Elevation (mAHD)

Due to privacy considerations, locations MW119, MW129, MW130, MW131 cannot be shown.

FIGURE F20-2:
GROUNDWATER ELEVATION PLAN DEEP ALLUVIAL (MARCH 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 180 360 m

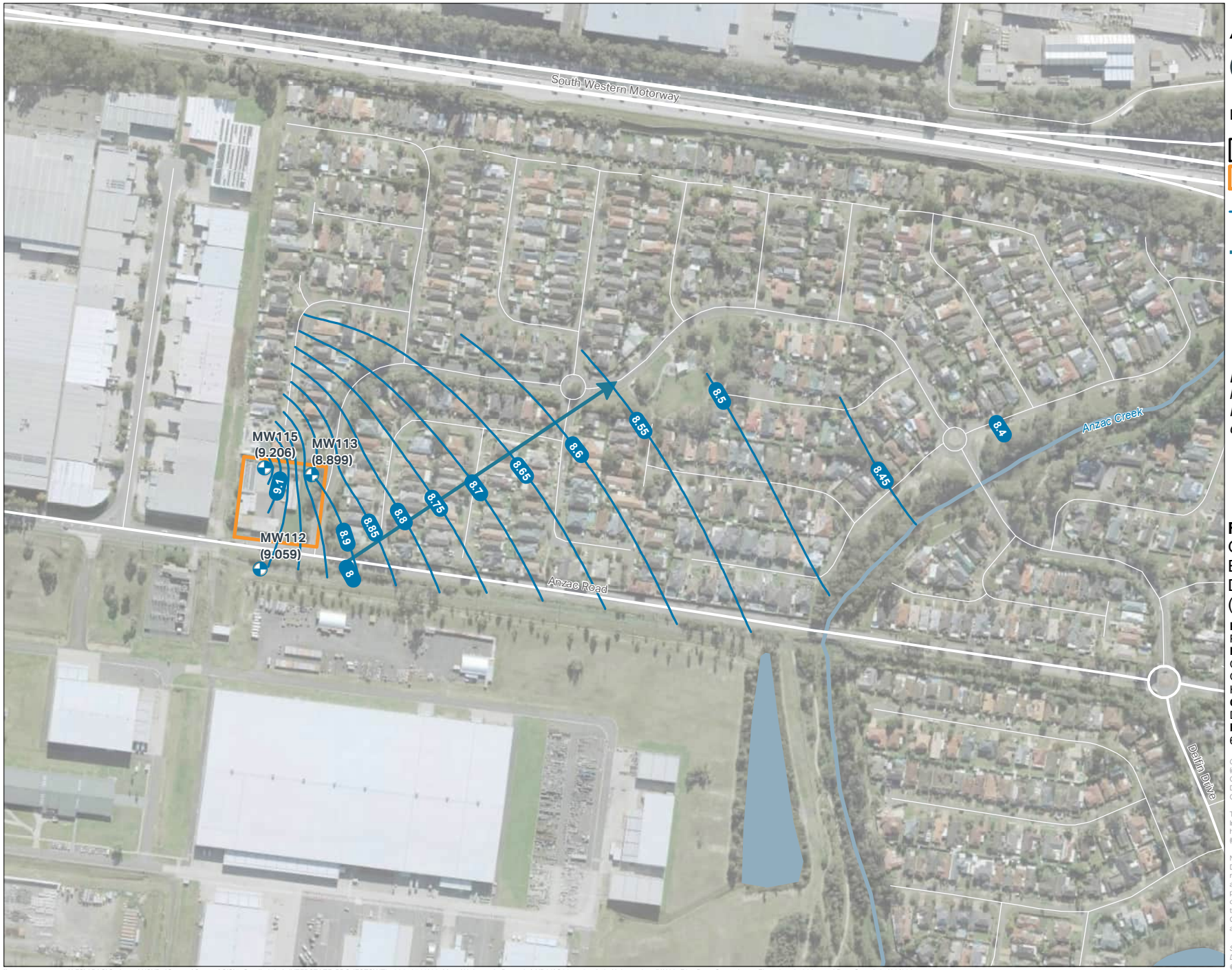
Legend

- Site Boundary
- Primary Source Area
- 10 m AHD Topographical Contour
- Groundwater location (gauged)
- 15.415 Groundwater Elevation (mAHD)
- Inferred Groundwater Flow Direction

FIGURE F20-3:
GROUNDWATER ELEVATION PLAN SHALLOW ALLUVIAL (MARCH 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020



AECOM

N

0 40 80 m

Legend

- Site Boundary
- Primary Source Area
- Groundwater Contours (mAHD)
- Inferred Groundwater Flow Direction
- Groundwater Location (gauged)
- 8.348 Groundwater Elevation (mAHD)

Due to privacy considerations, locations MW119, MW129, MW130, MW131 cannot be shown

FIGURE F21:
GROUNDWATER ELEVATION PLAN DEEP ALLUVIAL (JUNE 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
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AECOM

N

0 230 460 m

Legend

- Site Boundary
- Primary Source Area
- 10 m AHD Topographical Contour
- Groundwater Contour (September 2022)
- Inferred Groundwater Flow Direction
- Groundwater Location (Gauged)
- 27.906 Groundwater Elevation (mAHD)

FIGURE F22-1:
GROUNDWATER ELEVATION PLAN BEDROCK (SEPTEMBER 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 40 80 m

Legend

- Site Boundary
- Primary Source Area
- Groundwater Location (Gauged)
- 27.906 Groundwater Elevation (mAHD)
- Groundwater Contour (September 2022)
- Inferred Groundwater Flow Direction

Due to privacy considerations, locations MW119, MW129, MW130, MW131 cannot be shown

FIGURE F22-2:
GROUNDWATER ELEVATION PLAN DEEP ALLUVIAL (SEPTEMBER 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
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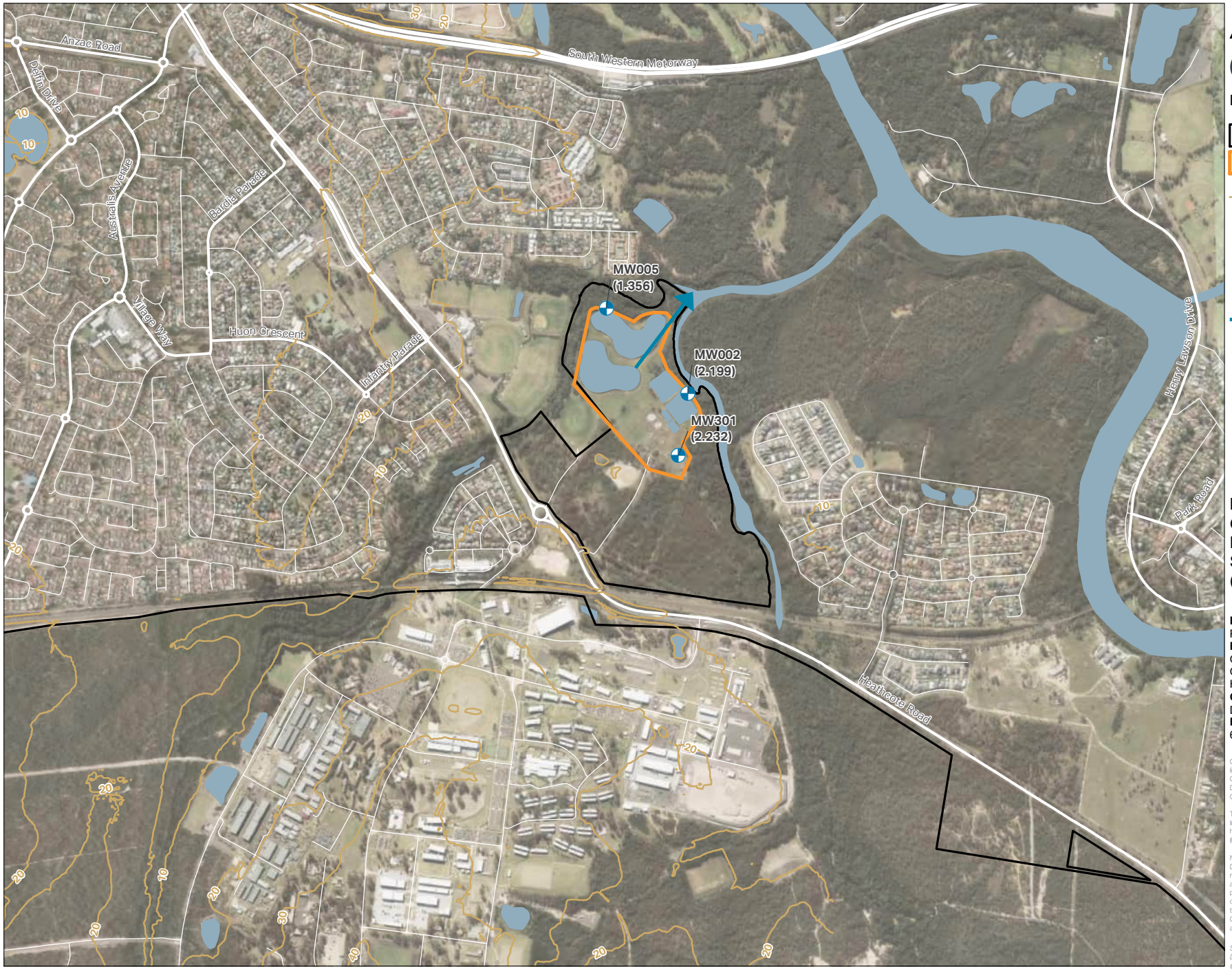

AECOM

N

0 180 360 m

Legend

- Site Boundary
- Primary Source Area
- 10 m AHD Topographical Contour
- Groundwater Location (Gauged)
- 27.906 Groundwater Elevation (mAHD)
- Inferred Groundwater Flow Direction

FIGURE F22-3:
GROUNDWATER ELEVATION PLAN SHALLOW ALLUVIAL (SEPTEMBER 2022)

PROJECT NAME:
PFAS OMP
REPORT NAME:
Ongoing Monitoring Report
October 2021 - September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
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Appendix B

Tables

Table T1 - Groundwater Gauging and Observations

Location Code	Alternative Name	Top of Casing (mAHD)	Top Screen (mbgl)	Bottom Screen (mbgl)	HydraSleeve Collar Depth (mbTOC)	Visit / Gauging Date Time	Water Depth (mbTOC)	Water Elevation (mAHD)	Depth to Base of Well (mbTOC)	Visit / Gauging Comment
MW002	MW02	3.530	Unknown	Unknown	3.20	21/03/2022 16:58	1.091	2.439	3.74	Good condition.
MW002	MW02	3.530	Unknown	Unknown	3.20	6/09/2022 11:50	1.331	2.199	3.75	Good condition. No monument.
MW005	MW05	3.157	Unknown	Unknown	3.00	21/03/2022 15:50	1.830	1.327	4.00	Stick up with no monument.
MW005	MW05	3.157	Unknown	Unknown	3.00	6/09/2022 11:30	1.801	1.356	3.99	No monument, J-cap or HydraSleeve. Casing on angle, possibly pushed over during floods.
MW112	BH112	13.420	10.3	13.3	12.30	6/12/2021 11:24	5.161	8.259	13.39	Good condition.
MW112	BH112	13.420	10.3	13.3	12.30	23/03/2022 9:36	4.834	8.586	13.19	Good condition. Gatic flooded above TOC.
MW112	BH112	13.420	10.3	13.3	12.30	15/06/2022 11:43	4.361	9.059	13.19	Good condition.
MW112	BH112	13.420	10.3	13.3	12.30	5/09/2022 11:56	4.088	9.332	13.31	Good condition.
MW112P	BH112_P	13.430	2	5	4.50	6/12/2021 11:28	2.215	11.215	5.10	Good condition. Gauging reading taken after HydraSleeve was removed.
MW112P	BH112_P	13.430	2	5	4.50	23/03/2022 9:22	1.752	11.678	5.10	Good condition.
MW112P	BH112_P	13.430	2	5	4.50	15/06/2022 11:35	1.930	11.500	5.10	Good condition.
MW112P	BH112_P	13.430	2	5	4.50	5/09/2022 12:20	1.821	11.609	5.10	Good condition.
MW113	BH113	13.460	10.9	14.9	14.00	6/12/2021 9:54	5.489	7.971	14.74	Good condition.
MW113	BH113	13.460	10.9	14.9	14.00	23/03/2022 10:52	4.806	8.654	14.77	Good condition. Silt noted on interface probe.
MW113	BH113	13.460	10.9	14.9	13.80	15/06/2022 13:15	4.561	8.899	14.76	Good condition.
MW113	BH113	13.460	10.9	14.9	14.00	5/09/2022 10:16	4.318	9.142	14.93	Good condition.
MW115	BH115	14.080	10.1	13.1	12.20	6/12/2021 9:35	5.732	8.348	13.41	Good condition.
MW115	BH115	14.080	10.1	13.1	12.20	23/03/2022 10:42	5.140	8.940	13.22	Good condition.
MW115	BH115	14.080	10.1	13.1	12.20	15/06/2022 13:03	4.874	9.206	13.21	Good condition.
MW115	BH115	14.080	10.1	13.1	12.20	5/09/2022 10:00	4.637	9.443	13.34	Good condition.
MW117	BH117	18.130	13	17.5	16.80	21/03/2022 9:29	14.431	3.699	17.92	Good condition.
MW117	BH117	18.130	13	17.5	16.80	7/09/2022 11:31	14.048	4.082	18.58	Good condition.
MW119	BH119	11.010	8	11	10.30	6/12/2021 12:02	3.152	7.858	11.19	Good condition.
MW119	BH119	11.010	8	11	10.30	23/03/2022 10:09	2.611	8.399	11.20	Good condition.
MW119	BH119	11.010	8	11	10.30	15/06/2022 12:16	2.480	8.530	11.20	Good condition.
MW119	BH119	11.010	8	11	10.30	5/09/2022 14:19	2.274	8.736	11.21	Good condition. Well base sedimented.
MW119P	BH119_P, MW119S	11.120	2	5	4.15	6/12/2021 11:54	3.240	7.880	4.66	Good condition.
MW119P	BH119_P, MW119S	11.120	2	5	4.15	23/03/2022 10:20	2.402	8.718	4.65	Good condition. Rootlets on HydraSleeve.
MW119P	BH119_P, MW119S	11.120	2	5	4.15	15/06/2022 12:23	2.424	8.696	4.64	Good condition.
MW119P	BH119_P, MW119S	11.120	2	5	4.15	5/09/2022 14:40	2.147	8.973	4.62	Good condition.
MW120	BH120	17.270	11.5	14.5	14.00	21/03/2022 14:09	2.842	14.428	15.09	Good condition.
MW120	BH120	17.270	11.5	14.5	14.00	6/09/2022 14:18	2.477	14.793	15.20	Good condition.
MW121	BH121	16.470	15.3	18.3	16.10	21/03/2022 13:19	4.342	12.128	17.11	Good condition. Silt noted on interface probe.
MW121	BH121	16.470	15.3	18.3	16.10	6/09/2022 13:52	3.980	12.490	17.24	Good condition. Well base sedimented.
MW122	BH122	18.540	11.5	14.5	13.00	21/03/2022 13:30	n/a	n/a	n/a	No access, (direct access flooded and alternative access blocked due to construction works). Visited on multiple occasions during field works.
MW122	BH122	18.540	11.5	14.5	13.00	6/09/2022 15:25	6.999	11.541	15.42	Good condition.
MW123	BH123	7.070	2	6	5.50	22/03/2022 12:28	0.411	6.659	6.80	Good condition.
MW123	BH123	7.070	2	6	5.50	6/09/2022 13:10	1.184	5.886	6.81	Good condition.
MW124	BH124	6.390	2	5	4.30	22/03/2022 11:58	3.122	3.268	5.82	Good condition.
MW124	BH124	6.390	2	5	4.30	7/09/2022 10:29	3.506	2.884	5.83	Good condition. Ants nest present.
MW129		9.526	5	8	6.70	6/12/2021 12:29	1.721	7.805	7.64	Good condition.
MW129		9.526	5	8	6.70	23/03/2022 11:10	1.242	8.284	7.66	Good condition.
MW129		9.526	5	8	6.70	15/06/2022 10:52	1.138	8.388	7.67	Good condition.
MW129		9.526	5	8	6.70	5/09/2022 13:50	1.021	8.505	7.70	Good condition.
MW130		12.986	6	9	7.70	6/12/2021 10:10	5.447	7.539	8.70	Good condition.
MW130		12.986	6	9	7.70	23/03/2022 8:33	4.752	8.234	8.68	Good condition.
MW130		12.986	6	9	7.70	15/06/2022 9:30	4.363	8.623	8.70	Good condition.
MW130		12.986	6	9	7.70	5/09/2022 10:30	4.084	8.902	8.70	Good condition. Well base sedimented.
MW131		12.179	7	10	9.10	6/12/2021 10:38	4.642	7.537	9.94	Good condition.
MW131		12.179	7	10	9.10	23/03/2022 7:58	4.410	7.769	9.92	Good condition.
MW131		12.179	7	10	9.00	15/06/2022 10:27	3.705	8.474	9.95	Good condition.
MW131		12.179	7	10	9.10	5/09/2022 11:10	3.455	8.724	10.02	Good condition.
MW133	MW133P	13.350	2	4	3.50	6/12/2021 10:29	4.543	8.807	4.97	Good condition.
MW133	MW133P	13.350	2	4	3.50	23/03/2022 8:49	3.400	9.950	3.92	Good condition.
MW133	MW133P	13.350	2	4	3.50	15/06/2022 9:47	2.878	10.472	4.87	Good condition. Gauged after removing HydraSleeve.
MW133	MW133P	13.350	2	4	3.50	5/09/2022 10:46	2.809	10.541	4.88	Good condition.
MW134		13.210	1.9	3.9	3.40	6/12/2021 0:00	n/a	n/a	4.66	Good condition. Well dry.

Table T1 - Groundwater Gauging and Observations

Location Code	Alternative Name	Top of Casing (mAHD)	Top Screen (mbgl)	Bottom Screen (mbgl)	HydraSleeve Collar Depth (mbTOC)	Visit / Gauging Date Time	Water Depth (mbTOC)	Water Elevation (mAHD)	Depth to Base of Well (mbTOC)	Visit / Gauging Comment
MW134		13.210	1.9	3.9	3.40	23/03/2022 9:05	n/a	n/a	4.67	Good condition. Well dry.
MW134		13.210	1.9	3.9	3.40	15/06/2022 12:40	3.436	9.774	4.67	Good condition.
MW134		13.210	1.9	3.9	3.40	5/09/2022 11:39	3.464	9.746	4.67	Good condition.
MW136	MW136P	11.860	2.25	4.25	3.75	6/12/2021 10:54	2.937	8.923	4.94	Good condition.
MW136	MW136P	11.860	2.25	4.25	3.75	23/03/2022 8:17	2.548	9.312	4.95	Good condition.
MW136	MW136P	11.860	2.25	4.25	3.75	15/06/2022 10:08	2.798	9.062	4.95	Good condition.
MW136	MW136P	11.860	2.25	4.25	3.75	5/09/2022 11:27	2.734	9.126	4.95	Good condition.
MW301	MW1	3.383	Unknown	Unknown	4.00	21/03/2022 15:16	0.871	2.512	4.55	Good condition.
MW301	MW1	3.383	Unknown	Unknown	4.00	6/09/2022 10:01	1.151	2.232	4.56	No monument or J-cap. Well base sedimented.
MW323	BH345	36.380	9	15	14.00	22/03/2022 10:48	8.647	27.733	-	Good condition.
MW323	BH345	36.380	9	15	14.00	7/09/2022 10:53	8.474	27.906	15.05	Good condition.
MW330	BH365	29.530	4	10	8.50	22/03/2022 12:51	5.905	23.625	9.88	Good condition. No HydraSleeve present on first visit (21/03/2022 10:10am). Installed HydraSleeve for sampling on 22/3/22.
MW330	BH365	29.530	4	10	8.50	5/09/2022 15:57	5.624	23.906	9.95	Good condition.
MW349	BH612	18.420	3.9	8.2	6.70	22/03/2022 11:35	3.005	15.415	7.64	Good condition.
MW349	BH612	18.420	3.9	8.2	6.70	6/09/2022 16:42	3.601	14.819	7.67	Good condition. Well base sedimented.

Notes

mAHD	meters Australian Height Datum
mbgl	meters below ground level
mbTOC	meters below Top of Casing
n/a	Not applicable
-	Not measured

Table T2 - Groundwater Quality Parameters and Observations

				Water Quality Parameters					
				Dissolved Oxygen	Temperature	Electrical Conductivity	pH	Redox Potential Er	Redox Potential Eh (Corrected)
				mg/L	°C	uS/cm	pH Units	mV	mV
Location Code	**Date**	**Monitoring Round**	**Sample Comments**						
MW002	21 Mar 2022	202203_AECOM_OMP	Light yellow / brown, low turbidity, organic odour, no sheen.	0.80	20.8	295.9	6.23	-115.1	90.7
MW002	06 Sep 2022	202209_AECOM_OMP	Brown/orange, high turbidity, no odour, no sheen. Suspended solids.	1.36	14.6	272.0	6.08	-19.9	185.9
MW005	21 Mar 2022	202203_AECOM_OMP	Light yellow / brown, low turbidity, organic odour, no sheen.	1.39	21.0	3,813.0	6.13	-98.6	107.2
MW005	06 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen. Sampled with bailer.	2.13	14.5	2,378.0	6.09	-40.0	165.8
MW112	06 Dec 2021	202112_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	1.58	20.2	3,046.0	5.12	101.7	307.5
MW112	23 Mar 2022	202203_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	1.52	21.7	1,551.0	5.85	20.9	226.7
MW112	15 Jun 2022	202206_AECOM_OMP	Clear, low turbidity, no odour, no sheen	0.62	18.3	2,565.0	5.45	68.2	274.0
MW112	05 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	4.02	24.2	1,194.0	6.26	141.0	346.8
MW112P	06 Dec 2021	202112_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	1.16	19.2	418.9	4.87	103.9	309.7
MW112P	23 Mar 2022	202203_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	4.11	22.9	133.2	6.26	-47.9	157.9
MW112P	15 Jun 2022	202206_AECOM_OMP	Clear, low turbidity, no odour, no sheen	1.46	17.5	284.0	5.12	71.6	277.4
MW112P	05 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	2.48	17.7	237.9	4.98	177.3	383.1
MW113	06 Dec 2021	202112_AECOM_OMP	Clear, no turbidity, no odour, no sheen. Orange suspended solids.	2.15	19.9	248.9	4.81	146.2	352.0
MW113	23 Mar 2022	202203_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	2.88	21.0	280.3	6.17	120.5	326.3
MW113	15 Jun 2022	202206_AECOM_OMP	Clear, low turbidity, no odour, no sheen	0.21	20.0	280.3	6.33	66.3	272.1
MW113	05 Sep 2022	202209_AECOM_OMP	Ligh yellow, low turbidity, no odour, no sheen.	1.61	19.6	192.7	5.36	151.9	357.7
MW115	06 Dec 2021	202112_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	4.03	20.8	490.4	4.96	137.0	342.8
MW115	23 Mar 2022	202203_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	4.56	21.7	323.1	5.07	137.5	343.3
MW115	15 Jun 2022	202206_AECOM_OMP	Clear, low turbidity, no odour, no sheen	0.84	20.8	399.7	5.45	67.7	273.5
MW115	05 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	2.36	19.6	383.8	5.11	132.4	338.2
MW117	21 Mar 2022	202203_AECOM_OMP	Clear, low turbidity, no odour, no sheen.	0.04	18.6	1,116.0	5.35	93.2	299.0
MW117	07 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	1.42	18.0	634.0	5.26	182.5	388.3
MW119	06 Dec 2021	202112_AECOM_OMP	Clear, low turbidity, no odour, no sheen.	4.08	18.7	1,148.0	6.43	131.6	337.4
MW119	23 Mar 2022	202203_AECOM_OMP	Light brown, no turbidity, no odour, no sheen.	2.88	22.5	633.0	6.65	52.6	258.4
MW119	15 Jun 2022	202206_AECOM_OMP	Ligh yellow, low turbidity, no odour, no sheen	3.35	19.5	894.0	6.81	74.5	280.3
MW119	05 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	4.89	18.6	552.0	7.11	167.1	372.9
MW119P	06 Dec 2021	202112_AECOM_OMP	Light yellow / brown, low turbidity, no odour, no sheen. Orange suspended solids.	4.52	18.5	1,920.0	4.91	147.7	353.5
MW119P	23 Mar 2022	202203_AECOM_OMP	Light brown, low turbidity, no odour, no sheen.	3.34	23.4	991.0	4.93	120.2	326.0
MW119P	15 Jun 2022	202206_AECOM_OMP	Clear, no turbidity, no odour, no sheen	3.51	19.9	1,028.0	5.16	110.6	316.4
MW119P	05 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	3.62	16.7	611.0	4.46	230.3	436.1
MW120	21 Mar 2022	202203_AECOM_OMP	Orange / brown, medium turbidity, no odour, no sheen.	1.80	21.2	7,234.0	6.21	27.2	233.0
MW120	06 Sep 2022	202209_AECOM_OMP	Clear, low turbidity, no odour, no sheen.	2.18	17.7	6,089.0	6.49	-8.8	197.0
MW121	21 Mar 2022	202203_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	1.19	20.5	740.0	5.92	69.0	274.8
MW121	06 Sep 2022	202209_AECOM_OMP	Clear, low turbidity, no odour, no sheen.	2.92	17.7	817.0	6.42	125.4	331.2
MW122	21 Mar 2022	202203_AECOM_OMP	n/a - no access (direct access flooded and alternative access blocked due to construction works).	n/a	n/a	n/a	n/a	n/a	n/a
MW122	06 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	4.26	17.4	375.1	5.58	175.0	380.8
MW123	22 Mar 2022	202203_AECOM_OMP	Light brown, low turbidity, no odour, no sheen.	0.75	23.8	8,516.0	6.23	1.0	206.8
MW123	06 Sep 2022	202209_AECOM_OMP	Light brown, low turbidity, no odour, no sheen.	1.22	14.5	7,960.0	6.08	139.5	345.3
MW124	22 Mar 2022	202203_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	2.59	22.7	6,172.0	5.65	97.1	302.9
MW124	07 Sep 2022	202209_AECOM_OMP	Light brown, low turbidity, no odour, no sheen.	1.43	16.2	4,714.0	5.62	136.3	342.1
MW129	06 Dec 2021	202112_AECOM_OMP	Light yellow / brown, low turbidity, no odour, no sheen.	1.60	19.3	2,830.0	5.85	85.0	290.8
MW129	23 Mar 2022	202203_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	1.34	22.6	2,586.0	5.84	-41.9	163.9
MW129	15 Jun 2022	202206_AECOM_OMP	Light brown, low turbidity, no odour, no sheen	3.31	17.4	3,257.0	5.64	51.8	257.6
MW129	05 Sep 2022	202209_AECOM_OMP	Light brown, low turbidity, no odour, no sheen. Dark orange staining on Hydrasleeve.	2.94	16.8	1,685.0	5.56	180.5	386.3
MW130	06 Dec 2021	202112_AECOM_OMP	Light brown, low turbidity, no odour, no sheen.	2.51	21.0	442.7	5.56	152.6	358.4
MW130	23 Mar 2022	202203_AECOM_OMP	Light brown, low turbidity, no odour, no sheen.	1.40	21.9	416.7	5.98	-159.1	46.7
MW130	15 Jun 2022	202206_AECOM_OMP	Brown, medium turbidity, no odour, no sheen	0.00	19.2	734.0	5.90	26.6	232.4
MW130	05 Sep 2022	202209_AECOM_OMP	Light brown, medium turbidity, no odour, no sheen.	1.98	19.2	917.0	4.26	180.0	385.8
MW131	06 Dec 2021	202112_AECOM_OMP	Clear, low turbidity, no odour, no sheen. Orange/brown suspended solids.	2.33	19.5	586.0	6.15	-58.5	147.3
MW131	23 Mar 2022	202203_AECOM_OMP	Light brown, no turbidity, no odour, no sheen.	1.13	21.5	1,198.0	6.89	-143.6	62.2
MW131	15 Jun 2022	202206_AECOM_OMP	Clear, no turbidity, no odour, no sheen	0.45	19.0	1,764.0	5.79	-78.2	127.6
MW131	05 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	3.21	19.4	599.0	6.38	144.5	350.3
MW133	06 Dec 2021	202112_AECOM_OMP	Clear, low turbidity, no odour, no sheen. Black suspended solids. Bailer sample taken, no water in Hydrasleeve.	2.30	22.0	1,355.0	6.53	-123.2	82.6
MW133	23 Mar 2022	202203_AECOM_OMP	Clear, no turbidity, no odour, no sheen. Water parameters taken from bailer.	2.77	23.4	740.0	6.48	-42.3	163.5
MW133	15 Jun 2022	202206_AECOM_OMP	Clear, low turbidity, no odour, no sheen	2.87	17.9	311.4	5.27	89.2	295.0
MW133	05 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	2.86	19.9	213.8	4.99	207.5	413.3
MW134	06 Dec 2021	202112_AECOM_OMP	n/a - well dry, no parameters or sample taken.	n/a	n/a	n/a	n/a	n/a	n/a
MW134	23 Mar 2022	202203_AECOM_OMP	n/a - well dry, no parameters or sample taken.	n/a	n/a	n/a	n/a	n/a	n/a
MW134	15 Jun 2022	202206_AECOM_OMP	Light brown, high turbidity, sulfurous odour, no sheen. Hydrasleeve did not deploy correctly. Sample taken with bailer.	1.34	21.8	795.0	6.37	-55.5	150.3
MW134	05 Sep 2022	202209_AECOM_OMP	Light brown, high turbidity, no odour, no sheen.	1.69	19.3	489.2	5.80	109.4	315.2
MW136	06 Dec 2021	202112_AECOM_OMP	Light brown, medium turbidity, weak hydrogen sulphide odour, no sheen.	1.56	20.8	3,386.0	5.93	7.0	212.8
MW136	23 Mar 2022	202203_AECOM_OMP	Dark grey, high turbidity, sulfuric odour, no sheen.	1.49	22.7	777.0	6.54	-234.1	-28.3

Table T2 - Groundwater Quality Parameters and Observations

				Water Quality Parameters					
				Dissolved Oxygen	Temperature	Electrical Conductivity	pH	Redox Potential Er	Redox Potential Eh (Corrected)
				mg/L	°C	uS/cm	pH Units	mV	mV
Location Code	**Date**	**Monitoring Round**	**Sample Comments**						
MW136	15 Jun 2022	202206_AECOM_OMP	Clear, medium turbidity, sulfurous odour, no sheen. Suspended solids.	0.30	19.1	-	6.14	-141.5	64.3
MW136	05 Sep 2022	202209_AECOM_OMP	Dark grey, high turbidity, organic odour, no sheen.	0.78	19.0	596.0	6.07	-35.0	170.8
MW301	21 Mar 2022	202203_AECOM_OMP	Light yellow / brown, medium turbidity, no odour, no sheen.	1.54	21.9	1,514.0	6.24	11.7	217.5
MW301	06 Sep 2022	202209_AECOM_OMP	Brown/orange, high turbidity, no odour, no sheen. Orange staining on Hydrasleeve.	0.62	14.7	1,282.0	6.14	47.9	253.7
MW323	22 Mar 2022	202203_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	1.18	20.5	9,147.0	6.45	-5.5	200.3
MW323	07 Sep 2022	202209_AECOM_OMP	Clear, no turbidity, no odour, no sheen.	2.40	18.7	8,155.0	6.35	-4.0	201.8
MW330	22 Mar 2022	202203_AECOM_OMP	Light brown, medium turbidity, no odour, no sheen.	2.39	24.5	4,549.0	4.12	283.0	488.8
MW330	05 Sep 2022	202209_AECOM_OMP	Light brown, low turbidity, no odour, no sheen. *[EC corrected from 461.3 to 4613, after issuing of factual report].*	3.85	19.0	4,613.0	4.82	237.7	443.5
MW349	22 Mar 2022	202203_AECOM_OMP	Light brown, low turbidity, no odour, no sheen.	1.52	21.4	1,125.0	5.96	-89.3	116.5
MW349	06 Sep 2022	202209_AECOM_OMP	Clear, low turbidity, no odour, no sheen.	2.71	16.1	1,907.0	5.41	74.5	280.3

Notes

mg/L	milligrams per Litre
°C	degrees Celsius
µS/cm	microSiemens per centimetre
mV	milliVolts

Corrected field Redox measurement Eh = Er + 205.8

Table T3 - Surface Water Quality Parameters and Observations

						Water Quality Parameters					
						Dissolved Oxygen	Temperature	Electrical Conductivity	pH	Redox Potential Er	Redox Potential Eh (Corrected)
						mg/L	°C	uS/cm	pH Units	mV	mV
Location Code	**Date**	**Monitoring Round**	**Location Comments**	**Depth**	**Sample Comments**						
SW001	06 Dec 2021	202112_AECOM_OMP	Drainage line with tall grass. Waterbody width (approx): 0.5 m, Waterbody depth (approx) 0.1 m	0 - 0.1	Brown, low turbidity, no odour, no sheen. No water flow observed. Green algae on surface.	2.99	18.1	374.2	6.29	117.4	323.2
SW001	23 Mar 2022	202203_AECOM_OMP	Drainage channel. Shrubs and grasses within channel. Waterbody width (approx.): 0.5m, Waterbody depth (approx.): 0.1m. No flow observed.	0.1 - 0.1	Light brown, low turbidity, no odour, no sheen.	1.02	21.7	405.9	7.01	-3.4	202.4
SW001	15 Jun 2022	202206_AECOM_OMP	Drainage channel, with reeds and small shrubs. Waterbody dimensions (approx.): 0.4m wide, 0.1m deep. No flow observed.	0.05 - 0.05	Orange, high turbidity, no odour, biosheen. Suspended solids.	1.92	11.2	323.3	6.97	45.5	251.3
SW001	05 Sep 2022	202209_AECOM_OMP	Small drainage channel surrounded by reeds. Water body width (approx.): 1 m, water body depth (approx.): 0.05 m. Water flow not observed.	0.1 - 0.1	Brown/orange, high turbidity, no odour, biosheen. Suspended orange solids.	5.55	14.6	178.7	7.33	148.3	354.1
SW009	22 Mar 2022	202203_AECOM_OMP	Creek. Reeds in creek, bush along banks. Waterbody width (approx.): 15m, Waterbody depth (approx.): >2m. No flow observed. Sample collected on the other side of the train line.	0.1 - 0.1	Brown, low turbidity, no odour, no sheen.	4.40	26.5	260.9	5.90	109.6	315.4
SW009	07 Sep 2022	202209_AECOM_OMP	Creek with trees, shrubs and grasses on banks. Water body width (approx.): 12 m, unknown depth. Water flow not observed.	0.1 - 0.1	Clear, no turbidity, no odour, no sheen.	6.62	13.4	199.5	5.95	60.5	266.3
SW011	21 Mar 2022	202203_AECOM_OMP	Creek. Waterbody width (approx.): 2m, Waterbody depth (approx.): 0.1m. No flow observed.	0.04 - 0.05	Brown, medium turbidity, organic odour, no sheen. Algal growth on water surface and suspended in water column.	1.17	21.3	1,304.0	6.82	-146.5	59.3
SW011	06 Sep 2022	202209_AECOM_OMP	Large creek with trees and shrubs on banks. Water body width (approx.): 20 m, unknown depth. Water flow observed.	0.1 - 0.1	Light brown, low turbidity, no odour, no sheen.	6.74	15.3	1,105.0	6.55	71.2	277.0
SW012	21 Mar 2022	202203_AECOM_OMP	Creek. Bush along banks. Waterbody width (approx.): 5m, Waterbody depth (approx.): >2m. Flow observed.	0.1 - 0.2	Light brown, low turbidity, no odour, no sheen.	3.70	22.8	303.0	6.46	69.3	275.1
SW012	06 Sep 2022	202209_AECOM_OMP	Large creek with trees, shrubs and grasses on banks. Water body width (approx.): 20 m, unknown depth. Water flow observed.	0.1 - 0.1	Light brown, no turbidity, no odour, no sheen.	6.31	15.2	1,446.0	6.56	114.2	320.0
SW014	22 Mar 2022	202203_AECOM_OMP	Creek, near intersection with river. Mangroves surrounding. Waterbody width (approx.): 20m, Waterbody depth (approx.): >2m. No flow observed.	0.1 - 0.1	Light brown, low turbidity, no odour, no sheen.	2.25	25.4	462.4	6.55	110.3	316.1
SW014	07 Sep 2022	202209_AECOM_OMP	Large creek with trees, shrubs and grasses on banks. Water body width (approx.): 30 m, unknown depth. Water flow observed.	n/a	Light brown, low turbidity, no odour, no sheen. Water quality parameters unable to be collected, unstable banks.	n/a	n/a	n/a	n/a	n/a	n/a
SW015	22 Mar 2022	202203_AECOM_OMP	Creek. Grasses and dense bush along banks. Waterbody width (approx.): 2m, Waterbody depth (approx.): 0.3m. Flow observed.	0.1 - 0.1	Light brown, low turbidity, organic odour, no sheen.	5.75	22.8	140.1	5.88	101.3	307.1
SW015	07 Sep 2022	202209_AECOM_OMP	Small drainage channel with grasses, shrubs and trees on banks. Water body width (approx.): 1.5 m, water body depth (approx.): 0.4 m. Water flow observed.	0.1 - 0.1	Light brown, no turbidity, no odour, no sheen.	6.10	14.2	159.1	6.17	86.3	292.1
SW017	21 Mar 2022	202203_AECOM_OMP	Creek. Sandy banks with dense vegetation. Waterbody width (approx.): 5m, Waterbody depth (approx.): 0.5m. Flow observed.	0.1 - 0.2	Brown, low turbidity, no odour, no sheen.	5.80	22.1	249.9	6.35	56.9	262.7
SW017	06 Sep 2022	202209_AECOM_OMP	Small creek with trees and shrubs on banks. Water body width (approx.): 4 m, water body depth (approx.): 0.5 m. Water flow observed.	0.1 - 0.1	Clear, no turbidity, no odour, no sheen.	6.42	14.9	252.6	6.16	97.8	303.6
SW025	22 Mar 2022	202203_AECOM_OMP	River. Reeds and dense bush along banks. Waterbody width (approx.): 15-20m, Waterbody depth (approx.): 3m. Flow observed.	0.1 - 0.1	Light brown, no turbidity, no odour, no sheen.	5.59	24.1	177.1	6.46	110.9	316.7
SW025	05 Sep 2022	202209_AECOM_OMP	River with shrubs and reeds on banks. Water body width (approx.): 20 m, water body depth (approx.): 2 m deep. Water flow observed.	0.1 - 0.1	Clear, low turbidity, no odour, no sheen.	7.31	16.0	270.0	7.10	204.5	410.3
SW030	22 Mar 2022	202203_AECOM_OMP	Creek, on bedrock. Grasses in creek and bush along banks. Waterbody width (approx.): 2m, Waterbody depth (approx.): 0.3m. Flow observed.	0.1 - 0.1	Yellow / brown, low turbidity, no odour, no sheen. Foaming observed.	6.30	19.3	68.4	6.60	76.3	282.1
SW030	07 Sep 2022	202209_AECOM_OMP	Unable to access sampling location. Active military dog training exercise in area.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SW038	22 Mar 2022	202203_AECOM_OMP	Creek / drainage channel, on bedrock. Grasses and shrubs surrounding. Waterbody width (approx.): 1m, Waterbody depth (approx.): 0.15-0.2m. Flow observed.	0.04 - 0.05	Clear, no turbidity, no odour, no sheen.	6.33	19.2	202.3	7.05	49.1	254.9
SW038	07 Sep 2022	202209_AECOM_OMP	Small creek surrounded by shrubs and trees. Water body width (approx.): 1 m, water body depth (approx.): 0.2 m. Water flow observed.	0.1 - 0.1	Clear, no turbidity, no odour, biosheen.	5.85	16.8	257.4	6.94	65.2	271.0
SW059	06 Dec 2021	202112_AECOM_OMP	Creek. Waterbody width (approx): 4 m, Waterbody depth (approx) 1 m	0 - 0.1	Light brown, low turbidity, no odour, no sheen. No water flow observed.	2.27	19.5	339.5	6.65	44.5	250.3
SW059	23 Mar 2022	202203_AECOM_OMP	Creek. Small trees and grasses along banks. Waterbody width (approx.): 2m, Waterbody depth (approx.):0.3m. No flow observed.	0.1 - 0.1	Light brown, low turbidity, no odour, no sheen.	2.36	22.5	233.5	6.81	-13.7	192.1
SW059	15 Jun 2022	202206_AECOM_OMP	Creek, with shrubs and bushes along banks. Waterbody dimensions (approx.): 3.0m wide, 0.3m deep. No flow observed.	0.1 - 0.1	Clear, no turbidity, no odour, no sheen	4.37	10.4	372.2	6.86	45.9	251.7
SW059	05 Sep 2022	202209_AECOM_OMP	Small channel with grasses and trees on banks. Water body width (approx.): 1 m, water body depth (approx.): 0.2 m. Water flow observed.	0.1 - 0.1	Clear, no turbidity, no odour, no sheen.	5.64	17.3	199.7	6.57	169.4	375.2
SW062	22 Mar 2022	202203_AECOM_OMP	River. Sandy banks with dense vegetation surrounding. Waterbody width (approx.): 10-15m, Waterbody depth (approx.): 2m plus. Flow observed.	0.1 - 0.1	Light brown, low turbidity, no odour, biosheen.	4.90	25.6	146.7	6.83	94.5	300.3
SW062	05 Sep 2022	202209_AECOM_OMP	River with trees on banks. Water body width (approx.): 30m, water body depth (approx.): 2 m. Water flow observed.	0.1 - 0.1	Clear, low turbidity, no odour, no sheen.	7.54	15.7	246.8	7.26	179.7	385.5
SW063	21 Mar 2022	202203_AECOM_OMP	River. Dense bush along banks. Waterbody width (approx.): 40m, Waterbody depth (approx.): >2m. No flow observed.	0.1 - 0.1	Light brown, low turbidity, no odour, no sheen.	7.40	21.2	192.2	6.79	99.3	305.1
SW063	07 Sep 2022	202209_AECOM_OMP	River with trees, shrubs and grasses on banks. Water body width (approx.): 40 m, unknown depth. Water flow observed.	0.1 - 0.1	Light brown, low turbidity, no odour, no sheen.	6.62	15.2	328.1	7.03	146.4	352.2
SW103	21 Mar 2022	202203_AECOM_OMP	Wash bay pits (open eastern pit). Waterbody depth (approx.): 0.5m. No flow observed.	0.1 - 0.1	Clear, low turbidity, no odour, biosheen. Organic debris (leaves and sticks) in water column.	1.42	21.2	68.1	6.46	82.7	288.5
SW103	05 Sep 2022	202209_AECOM_OMP	Small drainage grate, concrete with grasses in surrounding area . Width (approx.): 0.5 m wide, length (approx.): 4 m. Water flow not observed.	0.1 - 0.1	Green, low turbidity, no odour, no sheen.	3.30	14.7	209.6	6.95	219.6	425.4

Table T3 - Surface Water Quality Parameters and Observations

						Water Quality Parameters					
						Dissolved Oxygen	Temperature	Electrical Conductivity	pH	Redox Potential Er	Redox Potential Eh (Corrected)
						mg/L	°C	uS/cm	pH Units	mV	mV
Location Code	**Date**	**Monitoring Round**	**Location Comments**	**Depth**	**Sample Comments**						
SW104	21 Mar 2022	202203_AECOM_OMP	Wash bay pits (middle pit). Waterbody depth (approx.): 0.5m. No flow observed.	0.1 - 0.1	Clear, no turbidity, no odour, biosheen.	1.70	21.9	58.5	6.50	82.3	288.1
SW104	05 Sep 2022	202209_AECOM_OMP	Drainage grate, concrete with grasses and trees in surrounding area. Width (approx.): 0.5 m wide, length (approx.): 4 m. Water flow not observed.	0.1 - 0.1	Green, low turbidity, no odour, no sheen.	0.11	13.5	130.6	6.79	204.0	409.8
SW105	21 Mar 2022	202203_AECOM_OMP	Wash bay pits (western pit). Waterbody depth (approx.): 0.5m. No flow observed.	0.1 - 0.1	Clear, no turbidity, no odour, no sheen.	2.05	22.0	75.2	6.61	95.2	301.0
SW105	05 Sep 2022	202209_AECOM_OMP	Drainage grate, concrete with grasses and trees in surrounding area. Width (approx.): 0.5 m wide, length (approx.): 2 m. Water flow not observed.	0.1 - 0.1	Green, low turbidity, no odour, no sheen.	0.00	13.8	146.2	6.90	189.4	395.2
SW111	06 Dec 2021	202112_AECOM_OMP	Creek. Water body width: (approx.) 2m. Waterbody depth (approx.): 0.5m	0 - 0.1	Brown, low turbidity, no odour, no sheen. Water flow observed. Some algae on surface.	7.14	20.0	286.2	6.94	112.3	318.1
SW111	23 Mar 2022	202203_AECOM_OMP	Creek. Vegetation along banks. Waterbody width (approx.): 3m, Waterbody depth (approx.): 0.5m. No flow observed.	0.1 - 0.1	Light brown, low turbidity, no odour, no sheen.	2.85	22.5	192.4	6.60	87.1	292.9
SW111	15 Jun 2022	202206_AECOM_OMP	Creek, with reeds and trees along banks. Waterbody dimensions (approx.): 5.0m wide, 0.3m deep. No flow observed.	0.1 - 0.1	Clear, no turbidity, no odour, no sheen	4.52	10.5	247.5	6.87	62.3	268.1
SW111	05 Sep 2022	202209_AECOM_OMP	Creek with grasses and trees on banks. Water body width (approx.): 4 m, water body depth (approx.): 0.3 m. Water flow not observed.	0.1 - 0.1	Clear, no turbidity, no odour, no sheen.	6.20	17.5	187.5	6.95	146.8	352.6

Notes

mg/L	milligrams per Litre
°C	degrees Celsius
µS/cm	microSiemens per centimetre
mV	milliVolts

Corrected field Redox measurement Eh = Er + 205.8

Table T4 - Historical Groundwater Analytical Results

						PFAS					**PFAS - Perfluoroalkyl Sulfonic Acids**				**PFAS - Perfluoroalkyl Carboxylic Acids**											**PFAS - (n:2) Fluorotelomer Sulfonic Acids**				**PFAS - Perfluoroalkyl Sulfonamides**						
						Perfluorooctanoic acid (PFOA)	**Perfluorooctane sulfonic acid (PFOS)**	**Perfluorohexane sulfonic acid (PFHxS)**	**Sum of PFHxS and PFOS**	**Sum of PFAS**	**Perfluorobutane sulfonic acid (PFBS)**	**Perfluoropentane sulfonic acid (PFPeS)**	**Perfluoroheptane sulfonic acid (PFHpS)**	**Perfluorodecane sulfonic acid (PFDS)**	**Perfluorobutanoic acid (PFBA)**	**Perfluoropentanoic acid (PFPeA)**	**Perfluorohexanoic acid (PFHxA)**	**Perfluoroheptanoic acid (PFHpA)**	**Perfluorononanoic acid (PFNA)**	**Perfluorodecanoic acid (PFDA)**	**Perfluoroundecanoic acid (PFUnDA)**	**Perfluorododecanoic acid (PFDoDA)**	**Perfluorotridecanoic acid (PFTrDA)**	**Perfluorotetradecanoic acid (PFTeDA)**	**4:2 Fluorotelomer sulfonic acid (4:2 FTS)**	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	**Perfluorooctane sulfonamide (FOSA)**	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	**N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)**	**N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)**	**N-Ethyl perfluorooctane sulfonamide (EtFOSA)**	**N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)**	**N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)**
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																									
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																											
Location Code	**Date**	**Field ID**	**Sample Type**	**Project ID**																														
MW002	20 Feb 2018	0382_MW02_180220	Normal	NSW_0382_PFAS		0.35	*0.16*	0.08	**0.24**	1.11	0.02	<0.01	<0.01	<0.01	0.05	0.10	0.14	0.10	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05
MW002	01 Oct 2020	0382_MW002_201001	Normal	NSW_0382_PFASOMP_20		0.20	0.04	0.05	**0.09**	0.85	0.28	<0.02	<0.02	<0.02	<0.1	0.08	0.16	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	01 Oct 2020	0382_QC102_201001	Field_D	NSW_0382_PFASOMP_20		0.17	0.03	0.04	0.07	0.43	<0.02	<0.02	<0.02	<0.02	<0.1	0.08	0.07	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	26 Mar 2021	0382_MW002_210326	Normal	NSW_0382_PFASOMP_20		0.05	0.03	0.02	0.05	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.03	<0.05	<0.05	0.03	<0.05
MW002	06 Sep 2021	0382_MW002_210906	Normal	NSW_0382_PFASOMP_20		0.14	0.04	0.03	0.07	0.31	<0.02	<0.02	<0.02	<0.02	<0.1	0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	21 Mar 2022	0382_MW002_220321	Normal	NSW_0382_PFASOMP_20		0.21	0.12	0.04	**0.16**	0.56	0.04	<0.02	<0.02	<0.02	<0.1	0.05	0.06	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	06 Sep 2022	0382_MW002_220906	Normal	NSW_0382_PFASOMP_20		0.17	0.07	0.04	**0.11**	0.42	<0.02	<0.02	<0.02	<0.02	<0.1	0.05	0.05	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW005	21 Feb 2018	0382_MW05_180221	Normal	NSW_0382_PFAS		0.03	0.11	0.11	**0.22**	0.34	0.01	0.01	<0.01	<0.01	<0.05	0.02	0.04	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW005	21 Mar 2022	0382_MW005_220321	Normal	NSW_0382_PFASOMP_20		0.01	0.04	0.03	0.07	0.20	0.12	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW005	06 Sep 2022	0382_MW005_220906	Normal	NSW_0382_PFASOMP_20		0.02	0.11	0.05	**0.16**	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	28 Mar 2018	0382_MW112_180328	Normal	NSW_0382_PFAS		**4.3**	*64*	58	**122**	162.2	6.7	12	3.3	<0.01	0.99	1.5	9.7	1.7	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW112	01 Oct 2020	0382_MW112_201001	Normal	NSW_0382_PFASOMP_20		**4.75**	*52.8*	70.4	**123**	167	6.32	10.3	6.01	<0.02	1.0	1.87	11.6	1.97	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	03 Dec 2020	0382_MW112_201203	Normal	NSW_0382_PFASOMP_20		**3.03**	*30.0*	42.4	**72.4**	100	3.86	6.31	2.92	<0.02	0.9	1.29	8.16	1.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	25 Mar 2021	0382_MW112_210325	Normal	NSW_0382_PFASOMP_20		**3.76**	*25.7*	47.4	**73.1**	104	5.13	6.30	2.92	<0.02	0.9	1.46	8.38	1.58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	07 Jun 2021	0382_MW112_210607	Normal	NSW_0382_PFASOMP_20		**4.14**	*37.9*	49.5	**87.4**	123	5.33	8.27	4.27	<0.02	0.9	1.53	9.40	1.58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	07 Sep 2021	0382_MW112_210907	Normal	NSW_0382_PFASOMP_20		**3.12**	*21.2*	44.0	**65.2**	93.8	4.61	6.47	3.01	<0.02	0.8	1.33	7.88	1.29	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	06 Dec 2021	0382_MW112_211206	Normal	NSW_0382_PFASOMP_20		**2.43**	*34.9*	46.8	**81.7**	111	5.31	5.51	3.65	<0.02	0.9	1.26	9.28	1.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	23 Mar 2022	0382_MW112_220323	Normal	NSW_0382_PFASOMP_20		**3.25**	*31.8*	48.8	**80.6**	109	5.01	6.00	3.21	<0.02	0.6	1.14	8.13	1.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	15 Jun 2022	0382_MW112_220615	Normal	NSW_0382_PFASOMP_20		**4.72**	*45.6*	72.0	**118**	159	7.22	8.57	4.30	<0.05	1.2	1.77	11.6	2.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW112	05 Sep 2022	0382_MW112_220905	Normal	NSW_0382_PFASOMP_20		**1.56**	*22.0*	32.4	**54.4**	71.5	2.02	4.00	4.10	<0.02	0.4	0.72	3.61	0.65	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	28 Mar 2018	0382_MW112_P_180328	Normal	NSW_0382_PFAS		0.33	*50*	6.0	**56**	60.19	0.33	1.2	0.34	<0.01	0.16	0.30	1.4	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW112P	01 Oct 2020	0382_MW112_P_201001	Normal	NSW_0382_PFASOMP_20		0.40	*37.3*	8.10	**45.4**	49.8	0.33	0.64	0.52	<0.02	0.2	0.35	1.78	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	03 Dec 2020	0382_MW112_P_201203	Normal	NSW_0382_PFASOMP_20		0.22	*23.2*	4.43	**27.6**	30.2	0.20	0.38	0.29	<0.02	0.1	0.22	1.09	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	25 Mar 2021	0382_MW112_P_210325	Normal	NSW_0382_PFASOMP_20		0.25	*20.1*	4.75	**24.8**	27.7	0.19	0.28	0.24	<0.02	0.2	0.24	1.35	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	25 Mar 2021	0382_QC100_210325	Field_D	NSW_0382_PFASOMP_20		0.25	*22.5*	5.06	**27.6**	30.6	0.21	0.31	0.27	<0.02	0.2	0.26	1.45	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	07 Jun 2021	0382_MW112P_210607	Normal	NSW_0382_PFASOMP_20		0.33	*28.2*	5.56	**33.8**	37.0	0.24	0.40	0.36	<0.02	0.2	0.28	1.32	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	07 Sep 2021	0382_MW112P_210907	Normal	NSW_0382_PFASOMP_20		0.24	*19.1*	4.68	**23.8**	26.6	0.20	0.32	0.29	<0.02	0.2	0.23	1.26	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	06 Dec 2021	0382_MW112P_211206	Normal	NSW_0382_PFASOMP_20		0.19	*20.8*	3.90	**24.7**	27.2	0.18	0.24	0.23	<0.02	0.2	0.20	1.17	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	23 Mar 2022	0382_MW112P_220323	Normal	NSW_0382_PFASOMP_20		0.05	*7.08*	1.67	**8.75**	9.18	0.04	0.08	0.09	<0.02	<0.1	0.02	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	15 Jun 2022	0382_MW112P_220615	Normal	NSW_0382_PFASOMP_20		0.26	*30.6*	5.74	**36.3**	39.4	0.22	0.28	0.35	<0.02	0.2	0.30	1.31	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	05 Sep 2022	0382_MW112P_220905	Normal	NSW_0382_PFASOMP_20		0.25	*24.3*	4.36	**28.7**	31.3	0.16	0.30	0.31	<0.02	0.2	0.26	1.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	28 Mar 2018	0382_MW113_180328	Normal	NSW_0382_PFAS		**3.7**	*46*	74	**120**	169.15	11	13	3.0	<0.01	1.2	2.1	13	1.9	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.24	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW113	01 Oct 2020	0382_MW113_201001	Normal	NSW_0382_PFASOMP_20		**15.7**	*194*	284	**478**	681	36.2	46.6	29.6	0.17	4.4	8.81	53.0	7.59	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	03 Dec 2020	0382_MW113_201203	Normal	NSW_0382_PFASOMP_20		**11.8**	*108*	162	**270**	413	27.3	38.9	9.70	0.05	4.2	6.48	38.0	6.05	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	03 Dec 2020	0382_QC100_201203	Field_D	NSW_0382_PFASOMP_20		**12.4**	*122*	165	**287**	437	29.0	40.5	10.6	0.05	4.2	6.40	39.8	6.11	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.64	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	03 Dec 2020	0382_QC200_201203	Interlab_D	NSW_0382_PFASOMP_20		**8.2**	*97*	180	**277**	-	22	21	6.2	<0.01	3.4	6.1	31	4.2	0.024	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	0.54	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW113	25 Mar 2021	0382_MW113_210325	Normal	NSW_0382_PFASOMP_20		**7.56**	*247*	89.0	**336**	417	10.4	12.5	5.91	0.54	3.7	9.56	20.8	3.77	0.56	0.06	<0.02	<0.02	<0.02	<0.05	<0.05	5.68	0.10	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	07 Jun 2021	0382_MW113_210607	Normal	NSW_0382_PFASOMP_20		**17.8**	*219*	269	**488**	711	38.4	51.1	26.6	0.16	4.8	10.0	63.0	9.13	0.16	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	1.70	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	07 Sep 2021	0382_MW113_210907	Normal	NSW_0382_PFASOMP_20		**10.0**	*205*	252	**457**	650	36.0	56.4	22.7	0.07	4.9	8.76	46.4	7.12	0.10	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.83	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	06 Dec 2021	0382_MW113_211206	Normal	NSW_0382_PFASOMP_20		**15.2**	*183*	266	**449**	656	43.0	46.6	20.4	0.08	4.5	9.43	58.9	7.81	0.10	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	1.16	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW113	06 Dec 2021	0382_QC100_211206	Field_D	NSW_0382_PFASOMP_20		**14.6**	*182*	262	**444**	644	39.8	45.1	20.0	0.09	4.7	8.74	58.4	7.42	0.08	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	1.15	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW113	23 Mar 2022	0382_MW113_220323	Normal	NSW_0382_PFASOMP_20		**10.6**	*1,240*	140	**1,380**	1,500	11.2	14.4	10.3	0.24	4.6	16.5	30.0	4.34	1.13	0.12	<0.04	<0.04	<0.04	<0.10	<0.05	17.8	0.09	<0.05	0.05	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW113	15 Jun 2022	0382_MW113_220615	Normal	NSW_0382_PFASOMP_20		**14.9**	*580*	200	**780**	946	20.3	27.0	17.8	0.32	5.2	16.8	38.7	6.66	1.07	0.08	<0.05	<0.05	<0.05	<0.12	<0.05	16.6	0.08	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW113	05 Sep 2022	0382_MW113_220905	Normal	NSW_0382_PFASOMP_20		**14.2**	*336*	184	**520**	683	21.7	40.9	21.0	0.17	4.2	12.3	34.1	6.24	0.42	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	7.76	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW113	05 Sep 2022	0382_QC200_2209	Interlab_D	NSW_0382_PFASOMP_20		**13**	*260*	180	**440**	580	24	24	13	0.06	4.5	9.9	36	6.8	0.29	0.03	<0.02	<0.05	<0.1	<0.5	<0.01	7.6	0.03	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW115	28 Mar 2018	0382_MW115_180328	Normal	NSW_0382_PFAS		**13**	*360*	180	**540**	663.1	21	30	14	<0.2	3.2	5.7	31	5.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
MW115	01 Oct 2020	0382_MW115_201001	Normal	NSW_0382_PFASOMP_20		**16.1**	*469*	218	**687**	850	20.1	38.4	28.2	<0.02	3.9	7.38	41.7	6.53	0.15	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.70	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T4 - Historical Groundwater Analytical Results

							PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
							Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR							0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water							**0.56**			**0.07**																											
PFAS NEMP 2020 Freshwater 95%							*220*	*0.13*																													
Location Code	**Date**	**Field ID**	**Sample Type**	**Project ID**																																	
MW115	03 Dec 2020	0382_MW115_201203	Normal	NSW_0382_PFASOMP_20	**12.0**	*267*	133	**400**	505	16.0	20.9	13.4	<0.02	3.5	4.92	28.4	4.92	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.57	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	25 Mar 2021	0382_MW115_210325	Normal	NSW_0382_PFASOMP_20	**9.06**	*160*	113	**273**	356	13.0	16.2	8.63	<0.02	3.6	4.30	23.8	3.98	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.68	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	07 Jun 2021	0382_MW115_210607	Normal	NSW_0382_PFASOMP_20	**14.4**	*306*	178	**484**	611	17.0	28.1	17.5	<0.02	3.6	6.53	32.6	6.07	0.14	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.74	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	07 Sep 2021	0382_MW115_210907	Normal	NSW_0382_PFASOMP_20	**8.78**	*262*	162	**424**	538	17.5	27.6	14.9	<0.02	3.5	5.66	31.6	3.94	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.67	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	06 Dec 2021	0382_MW115_211206	Normal	NSW_0382_PFASOMP_20	**10.4**	*210*	133	**343**	445	15.9	18.2	10.8	<0.04	3.2	5.08	32.8	4.61	0.12	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.60	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW115	23 Mar 2022	0382_MW115_220323	Normal	NSW_0382_PFASOMP_20	**11.2**	*281*	160	**441**	562	19.4	21.9	14.8	<0.04	3.4	5.98	38.2	5.36	0.16	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.87	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW115	15 Jun 2022	0382_MW115_220615	Normal	NSW_0382_PFASOMP_20	**15.7**	*358*	203	**561**	701	19.4	30.4	17.7	<0.05	3.8	7.03	38.2	6.30	0.16	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.94	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW115	05 Sep 2022	0382_MW115_220905	Normal	NSW_0382_PFASOMP_20	**12.7**	*341*	190	**531**	650	14.2	32.1	20.9	<0.05	3.2	5.46	24.7	4.79	0.13	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.75	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW115	05 Sep 2022	0382_QC100_220905	Field_D	NSW_0382_PFASOMP_20	**12.4**	*336*	194	**530**	641	15.1	26.6	14.5	<0.05	3.1	5.72	28.1	5.02	0.14	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.66	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW117	01 May 2018	0382_MW117_180501	Normal	NSW_0382_PFAS	<0.01	0.06	0.02	**0.08**	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW117	01 May 2018	0382_QC101_180501	Field_D	NSW_0382_PFAS	<0.01	0.06	0.02	**0.08**	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW117	01 May 2018	0382_QC201_180501	Interlab_D	NSW_0382_PFAS	<0.01	0.04	<0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	26 Mar 2021	0382_MW117_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	07 Sep 2021	0382_MW117_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	21 Mar 2022	0382_MW117_220321	Normal	NSW_0382_PFASOMP_20	<0.01	*0.14*	0.05	**0.19**	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	07 Sep 2022	0382_MW117_220907	Normal	NSW_0382_PFASOMP_20	0.04	*1.47*	0.48	**1.95**	2.16	<0.02	0.03	0.11	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	28 Mar 2018	0382_MW119_180328	Normal	NSW_0382_PFAS	0.08	*0.62*	1.9	**2.52**	4.26	0.42	0.58	0.03	<0.01	0.05	0.07	0.44	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119	28 Mar 2018	0382_QC102_180328	Field_D	NSW_0382_PFAS	0.08	*0.62*	2.2	**2.82**	4.51	0.43	0.49	0.04	<0.01	0.05	0.07	0.46	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119	01 Oct 2020	0382_MW119_201001	Normal	NSW_0382_PFASOMP_20	0.36	*18.6*	5.17	**23.8**	26.8	0.62	0.62	0.37	<0.02	<0.1	0.16	0.80	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	03 Dec 2020	0382_MW119_201203	Normal	NSW_0382_PFASOMP_20	0.10	*2.03*	1.04	**3.07**	3.98	0.19	0.19	0.06	<0.02	<0.1	0.06	0.27	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	25 Mar 2021	0382_MW119_210325	Normal	NSW_0382_PFASOMP_20	0.39	*24.0*	5.78	**29.8**	34.3	0.78	0.56	0.32	<0.02	0.4	0.43	1.53	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	07 Jun 2021	0382_MW119_210607	Normal	NSW_0382_PFASOMP_20	0.40	*8.80*	3.59	**12.4**	16.8	0.81	0.55	0.15	<0.02	0.4	0.47	1.53	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	07 Jun 2021	0382_QC100_210607	Field_D	NSW_0382_PFASOMP_20	0.40	*7.53*	3.41	**10.9**	15.3	0.78	0.53	0.14	<0.02	0.4	0.49	1.47	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	07 Sep 2021	0382_MW119_210907	Normal	NSW_0382_PFASOMP_20	0.55	*8.84*	6.17	**15.0**	21.6	1.12	1.08	0.31	<0.02	0.46	0.59	2.28	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	06 Dec 2021	0382_MW119_211206	Normal	NSW_0382_PFASOMP_20	0.39	*7.43*	5.36	**12.8**	18.9	1.07	0.89	0.25	<0.02	0.4	0.46	2.40	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	23 Mar 2022	0382_MW119_220323	Normal	NSW_0382_PFASOMP_20	0.55	*32.8*	4.60	**37.4**	46.7	0.84	0.53	0.35	<0.02	2.2	1.63	3.00	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	15 Jun 2022	0382_MW119_220615	Normal	NSW_0382_PFASOMP_20	**0.63**	*27.3*	6.50	**33.8**	42.2	0.77	0.70	0.42	<0.02	1.4	1.31	2.91	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	05 Sep 2022	0382_MW119_220905	Normal	NSW_0382_PFASOMP_20	0.37	*21.3*	4.62	**25.9**	31.8	0.49	0.67	0.32	<0.02	0.9	0.89	2.00	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	28 Mar 2018	0382_MW119_P_180328	Normal	NSW_0382_PFAS	**1.6**	*30*	16	**46**	60.25	2.2	3.9	2.0	<0.01	0.33	0.48	3.3	0.44	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119P	01 Oct 2020	0382_MW119_P_201001	Normal	NSW_0382_PFASOMP_20	**1.22**	*4.32*	34.8	**39.1**	65.1	4.00	5.55	1.26	<0.02	0.7	1.73	10.4	1.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	03 Dec 2020	0382_MW119_P_201203	Normal	NSW_0382_PFASOMP_20	0.40	*2.65*	10.3	**13.0**	22.5	1.53	2.76	0.30	<0.02	0.4	0.59	3.16	0.43	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	25 Mar 2021	0382_MW119_P_210325	Normal	NSW_0382_PFASOMP_20	0.40	*1.89*	10.3	**12.2**	20.5	1.61	1.93	0.27	<0.02	0.3	0.51	2.95	0.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	07 Jun 2021	0382_MW119P_210607	Normal	NSW_0382_PFASOMP_20	**5.40**	*51.6*	114	**166**	277	16.3	26.0	6.42	<0.02	1.8	6.24	44.4	4.09	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.38	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	07 Sep 2021	0382_MW119P_210907	Normal	NSW_0382_PFASOMP_20	**6.40**	*69.5*	156	**226**	316	13.4	23.8	6.64	<0.02	1.35	4.32	29.5	4.64	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.42	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	06 Dec 2021	0382_MW119P_211206	Normal	NSW_0382_PFASOMP_20	**6.06**	*52.5*	130	**182**	250	9.30	15.4	7.23	<0.04	1.0	2.60	22.6	3.18	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.44	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW119P	23 Mar 2022	0382_MW119P_220323	Normal	NSW_0382_PFASOMP_20	**9.02**	*156*	176	**332**	418	13.2	18.3	14.3	<0.04	1.0	2.48	23.9	3.58	0.05	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.40	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW119P	15 Jun 2022	0382_MW119P_220615	Normal	NSW_0382_PFASOMP_20	**13.4**	*200*	257	**457**	584	16.2	33.4	24.0	<0.05	1.6	3.54	28.8	5.28	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.32	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW119P	05 Sep 2022	0382_MW119P_220905	Normal	NSW_0382_PFASOMP_20	**14.6**	*191*	247	**438**	562	13.7	36.0	31.5	<0.05	1.1	2.68	19.0	4.72	0.06	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.24	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW120	14 Mar 2018	0382_MW120_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW120	01 Oct 2020	0382_MW120_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	25 Mar 2021	0382_MW120_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	06 Sep 2021	0382_MW120_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	21 Mar 2022	0382_MW120_220321	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	06 Sep 2022	0382_MW120_220906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	14 Mar 2018	0382_MW121_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW121	14 Mar 2018	0382_QC101_180314	Field_D	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW121	14 Mar 2018	0382_QC201_180314	Interlab_D	NSW_0382_PFAS	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T4 - Historical Groundwater Analytical Results

					PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
					Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR					0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water					**0.56**			**0.07**																										
PFAS NEMP 2020 Freshwater 95%					*220*	*0.13*																												
Location Code	**Date**	**Field ID**	**Sample Type**	**Project ID**																														
MW121	01 Oct 2020	0382_MW121_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	01 Oct 2020	0382_QC202_201001	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.02	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW121	25 Mar 2021	0382_MW121_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	06 Sep 2021	0382_MW121_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	21 Mar 2022	0382_MW121_220321	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	06 Sep 2022	0382_MW121_220906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW122	14 Mar 2018	0382_MW122_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW122	01 Oct 2020	0382_MW122_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW122	26 Mar 2021	0382_MW122_210326	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW122	06 Sep 2022	0382_MW122_220906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	15 Mar 2018	0382_MW123_180315	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW123	01 Oct 2020	0382_MW123_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	24 Mar 2021	0382_MW123_210324	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	06 Sep 2021	0382_MW123_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	06 Sep 2021	0382_QC201_210906	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW123	22 Mar 2022	0382_MW123_220322	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	22 Mar 2022	0382_QC102_220322	Field_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	06 Sep 2022	0382_MW123_220906	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.01	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	15 Mar 2018	0382_MW124_180315	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	0.02	<0.1	<0.01	0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW124	01 Oct 2020	0382_MW124_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	0.02	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	24 Mar 2021	0382_MW124_210324	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	0.06	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	06 Sep 2021	0382_MW124_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	06 Sep 2021	0382_QC200_210906	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.01	0.01	0.05	0.03	<0.01	<0.01	<0.02	<0.02	<0.02	0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW124	22 Mar 2022	0382_MW124_220322	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	07 Sep 2022	0382_MW124_220907	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129	17 Jul 2018	0382_MW129_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW129	01 Oct 2020	0382_MW129_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	<0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129	03 Dec 2020	0382_MW129_201203	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129	25 Mar 2021	0382_MW129_210325	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129	07 Jun 2021	0382_MW129_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129	07 Sep 2021	0382_MW129_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.02	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129	06 Dec 2021	0382_MW129_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129	23 Mar 2022	0382_MW129_220323	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129	15 Jun 2022	0382_MW129_220615	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129	05 Sep 2022	0382_MW129_220905	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.01	0.03	0.13	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	17 Jul 2018	0382_MW130_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	0.02	<0.1	0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW130	01 Oct 2020	0382_MW130_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	03 Dec 2020	0382_MW130_201203	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.03	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	25 Mar 2021	0382_MW130_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	07 Jun 2021	0382_MW130_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	07 Sep 2021	0382_MW130_210907	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	07 Sep 2021	0382_QC103_210907	Field_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	06 Dec 2021	0382_MW130_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.11	0.07	**0.18**	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	23 Mar 2022	0382_MW130_220323	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	15 Jun 2022	0382_MW130_220615	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	15 Jun 2022	0382_QC100_220615	Field_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130	05 Sep 2022	0382_MW130_220905	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.04	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T4 - Historical Groundwater Analytical Results

						PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																								
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																										
Location Code	**Date**	**Field ID**	**Sample Type**	**Project ID**																													
MW130	05 Sep 2022	0382_QC101_220905	Field_D	NSW_0382_PFASOMP_20		<0.01	0.02	0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131	17 Jul 2018	0382_MW131_180717	Normal	NSW_0382_PFAS		<0.01	<0.01	0.01	0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW131	01 Oct 2020	0382_MW131_201001	Normal	NSW_0382_PFASOMP_20		<0.01	0.08	0.03	**0.11**	0.11	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131	03 Dec 2020	0382_MW131_201203	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131	25 Mar 2021	0382_MW131_210325	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131	07 Jun 2021	0382_MW131_210607	Normal	NSW_0382_PFASOMP_20		<0.01	0.06	<0.02	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131	07 Jun 2021	0382_QC200_210607	Interlab_D	NSW_0382_PFASOMP_20		<0.01	0.078	<0.01	0.078	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW131	07 Sep 2021	0382_MW131_210907	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131	06 Dec 2021	0382_MW131_211206	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	0.01	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131	06 Dec 2021	0382_QC200_211206	Interlab_D	NSW_0382_PFASOMP_20		<0.01	0.02	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW131	23 Mar 2022	0382_MW131_220323	Normal	NSW_0382_PFASOMP_20		<0.01	0.06	0.02	**0.08**	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131	15 Jun 2022	0382_MW131_220615	Normal	NSW_0382_PFASOMP_20		<0.01	0.09	0.02	**0.11**	0.11	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131	05 Sep 2022	0382_MW131_220905	Normal	NSW_0382_PFASOMP_20		<0.01	0.05	0.02	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131	05 Sep 2022	0382_QC201_2209	Interlab_D	NSW_0382_PFASOMP_20		<0.01	0.03	0.01	0.05	0.05	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW133	07 Sep 2021	0382_MW133_210907	Normal	NSW_0382_PFASOMP_20		0.05	*4.06*	1.58	**5.64**	9.19	0.41	0.12	0.07	<0.02	0.6	0.45	1.81	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW133	06 Dec 2021	0382_MW133_211206	Normal	NSW_0382_PFASOMP_20		**2.88**	*168*	22.0	**190**	208	1.15	0.97	6.37	<0.04	1.0	0.92	4.82	0.36	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	<0.05	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW133	23 Mar 2022	0382_MW133_220323	Normal	NSW_0382_PFASOMP_20		0.03	*2.59*	1.84	**4.43**	5.92	0.22	0.26	0.03	<0.02	0.1	0.29	0.53	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW133	15 Jun 2022	0382_MW133_220615	Normal	NSW_0382_PFASOMP_20		**4.80**	*765*	42.7	**808**	848	2.58	3.78	12.7	<0.05	1.6	2.54	10.9	0.84	0.07	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW133	05 Sep 2022	0382_MW133_220905	Normal	NSW_0382_PFASOMP_20		**3.39**	*530*	31.3	**561**	588	1.32	2.71	10.7	<0.05	1.2	1.40	5.94	0.50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW134	25 Mar 2021	0382_MW134P_210325	Normal	NSW_0382_PFASOMP_20		0.02	*0.41*	0.48	**0.89**	1.77	0.10	0.07	<0.02	0.07	0.2	0.16	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW134	25 Mar 2021	0382_QC200_210325	Interlab_D	NSW_0382_PFASOMP_20		0.018	*0.35*	0.38	**0.73**	-	0.085	0.062	<0.01	<0.01	0.17	0.13	0.17	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW134	07 Jun 2021	0382_MW134_210607	Normal	NSW_0382_PFASOMP_20		0.03	*0.44*	1.16	**1.60**	2.82	0.23	0.26	0.02	<0.02	0.1	0.16	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW134	15 Jun 2022	0382_MW134_220615	Normal	NSW_0382_PFASOMP_20		0.02	*0.52*	1.04	**1.56**	3.29	0.31	0.24	<0.02	<0.02	0.3	0.28	0.56	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW134	05 Sep 2022	0382_MW134_220905	Normal	NSW_0382_PFASOMP_20		0.02	*0.36*	0.95	**1.31**	2.92	0.22	0.23	<0.02	<0.02	0.3	0.29	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	18 Dec 2020	0382_MW136_201218	Normal	NSW_0382_PFAS		<0.002	0.016	0.016	0.032	0.129	0.008	0.004	<0.002	<0.002	<0.01	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	0.082	<0.005	<0.005	<0.002	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005
MW136	07 Jun 2021	0382_MW136_210607	Normal	NSW_0382_PFASOMP_20		<0.01	0.11	0.04	**0.15**	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	07 Sep 2021	0382_MW136_210907	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.11	**0.15**	0.29	0.06	0.03	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	06 Dec 2021	0382_MW136_211206	Normal	NSW_0382_PFASOMP_20		<0.01	0.05	0.08	**0.13**	0.24	0.06	0.03	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	23 Mar 2022	0382_MW136_220323	Normal	NSW_0382_PFASOMP_20		0.02	0.03	0.30	**0.33**	0.74	0.08	0.06	<0.02	<0.02	0.1	0.03	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	15 Jun 2022	0382_MW136_220615	Normal	NSW_0382_PFASOMP_20		0.03	0.06	0.64	**0.70**	1.33	0.18	0.16	<0.02	<0.02	<0.1	0.05	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	15 Jun 2022	0382_QC200_220615	Interlab_D	NSW_0382_PFASOMP_20		0.02	0.05	0.46	**0.51**	0.99	0.13	0.13	<0.01	<0.02	0.03	0.03	0.12	0.01	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW136	05 Sep 2022	0382_MW136_220905	Normal	NSW_0382_PFASOMP_20		0.01	0.08	0.32	**0.40**	0.63	0.07	0.08	<0.02	<0.02	<0.1	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	19 Feb 2018	0382_MW1_180219	Normal	NSW_0382_PFAS		0.02	0.10	0.72	**0.82**	0.96	0.03	0.04	<0.01	<0.01	<0.05	0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW301	01 Oct 2020	0382_MW301_201001	Normal	NSW_0382_PFASOMP_20		0.01	*0.16*	0.09	**0.25**	0.26	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	26 Mar 2021	0382_MW301_210326	Normal	NSW_0382_PFASOMP_20		0.01	0.08	0.06	**0.14**	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	06 Sep 2021	0382_MW301_210906	Normal	NSW_0382_PFASOMP_20		<0.01	0.06	0.04	**0.10**	0.10	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	06 Sep 2021	0382_QC101_210906	Field_D	NSW_0382_PFASOMP_20		<0.01	0.07	0.05	**0.12**	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	21 Mar 2022	0382_MW301_220321	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.12	**0.16**	0.16	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	06 Sep 2022	0382_MW301_220906	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	0.09	**0.12**	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	16 Feb 2018	0382_BH345_180216	Normal	NSW_0382_PFAS		<0.01	0.09	<0.01	**0.09**	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW323	16 Feb 2018	0382_QC101_180216	Field_D	NSW_0382_PFAS		<0.01	0.09	<0.01	**0.09**	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW323	16 Feb 2018	0382_QC201_180216	Interlab_D	NSW_0382_PFAS		<0.01	0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	01 Oct 2020	0382_MW323_201001	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	24 Mar 2021	0382_MW323_210324	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	06 Sep 2021	0382_MW323_210906	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	22 Mar 2022	0382_MW323_220322	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	22 Mar 2022	0382_QC101_220322	Field_D	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T4 - Historical Groundwater Analytical Results

						PFAS					**PFAS - Perfluoroalkyl Sulfonic Acids**				**PFAS - Perfluoroalkyl Carboxylic Acids**										**PFAS - (n:2) Fluorotelomer Sulfonic Acids**				**PFAS - Perfluoroalkyl Sulfonamides**						
						Perfluorooctanoic acid (PFOA)	**Perfluorooctane sulfonic acid (PFOS)**	**Perfluorohexane sulfonic acid (PFHxS)**	**Sum of PFHxS and PFOS**	**Sum of PFAS**	**Perfluorobutane sulfonic acid (PFBS)**	**Perfluoropentane sulfonic acid (PFPeS)**	**Perfluoroheptane sulfonic acid (PFHpS)**	**Perfluorodecane sulfonic acid (PFDS)**	**Perfluorobutanoic acid (PFBA)**	**Perfluoropentanoic acid (PFPeA)**	**Perfluorohexanoic acid (PFHxA)**	**Perfluoroheptanoic acid (PFHpA)**	**Perfluorononanoic acid (PFNA)**	**Perfluorodecanoic acid (PFDA)**	**Perfluoroundecanoic acid (PFUnDA)**	**Perfluorododecanoic acid (PFDoDA)**	**Perfluorotridecanoic acid (PFTrDA)**	**Perfluorotetradecanoic acid (PFTeDA)**	**4:2 Fluorotelomer sulfonic acid (4:2 FTS)**	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	**Perfluorooctane sulfonamide (FOSA)**	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	**N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)**	**N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)**	**N-Ethyl perfluorooctane sulfonamide (EtFOSA)**	**N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)**	**N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)**
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																										
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																												
Location Code	**Date**	**Field ID**	**Sample Type**	**Project ID**																															
MW323	07 Sep 2022	0382_MW323_220907	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW330	07 Feb 2018	0382_BH365_180207	Normal	NSW_0382_PFAS		**0.98**	0.05	44	**44.05**	82.22	3.4	7.7	0.49	<0.01	1.6	3.2	19	1.8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	27 Feb 2018	0382_BH365_180227	Normal	NSW_0382_PFAS		**1.3**	0.03	40	**40.03**	63.81	1.7	5.1	0.48	<0.01	1.1	1.9	11	1.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	27 Feb 2018	0382_QC101_180227	Field_D	NSW_0382_PFAS		**1.3**	0.03	39	**39.03**	62.2	1.7	4.6	0.47	<0.01	1.0	1.9	11	1.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	27 Feb 2018	0382_QC201_180227	Interlab_D	NSW_0382_PFAS		**1.45**	0.04	25.8	**25.8**	44.3	1.11	3.13	0.40	<0.02	<0.1	1.23	10.0	1.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW330	22 Mar 2022	0382_MW330_220322	Normal	NSW_0382_PFASOMP_20		**3.90**	*3.78*	57.9	**61.7**	103	2.62	6.27	2.20	<0.02	1.1	3.00	20.4	1.56	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW330	22 Mar 2022	0382_QC202_220322	Interlab_D	NSW_0382_PFASOMP_20		**3.9**	*4.2*	63	**67**	110	2.1	6.4	2.9	<0.02	1.5	2.6	17	1.6	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW330	05 Sep 2022	0382_MW330_220905	Normal	NSW_0382_PFASOMP_20		**3.24**	*10.3*	26.8	**37.1**	56.5	0.71	3.13	2.74	<0.02	0.5	1.10	7.30	0.64	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	12 Feb 2018	0382_BH612_180212	Normal	NSW_0382_PFAS		0.01	0.1	0.2	**0.3**	0.41	0.02	0.03	0.02	<0.01	<0.05	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW349	01 Oct 2020	0382_MW349_201001	Normal	NSW_0382_PFASOMP_20		0.01	0.12	0.28	**0.40**	0.51	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	24 Mar 2021	0382_MW349_210324	Normal	NSW_0382_PFASOMP_20		<0.01	0.06	0.16	**0.22**	0.27	0.03	0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	06 Sep 2021	0382_MW349_210906	Normal	NSW_0382_PFASOMP_20		<0.01	0.10	0.23	**0.33**	0.42	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	22 Mar 2022	0382_MW349_220322	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	0.06	**0.08**	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	22 Mar 2022	0382_QC201_220322	Interlab_D	NSW_0382_PFASOMP_20		<0.01	0.03	0.06	**0.09**	0.12	0.01	0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW349	06 Sep 2022	0382_MW349_220906	Normal	NSW_0382_PFASOMP_20		<0.01	0.05	0.31	**0.36**	0.52	0.06	0.07	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Notes:

LOR	Limit of Reporting
Normal	Primary sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample

Table T5 - Historical Surface Water Analytical Results

						PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Recreational Water						**10**			**2**																										
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																												
Location Code	**Date**	**Field ID**	**Sample Type**	**Project ID**																																
SW001	15 Mar 2018	0382_SW001_180315	Normal	NSW_0382_PFAS		0.86	*3.9*	6.9	**10.8**	18.04	0.36	1.0	0.36	0.04	0.41	0.92	2.7	0.45	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW001	25 Mar 2021	0382_SW001_210325	Normal	NSW_0382_PFASOMP_20		0.03	*0.65*	0.58	1.23	1.62	0.04	0.04	<0.02	<0.02	<0.1	0.09	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001	07 Jun 2021	0382_SW001_210607	Normal	NSW_0382_PFASOMP_20		<0.01	0.13	0.06	0.19	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001	07 Sep 2021	0382_SW001_210907	Normal	NSW_0382_PFASOMP_20		<0.01	0.09	0.04	0.13	0.13	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001	06 Dec 2021	0382_SW001_211206	Normal	NSW_0382_PFASOMP_20		0.05	*0.76*	0.50	1.26	1.80	0.06	0.04	0.02	<0.02	<0.1	0.12	0.22	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001	06 Dec 2021	0382_QC101_211206	Field_D	NSW_0382_PFASOMP_20		0.04	*0.72*	0.49	1.21	1.72	0.05	0.04	0.02	<0.02	<0.1	0.11	0.22	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001	23 Mar 2022	0382_SW001_220323	Normal	NSW_0382_PFASOMP_20		0.02	*0.27*	0.15	0.42	0.49	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001	15 Jun 2022	0382_SW001_220615	Normal	NSW_0382_PFASOMP_20		0.07	*2.06*	0.67	**2.73**	3.47	0.07	0.06	0.04	<0.02	<0.1	0.09	0.24	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001	05 Sep 2022	0382_SW001_220905	Normal	NSW_0382_PFASOMP_20		0.02	*0.87*	0.15	1.02	1.15	<0.02	<0.02	<0.02	0.03	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009	26 Sep 2017	0382_SW009_170926	Normal	NSW_0382_PFAS		<0.01	0.03	0.02	0.05	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW009	30 Sep 2020	0382_SW009_200930	Normal	NSW_0382_PFASOMP_20		0.01	*0.17*	0.25	0.42	0.57	0.04	0.04	<0.02	<0.02	<0.1	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009	30 Sep 2020	0382_QC101_200930	Field_D	NSW_0382_PFASOMP_20		0.01	*0.20*	0.28	0.48	0.66	0.05	0.05	<0.02	<0.02	<0.1	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009	26 Mar 2021	0382_SW009_210326	Normal	NSW_0382_PFASOMP_20		<0.01	0.09	0.12	0.21	0.25	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009	06 Sep 2021	0382_SW009_210906	Normal	NSW_0382_PFASOMP_20		0.01	0.13	0.18	0.31	0.44	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009	22 Mar 2022	0382_SW009_220322	Normal	NSW_0382_PFASOMP_20		<0.01	0.09	0.07	0.16	0.16	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009	22 Mar 2022	0382_QC103_220322	Field_D	NSW_0382_PFASOMP_20		<0.01	0.09	0.07	0.16	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009	07 Sep 2022	0382_SW009_220907	Normal	NSW_0382_PFASOMP_20		0.01	0.09	0.09	0.18	0.21	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011	27 Sep 2017	0382_SW011_170927	Normal	NSW_0382_PFAS		<0.01	0.04	0.03	0.07	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW011	30 Sep 2020	0382_SW011_200930	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011	26 Mar 2021	0382_SW011_210326	Normal	NSW_0382_PFASOMP_20		<0.01	0.08	0.08	0.16	0.20	0.04	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011	08 Sep 2021	0382_SW011_210908	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011	21 Mar 2022	0382_SW011_220321	Normal	NSW_0382_PFASOMP_20		0.16	*0.24*	3.28	**3.52**	4.77	0.11	0.18	0.03	<0.02	<0.1	0.10	0.60	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011	06 Sep 2022	0382_SW011_220906	Normal	NSW_0382_PFASOMP_20		<0.01	0.12	0.10	0.22	0.25	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012	27 Sep 2017	0382_SW012_170927	Normal	NSW_0382_PFAS		<0.01	0.02	0.02	0.04	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW012	30 Sep 2020	0382_SW012_200930	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	0.04	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012	06 Sep 2021	0382_SW012_210906	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	0.04	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012	21 Mar 2022	0382_SW012_220321	Normal	NSW_0382_PFASOMP_20		<0.01	0.06	0.06	0.12	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012	06 Sep 2022	0382_SW012_220906	Normal	NSW_0382_PFASOMP_20		<0.01	0.12	0.10	0.22	0.25	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014	27 Sep 2017	0382_SW014_170927	Normal	NSW_0382_PFAS		<0.01	0.03	0.02	0.05	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW014	30 Sep 2020	0382_SW014_200930	Normal	NSW_0382_PFASOMP_20		<0.01	0.06	0.04	0.10	0.10	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014	30 Sep 2020	0382_QC100_200930	Field_D	NSW_0382_PFASOMP_20		<0.01	0.04	0.03	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014	26 Mar 2021	0382_SW014_210326	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	<0.02	0.02	0.07	0.03	<0.02	<0.02	<0.02	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014	08 Sep 2021	0382_SW014_210908	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014	22 Mar 2022	0382_SW014_220322	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014	07 Sep 2022	0382_SW014_220907	Normal	NSW_0382_PFASOMP_20		<0.01	0.09	0.06	0.15	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015	26 Sep 2017	0382_SW015_170926	Normal	NSW_0382_PFAS		0.01	0.07	0.08	0.15	-	<0.01	<0.01	<0.01	<0.01	<0.05	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW015	30 Sep 2020	0382_SW015_200930	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015	25 Mar 2021	0382_SW015_210325	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015	25 Mar 2021	0382_QC101_210325	Field_D	NSW_0382_PFASOMP_20		<0.01	0.02	0.02	0.04	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015	08 Sep 2021	0382_SW015_210908	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015	22 Mar 2022	0382_SW015_220322	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015	22 Mar 2022	0382_QC203_220322	Interlab_D	NSW_0382_PFASOMP_20		<0.01	0.03	0.04	0.08	0.08	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW015	07 Sep 2022	0382_SW015_220907	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	0.03	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017	27 Sep 2017	0382_SW017_170927	Normal	NSW_0382_PFAS		<0.01	0.03	0.02	0.05	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW017	30 Sep 2020	0382_SW017_200930	Normal	NSW_0382_PFASOMP_20		<0.01	0.11	0.04	0.15	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017	26 Mar 2021	0382_SW017_210326	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	0.02	0.05	0.08	0.03	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017	26 Mar 2021	0382_QC201_210326	Interlab_D	NSW_0382_PFASOMP_20		<0.01	<0.02	0.02	0.02	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05

Table T5 - Historical Surface Water Analytical Results

						PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Recreational Water						**10**			**2**																										
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																												
Location Code	**Date**	**Field ID**	**Sample Type**	**Project ID**																																
SW017	08 Sep 2021	0382_SW017_210908	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017	21 Mar 2022	0382_SW017_220321	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017	06 Sep 2022	0382_SW017_220906	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	15 Jun 2016	HBK-QA01	Normal	ACTNSW_Hist_202009-2		<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-
SW025	15 Jun 2016	HBK-SW001	Normal	ACTNSW_Hist_202009-2		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	26 Sep 2017	0382_SW025_170926	Normal	NSW_0382_PFAS		<0.01	0.02	<0.01	0.02	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW025	30 Sep 2020	0382_SW025_200930	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	25 Mar 2021	0382_SW025_210325	Normal	NSW_0382_PFASOMP_20		0.01	0.02	<0.02	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	08 Sep 2021	0382_SW025_210908	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	22 Mar 2022	0382_SW025_220322	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	05 Sep 2022	0382_SW025_220905	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	05 Sep 2022	0382_QC103_220905	Field_D	NSW_0382_PFASOMP_20		<0.01	0.03	0.04	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030	09 Mar 2018	0382_SW030_180309	Normal	NSW_0382_PFAS		<0.01	0.03	0.07	0.1	0.16	0.01	0.01	<0.01	<0.01	<0.05	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW030	30 Sep 2020	0382_SW030_200930	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	0.11	0.14	0.14	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030	24 Mar 2021	0382_SW030_210324	Normal	NSW_0382_PFASOMP_20		0.04	*0.78*	0.79	1.57	2.19	0.10	0.09	0.03	<0.02	<0.1	0.08	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030	07 Sep 2021	0382_SW030_210907	Normal	NSW_0382_PFASOMP_20		0.07	*1.52*	2.66	**4.18**	5.45	0.29	0.40	0.10	<0.02	<0.1	0.04	0.33	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030	07 Sep 2021	0382_QC102_210907	Field_D	NSW_0382_PFASOMP_20		0.07	*1.58*	2.72	**4.30**	5.59	0.31	0.40	0.11	<0.02	<0.1	0.03	0.33	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030	22 Mar 2022	0382_SW030_220322	Normal	NSW_0382_PFASOMP_20		0.04	*0.74*	0.47	1.21	1.70	0.07	0.06	0.02	<0.02	<0.1	0.08	0.20	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030	22 Mar 2022	0382_QC200_220322	Interlab_D	NSW_0382_PFASOMP_20		0.03	*0.83*	0.58	1.4	1.9	0.06	0.07	0.03	<0.02	0.05	0.06	0.20	0.02	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW038	08 Mar 2018	0382_SW038_180308	Normal	NSW_0382_PFAS		0.01	*0.32*	0.22	0.54	0.65	0.02	0.03	<0.01	<0.01	<0.05	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW038	24 Mar 2021	0382_SW038_210324	Normal	NSW_0382_PFASOMP_20		0.03	*0.46*	0.53	0.99	1.42	0.06	0.05	0.02	<0.02	<0.1	0.12	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038	06 Sep 2021	0382_SW038_210906	Normal	NSW_0382_PFASOMP_20		<0.01	*0.21*	0.26	0.47	0.58	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038	06 Sep 2021	0382_QC100_210906	Field_D	NSW_0382_PFASOMP_20		<0.01	*0.19*	0.25	0.44	0.55	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038	22 Mar 2022	0382_SW038_220322	Normal	NSW_0382_PFASOMP_20		0.01	*0.25*	0.16	0.41	0.53	0.02	0.02	<0.02	<0.02	<0.1	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038	22 Mar 2022	0382_QC100_220322	Field_D	NSW_0382_PFASOMP_20		0.01	*0.20*	0.17	0.37	0.45	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038	07 Sep 2022	0382_SW038_220907	Normal	NSW_0382_PFASOMP_20		0.02	*0.44*	0.46	0.90	1.16	0.05	0.06	<0.02	<0.02	<0.1	0.03	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	01 Mar 2018	0382_SW059_180301	Normal	NSW_0382_PFAS		0.02	0.07	0.06	0.13	0.18	<0.01	<0.01	<0.01	<0.01	<0.05	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW059	30 Sep 2020	0382_SW059_200930	Normal	NSW_0382_PFASOMP_20		0.02	0.11	0.07	0.18	0.22	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	03 Dec 2020	0382_SW059_201203	Normal	NSW_0382_PFASOMP_20		0.02	0.08	0.05	0.13	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	25 Mar 2021	0382_SW059_210325	Normal	NSW_0382_PFASOMP_20		0.01	0.11	0.07	0.18	0.22	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	07 Jun 2021	0382_SW059_210607	Normal	NSW_0382_PFASOMP_20		0.01	0.09	0.05	0.14	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	07 Jun 2021	0382_QC101_210607	Field_D	NSW_0382_PFASOMP_20		0.01	0.09	0.05	0.14	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	07 Jun 2021	0382_QC201_210607	Interlab_D	NSW_0382_PFASOMP_20		<0.01	0.069	0.044	0.113	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW059	07 Sep 2021	0382_SW059_210907	Normal	NSW_0382_PFASOMP_20		<0.01	0.06	0.04	0.10	0.10	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	07 Sep 2021	0382_QC203_210907	Interlab_D	NSW_0382_PFASOMP_20		<0.01	0.05	0.04	0.09	0.09	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW059	06 Dec 2021	0382_SW059_211206	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	06 Dec 2021	0382_QC201_211206	Interlab_D	NSW_0382_PFASOMP_20		<0.01	0.07	0.04	0.11	0.13	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW059	23 Mar 2022	0382_SW059_220323	Normal	NSW_0382_PFASOMP_20		0.01	*0.15*	0.06	0.21	0.24	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	15 Jun 2022	0382_SW059_220615	Normal	NSW_0382_PFASOMP_20		0.02	*0.16*	0.16	0.32	0.42	<0.02	<0.02	<0.02	<0.02	<0.1	0.03	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	15 Jun 2022	0382_QC101_220615	Field_D	NSW_0382_PFASOMP_20		0.02	0.13	0.14	0.27	0.36	<0.02	<0.02	<0.02	<0.02	<0.1	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	05 Sep 2022	0382_SW059_220905	Normal	NSW_0382_PFASOMP_20		0.01	0.06	0.05	0.11	0.14	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059	05 Sep 2022	0382_QC102_220905	Field_D	NSW_0382_PFASOMP_20		0.01	0.06	0.04	0.10	0.11	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062	05 Mar 2018	0382_SW062_180305	Normal	NSW_0382_PFAS		0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW062	30 Sep 2020	0382_SW062_200930	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062	08 Sep 2021	0382_SW062_210908	Normal	NSW_0382_PFASOMP_20		<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062	22 Mar 2022	0382_SW062_220322	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062	05 Sep 2022	0382_SW062_220905	Normal	NSW_0382_PFASOMP_20		<0.01	0.01	<0.01	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T5 - Historical Surface Water Analytical Results

						PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Recreational Water						**10**			**2**																										
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																												
Location Code	**Date**	**Field ID**	**Sample Type**	**Project ID**																																
SW062	05 Sep 2022	0382_QC203_2209	Interlab_D	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW063	18 Apr 2018	0382_SW063_180418	Normal	NSW_0382_PFAS		<0.01	0.01	<0.01	0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW063	08 Sep 2021	0382_SW063_210908	Normal	NSW_0382_PFASOMP_20		<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW063	21 Mar 2022	0382_SW063_220321	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW063	07 Sep 2022	0382_SW063_220907	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	0.03	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103	15 Jun 2018	0382_SW103_180615	Normal	NSW_0382_PFAS		<0.05	*0.21*	0.08	0.29	0.31	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	0.02	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW103	15 Jun 2018	0382_QC102_180615	Field_D	NSW_0382_PFAS		<0.01	*0.22*	0.07	0.29	0.31	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW103	15 Jun 2018	0382_QC202_180615	Interlab_D	NSW_0382_PFAS		<0.01	*0.16*	0.07	0.23	0.23	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103	30 Sep 2020	0382_SW103_200930	Normal	NSW_0382_PFASOMP_20		0.02	*0.15*	0.03	0.18	0.56	<0.02	<0.02	<0.02	<0.02	<0.1	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.13	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103	30 Sep 2020	0382_QC201_200930	Interlab_D	NSW_0382_PFASOMP_20		0.019	0.1	0.022	0.122	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	0.11	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW103	24 Mar 2021	0382_SW103_210324	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	<0.02	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103	07 Sep 2021	0382_SW103_210907	Normal	NSW_0382_PFASOMP_20		0.01	*0.15*	0.06	0.21	0.30	0.05	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103	07 Sep 2021	0382_QC202_210907	Interlab_D	NSW_0382_PFASOMP_20		0.02	*0.15*	0.07	0.21	0.33	0.02	<0.01	<0.01	<0.02	<0.02	<0.02	0.03	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	0.04	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW103	21 Mar 2022	0382_SW103_220321	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.02	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103	05 Sep 2022	0382_SW103_220905	Normal	NSW_0382_PFASOMP_20		<0.01	0.08	0.07	0.15	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104	15 Jun 2018	0382_SW104_180615	Normal	NSW_0382_PFAS		<0.05	*0.15*	0.07	0.22	0.23	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	0.01	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW104	30 Sep 2020	0382_SW104_200930	Normal	NSW_0382_PFASOMP_20		0.02	0.08	0.02	0.10	0.27	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.15	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104	24 Mar 2021	0382_SW104_210324	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104	07 Sep 2021	0382_SW104_210907	Normal	NSW_0382_PFASOMP_20		<0.01	0.07	0.03	0.10	0.10	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104	21 Mar 2022	0382_SW104_220321	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	0.02	0.05	0.05	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104	05 Sep 2022	0382_SW104_220905	Normal	NSW_0382_PFASOMP_20		<0.01	0.08	0.04	0.12	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105	15 Jun 2018	0382_SW105_180615	Normal	NSW_0382_PFAS		<0.05	*0.51*	0.13	0.64	0.7	0.01	<0.01	<0.05	<0.01	<0.05	0.02	0.03	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW105	30 Sep 2020	0382_SW105_200930	Normal	NSW_0382_PFASOMP_20		0.02	0.13	0.03	0.16	0.45	<0.02	<0.02	<0.02	<0.02	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.23	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105	24 Mar 2021	0382_SW105_210324	Normal	NSW_0382_PFASOMP_20		<0.01	0.03	<0.02	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105	07 Sep 2021	0382_SW105_210907	Normal	NSW_0382_PFASOMP_20		<0.01	0.12	0.04	0.16	0.20	0.04	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105	21 Mar 2022	0382_SW105_220321	Normal	NSW_0382_PFASOMP_20		<0.01	0.05	0.02	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105	05 Sep 2022	0382_SW105_220905	Normal	NSW_0382_PFASOMP_20		<0.01	0.09	0.04	0.13	0.13	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	30 Sep 2020	0382_SW111_200930	Normal	NSW_0382_PFASOMP_20		0.02	0.10	0.05	0.15	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	03 Dec 2020	0382_SW111_201203	Normal	NSW_0382_PFASOMP_20		0.02	0.07	0.05	0.12	0.17	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	03 Dec 2020	0382_QC101_201203	Field_D	NSW_0382_PFASOMP_20		0.02	0.08	0.05	0.13	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	03 Dec 2020	0382_QC201_201203	Interlab_D	NSW_0382_PFASOMP_20		0.018	0.084	0.05	0.134	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	0.022	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW111	25 Mar 2021	0382_SW111_210325	Normal	NSW_0382_PFASOMP_20		0.06	*1.42*	1.03	**2.45**	3.23	0.09	0.08	0.04	<0.02	<0.1	0.13	0.35	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	07 Jun 2021	0382_SW111_210607	Normal	NSW_0382_PFASOMP_20		0.07	*1.93*	0.90	**2.83**	3.41	0.06	0.08	0.04	<0.02	<0.1	0.05	0.20	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	07 Sep 2021	0382_SW111_210907	Normal	NSW_0382_PFASOMP_20		0.04	*1.01*	0.73	1.74	2.18	0.05	0.06	0.03	<0.02	<0.1	0.04	0.20	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	06 Dec 2021	0382_SW111_211206	Normal	NSW_0382_PFASOMP_20		0.01	0.06	0.03	0.09	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	23 Mar 2022	0382_SW111_220323	Normal	NSW_0382_PFASOMP_20		0.01	0.05	0.03	0.08	0.09	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	15 Jun 2022	0382_SW111_220615	Normal	NSW_0382_PFASOMP_20		0.02	0.08	0.06	0.14	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	15 Jun 2022	0382_QC201_220615	Interlab_D	NSW_0382_PFASOMP_20		0.02	0.05	0.05	0.1	0.14	0.01	<0.01	<0.01	<0.02	<0.02	<0.02	0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5

Table T5 - Historical Surface Water Analytical Results

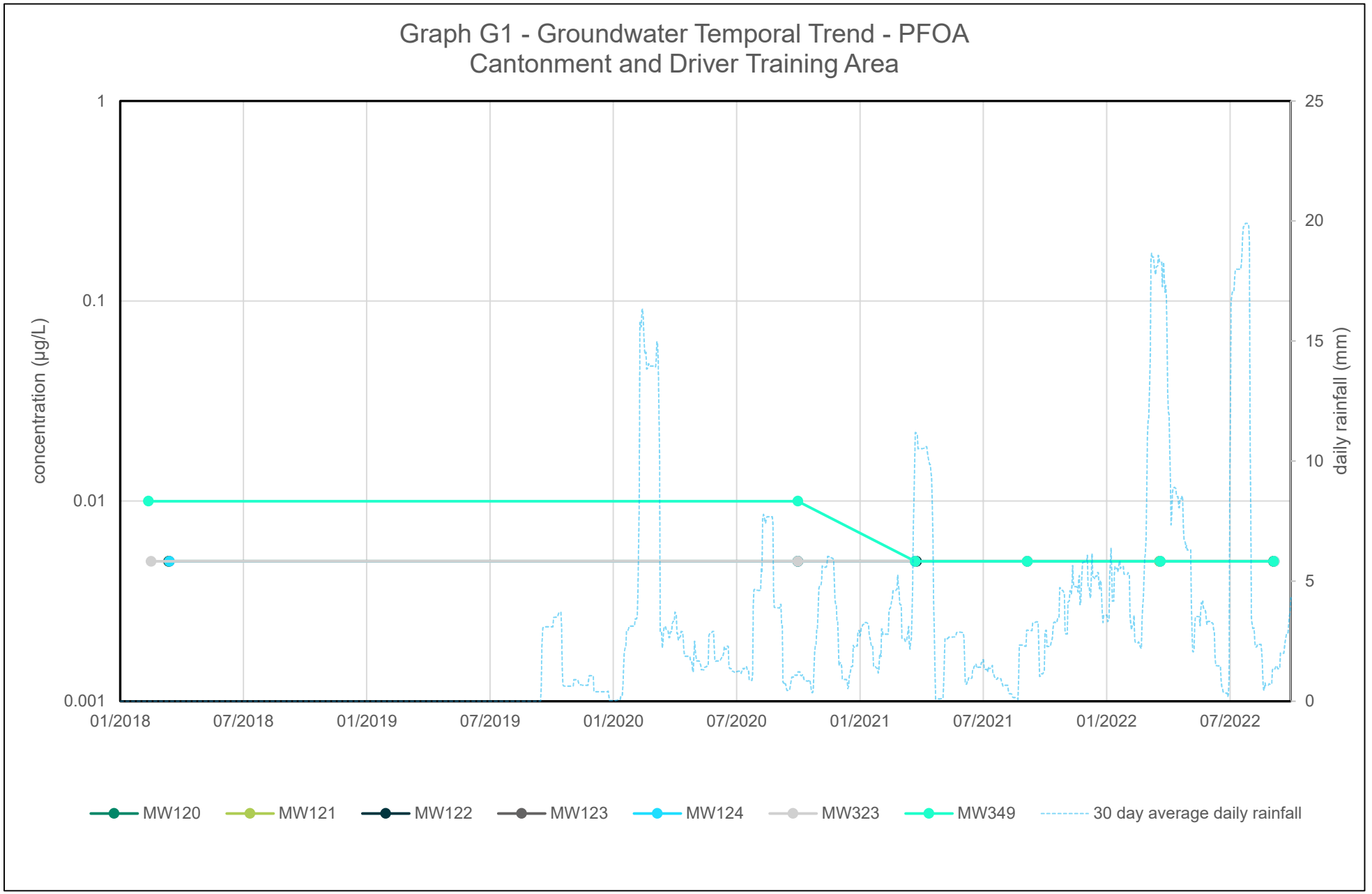
						PFAS					**PFAS - Perfluoroalkyl Sulfonic Acids**				**PFAS - Perfluoroalkyl Carboxylic Acids**												**PFAS - (n:2) Fluorotelomer Sulfonic Acids**				**PFAS - Perfluoroalkyl Sulfonamides**						
						Perfluorooctanoic acid (PFOA)	**Perfluorooctane sulfonic acid (PFOS)**	**Perfluorohexane sulfonic acid (PFHxS)**	**Sum of PFHxS and PFOS**	**Sum of PFAS**	**Perfluorobutane sulfonic acid (PFBS)**	**Perfluoropentane sulfonic acid (PFPeS)**	**Perfluoroheptane sulfonic acid (PFHpS)**	**Perfluorodecane sulfonic acid (PFDS)**	**Perfluorobutanoic acid (PFBA)**	**Perfluoropentanoic acid (PFPeA)**	**Perfluorohexanoic acid (PFHxA)**	**Perfluoroheptanoic acid (PFHpA)**	**Perfluorononanoic acid (PFNA)**	**Perfluorodecanoic acid (PFDA)**	**Perfluoroundecanoic acid (PFUnDA)**	**Perfluorododecanoic acid (PFDoDA)**	**Perfluorotridecanoic acid (PFTrDA)**	**Perfluorotetradecanoic acid (PFTeDA)**	**4:2 Fluorotelomer sulfonic acid (4:2 FTS)**	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	**Perfluorooctane sulfonamide (FOSA)**	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	**N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)**	**N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)**	**N-Ethyl perfluorooctane sulfonamide (EtFOSA)**	**N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)**	**N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)**
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Recreational Water						**10**			**2**																											
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																													
Location Code	**Date**	**Field ID**	**Sample Type**	**Project ID**																																
SW111	05 Sep 2022	0382_SW111_220905	Normal	NSW_0382_PFASOMP_20		0.01	0.04	0.03	0.07	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111	05 Sep 2022	0382_QC202_2209	Interlab_D	NSW_0382_PFASOMP_20		0.01	0.04	0.03	0.07	0.1	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5

Notes:

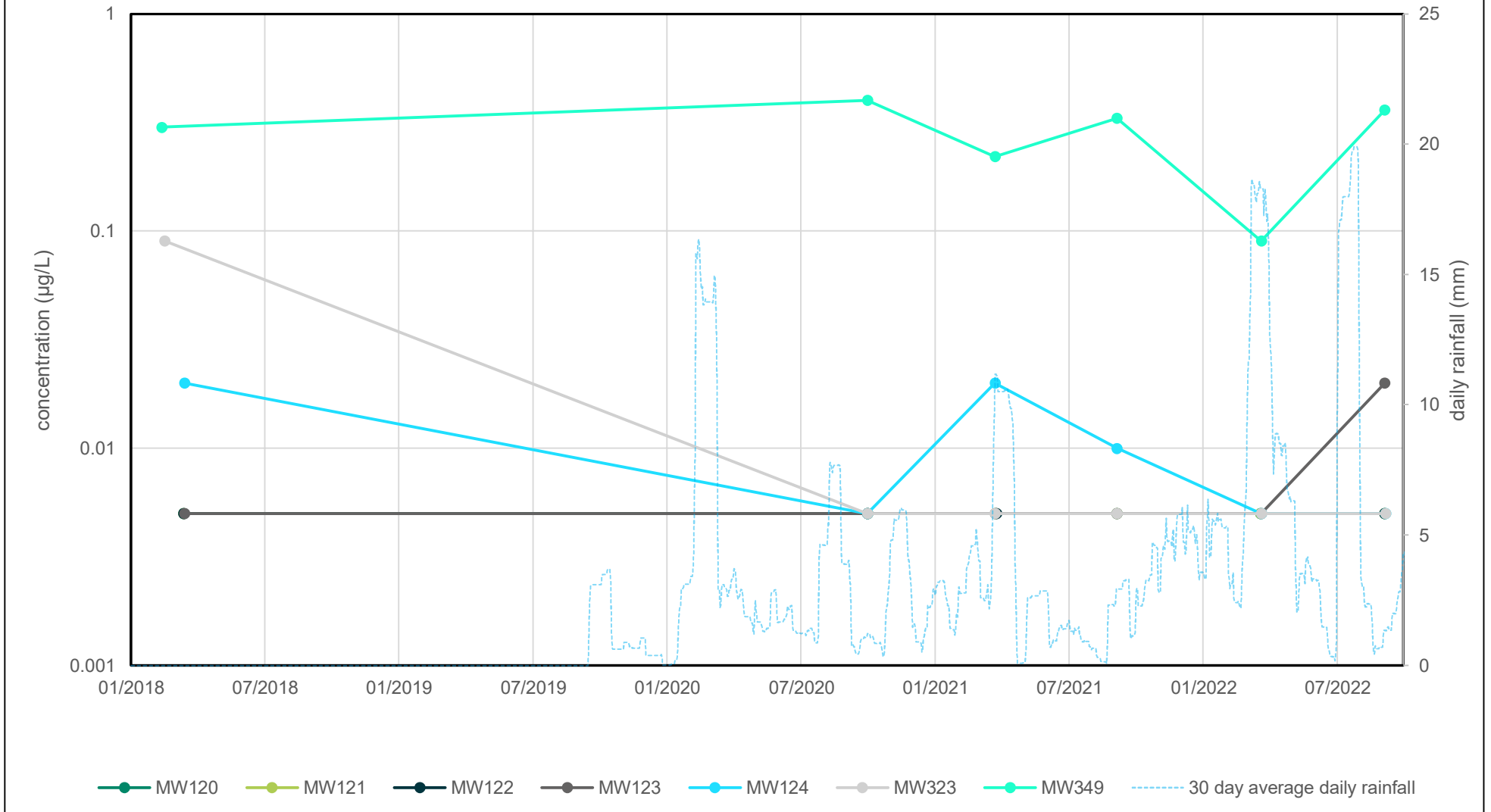
LOR	Limit of Reporting
Normal	Primary sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample

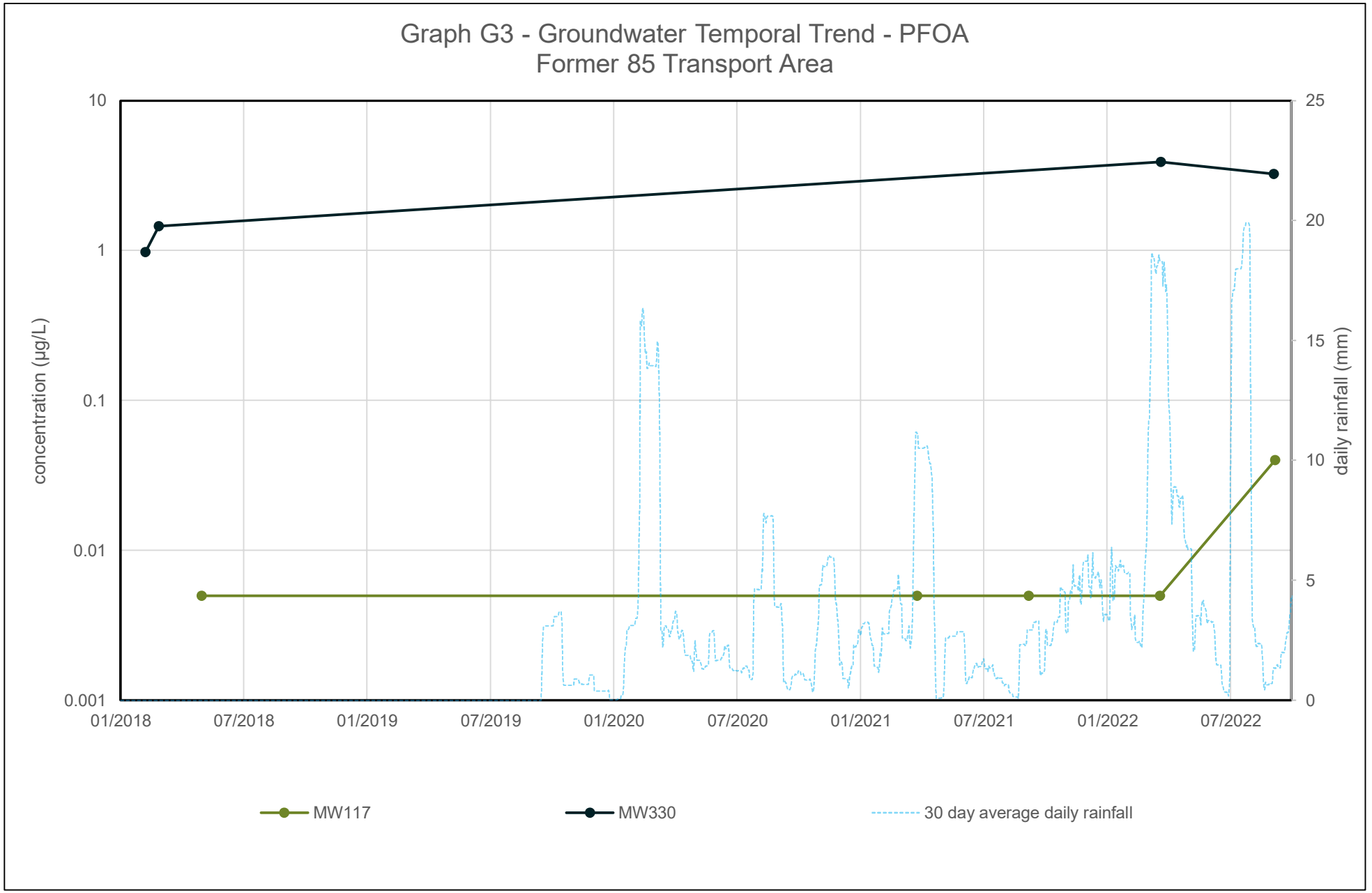
Appendix C

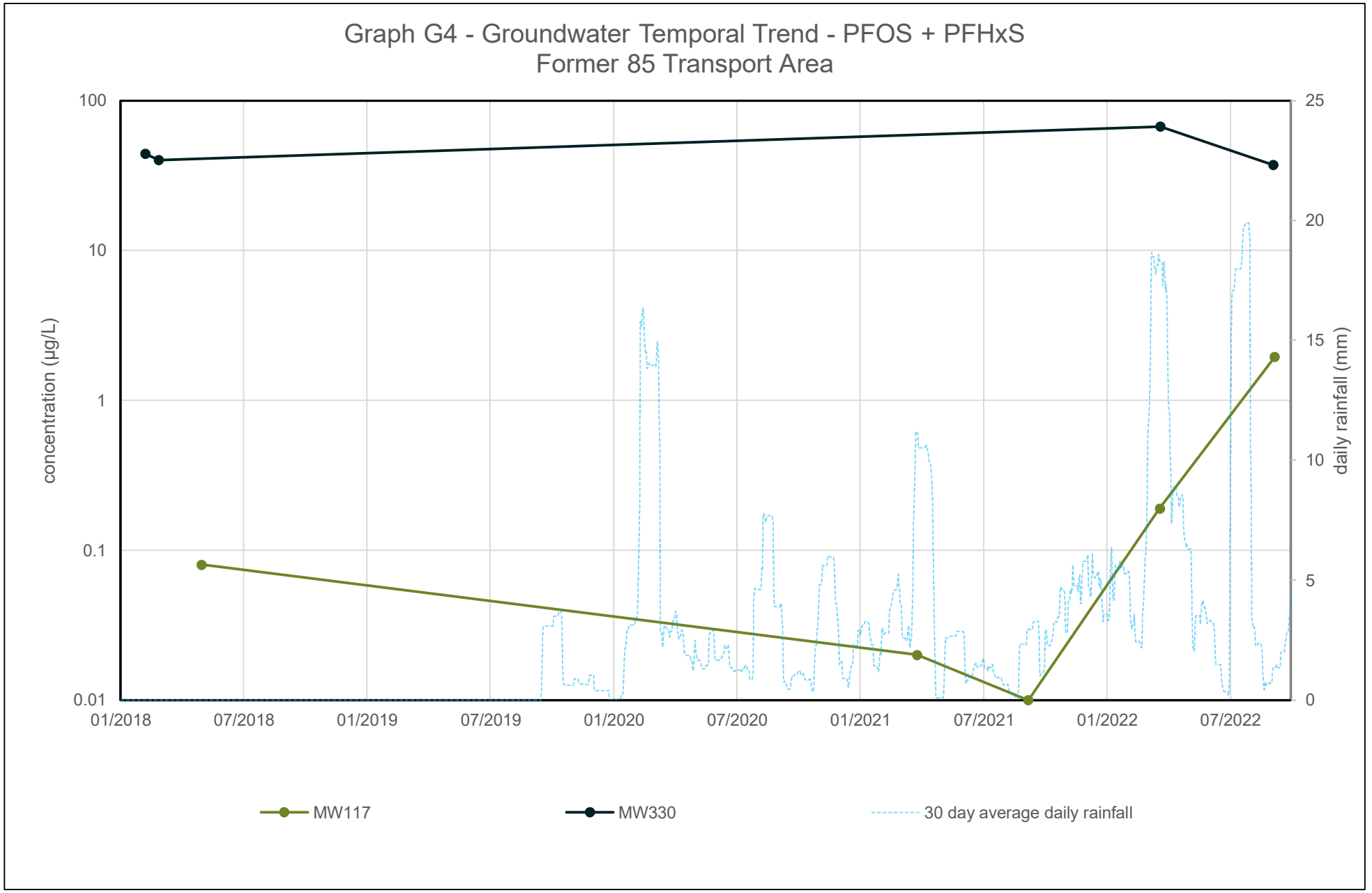
Graphs

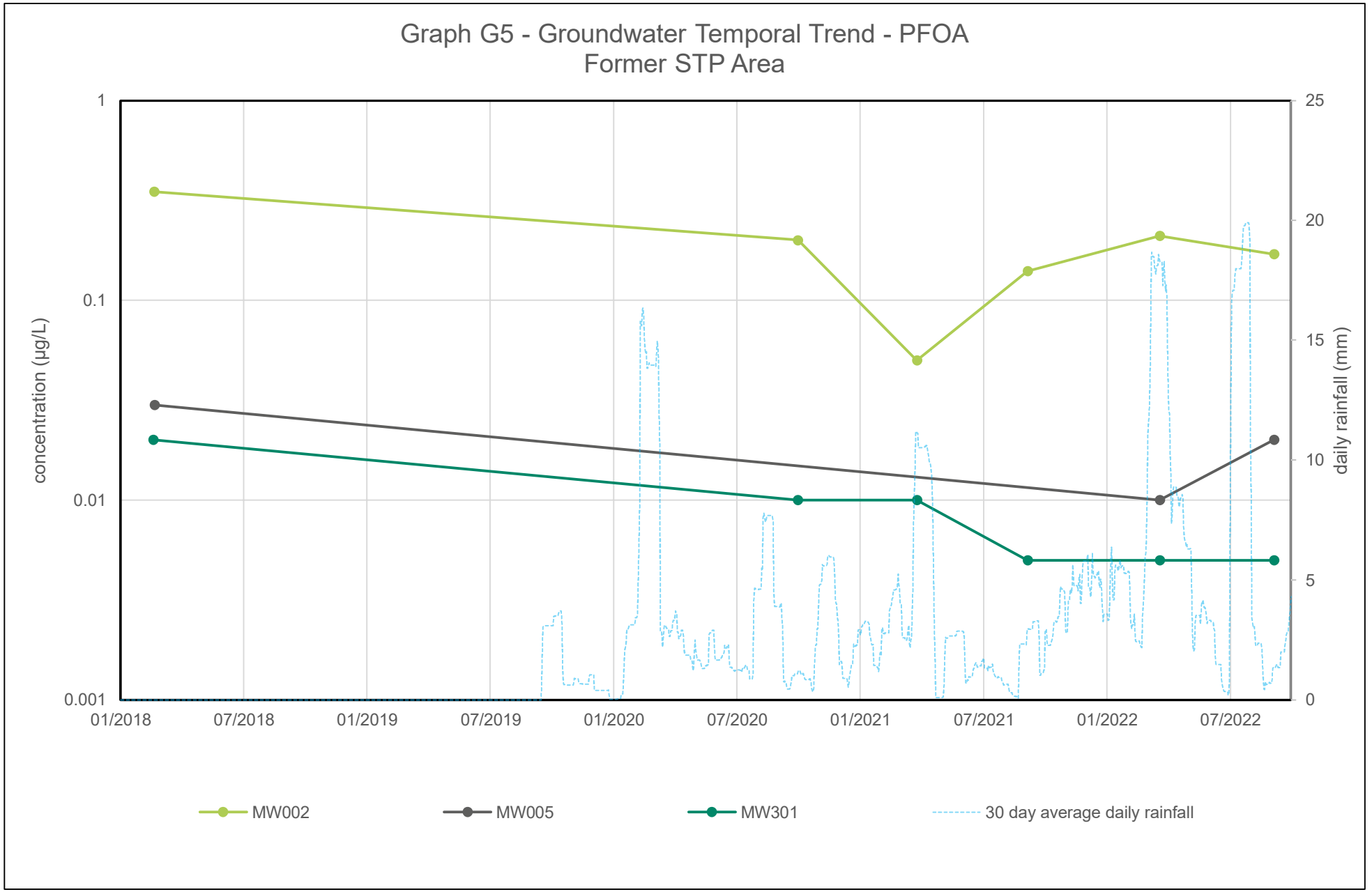

Graph G1 - Groundwater Temporal Trend - PFOA
Cantonment and Driver Training Area
concentration (µg/L)
1
0.1
0.01
0.001
daily rainfall (mm)
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
MW120
MW121
MW122
MW123
MW124
MW323
MW349
30 day average daily rainfall

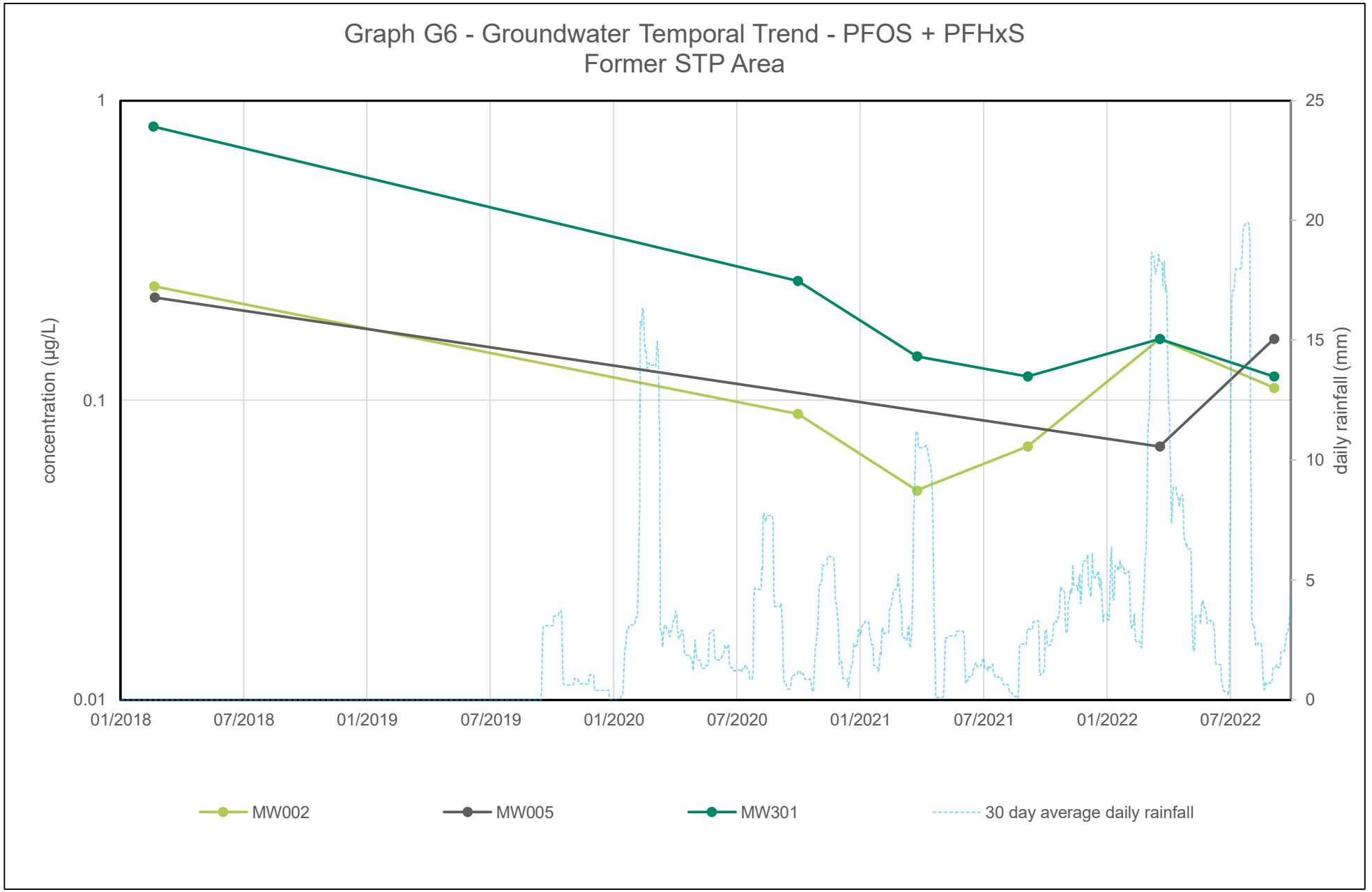
Graph G2 - Groundwater Temporal Trend - PFOS + PFHxS
Cantonment and Driver Training Area

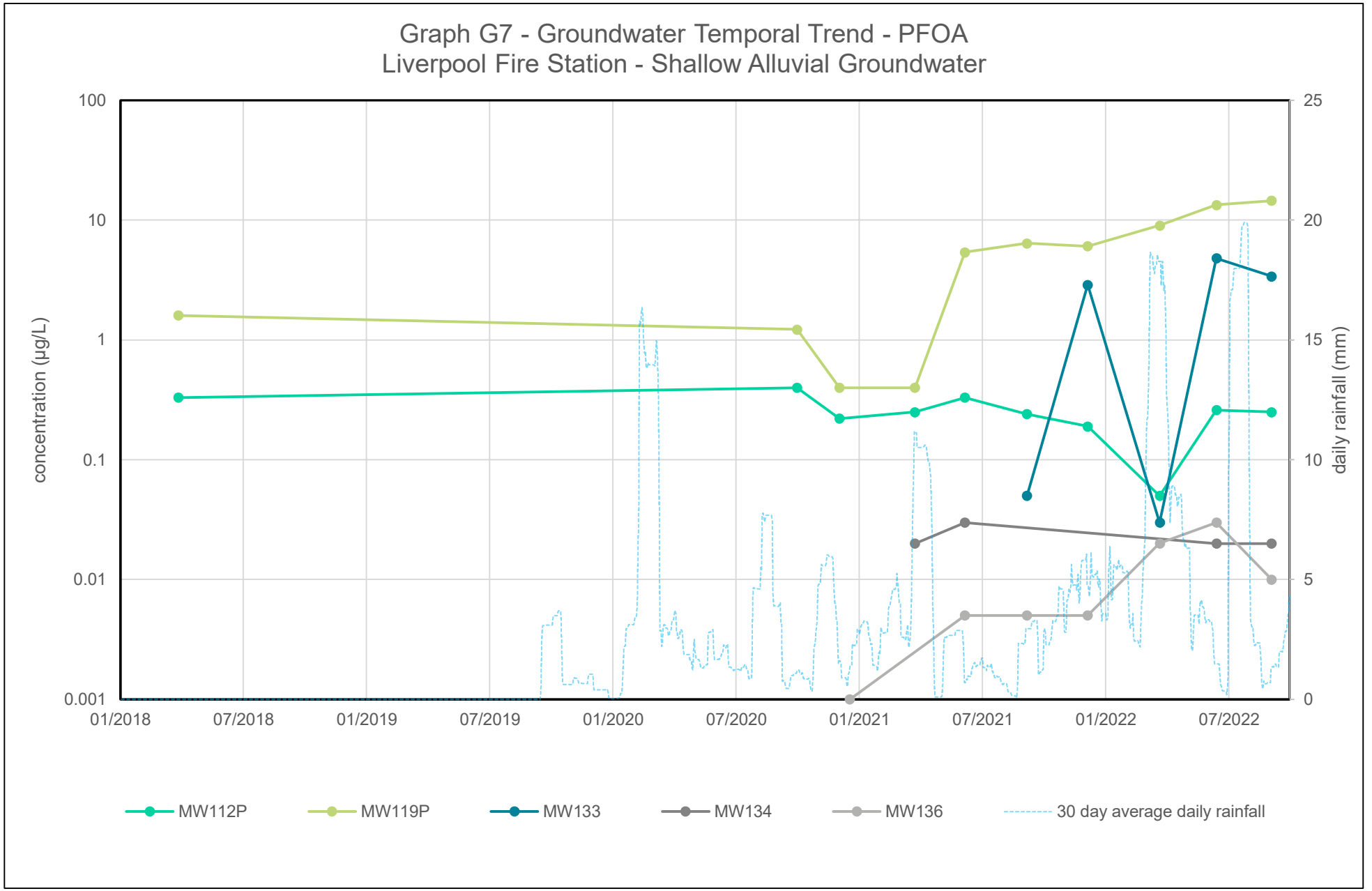


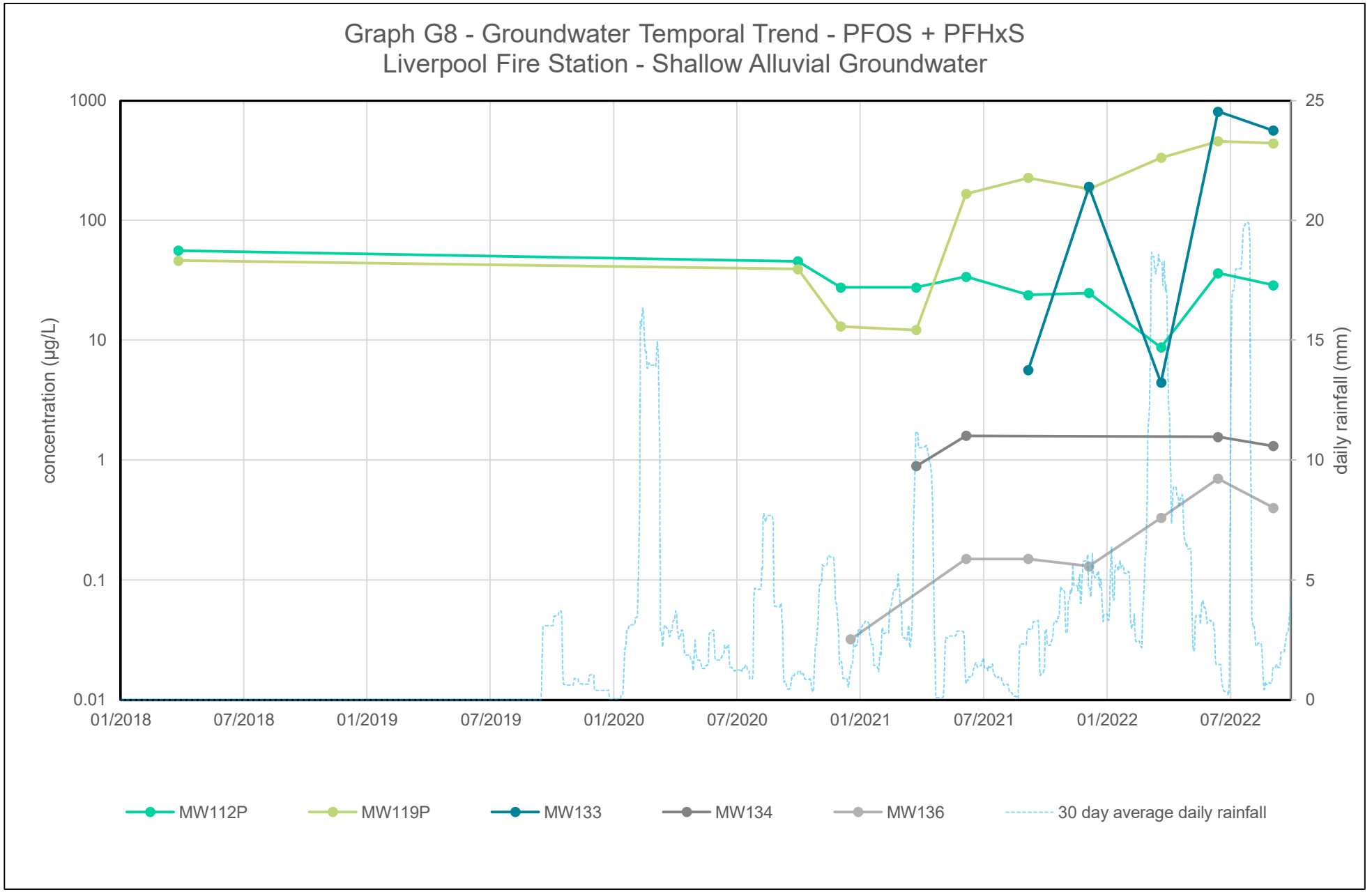

Graph G3 - Groundwater Temporal Trend - PFOA
Former 85 Transport Area
concentration (µg/L)
daily rainfall (mm)
10
1
0.1
0.01
0.001
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
MW117
MW330
30 day average daily rainfall

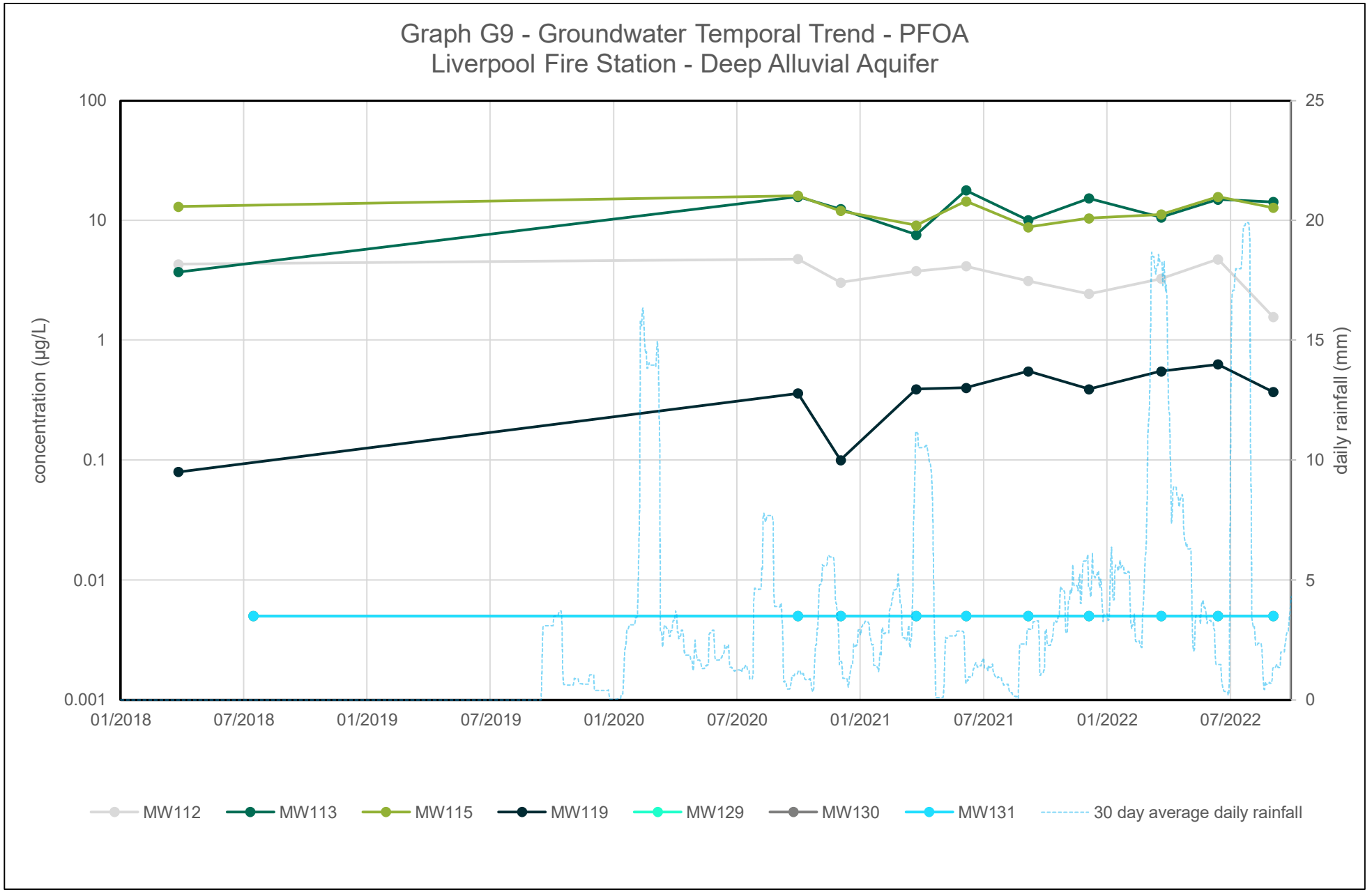

Graph G4 - Groundwater Temporal Trend - PFOS + PFHxS
Former 85 Transport Area
concentration (µg/L)
daily rainfall (mm)
100
10
1
0.1
0.01
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
MW117
MW330
30 day average daily rainfall

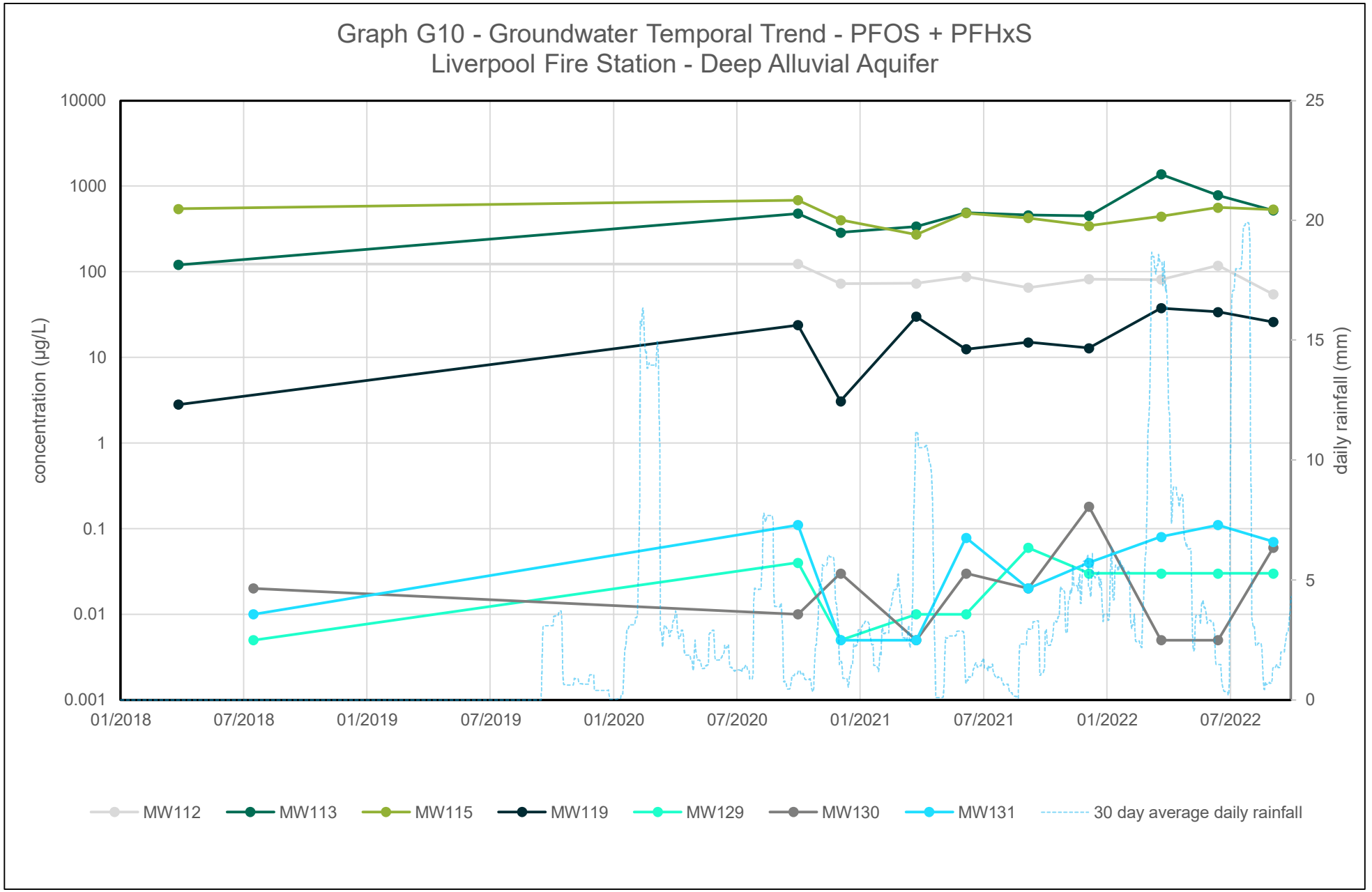

Graph G5 - Groundwater Temporal Trend - PFOA
Former STP Area
concentration (µg/L)
1
0.1
0.01
0.001
daily rainfall (mm)
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
MW002
MW005
MW301
30 day average daily rainfall

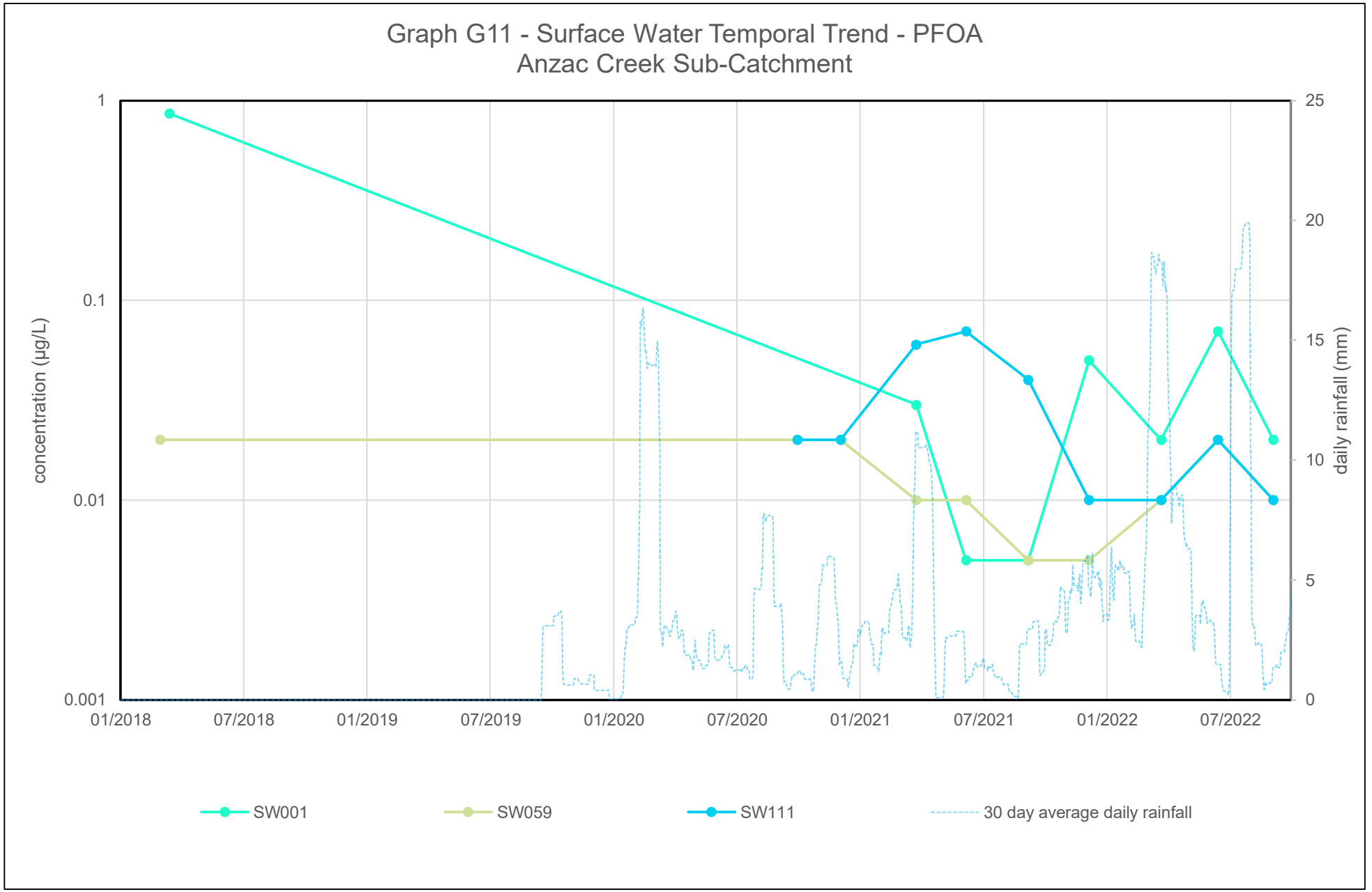

Graph G6 - Groundwater Temporal Trend - PFOS + PFHxS
Former STP Area
concentration (µg/L)
1
0.1
0.01
daily rainfall (mm)
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
MW002
MW005
MW301
30 day average daily rainfall

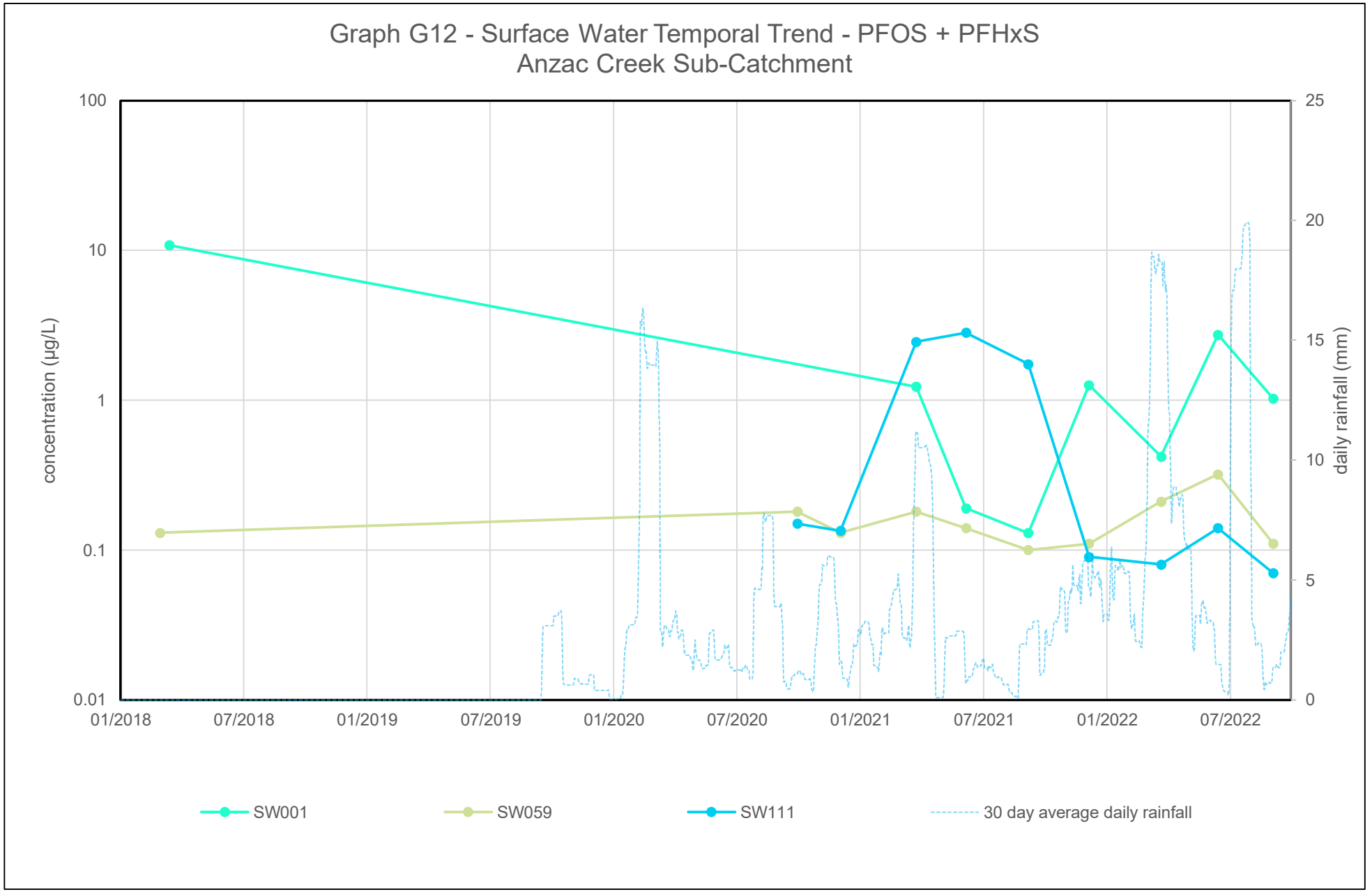

Graph G7 - Groundwater Temporal Trend - PFOA
Liverpool Fire Station - Shallow Alluvial Groundwater
concentration (µg/L)
daily rainfall (mm)
100
10
1
0.1
0.01
0.001
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
MW112P
MW119P
MW133
MW134
MW136
30 day average daily rainfall

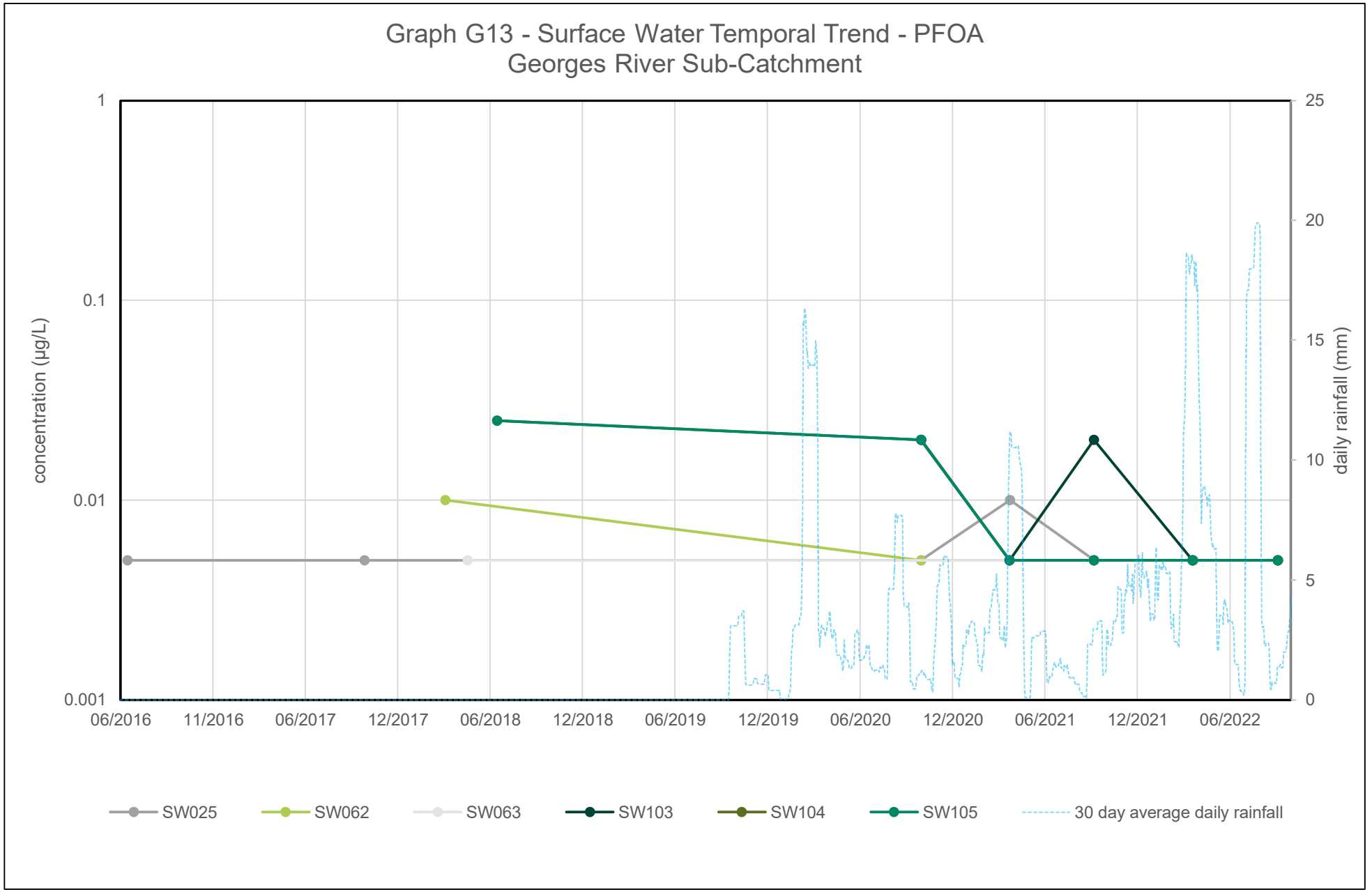

Graph G8 - Groundwater Temporal Trend - PFOS + PFHxS
Liverpool Fire Station - Shallow Alluvial Groundwater
concentration (µg/L)
1000
100
10
1
0.1
0.01
daily rainfall (mm)
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
MW112P
MW119P
MW133
MW134
MW136
30 day average daily rainfall

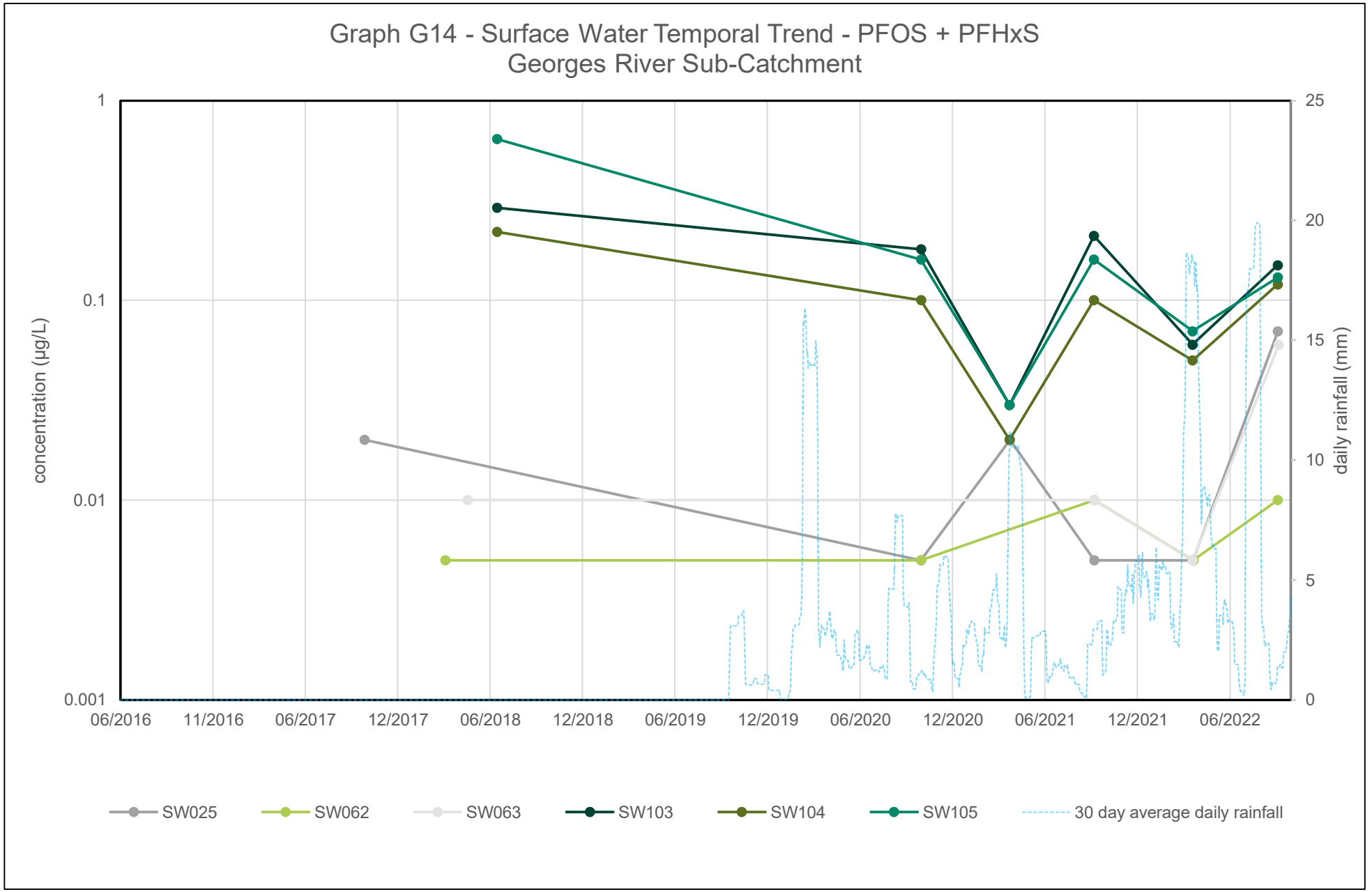

Graph G9 - Groundwater Temporal Trend - PFOA
Liverpool Fire Station - Deep Alluvial Aquifer
concentration (µg/L)
daily rainfall (mm)
100
10
1
0.1
0.01
0.001
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
MW112
MW113
MW115
MW119
MW129
MW130
MW131
30 day average daily rainfall

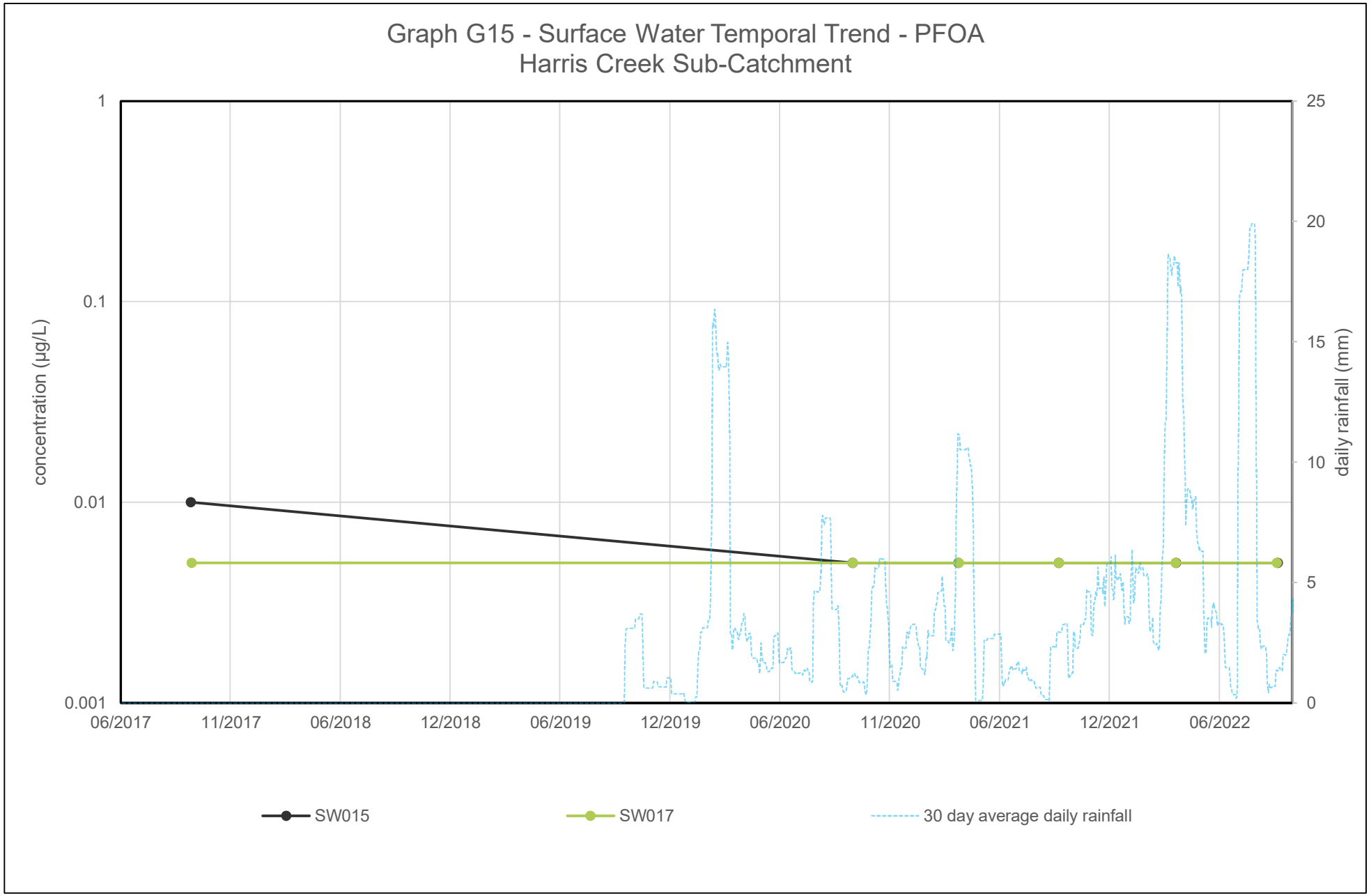

Graph G10 - Groundwater Temporal Trend - PFOS + PFHxS
Liverpool Fire Station - Deep Alluvial Aquifer
concentration (µg/L)
daily rainfall (mm)
10000
1000
100
10
1
0.1
0.01
0.001
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
MW112
MW113
MW115
MW119
MW129
MW130
MW131
30 day average daily rainfall

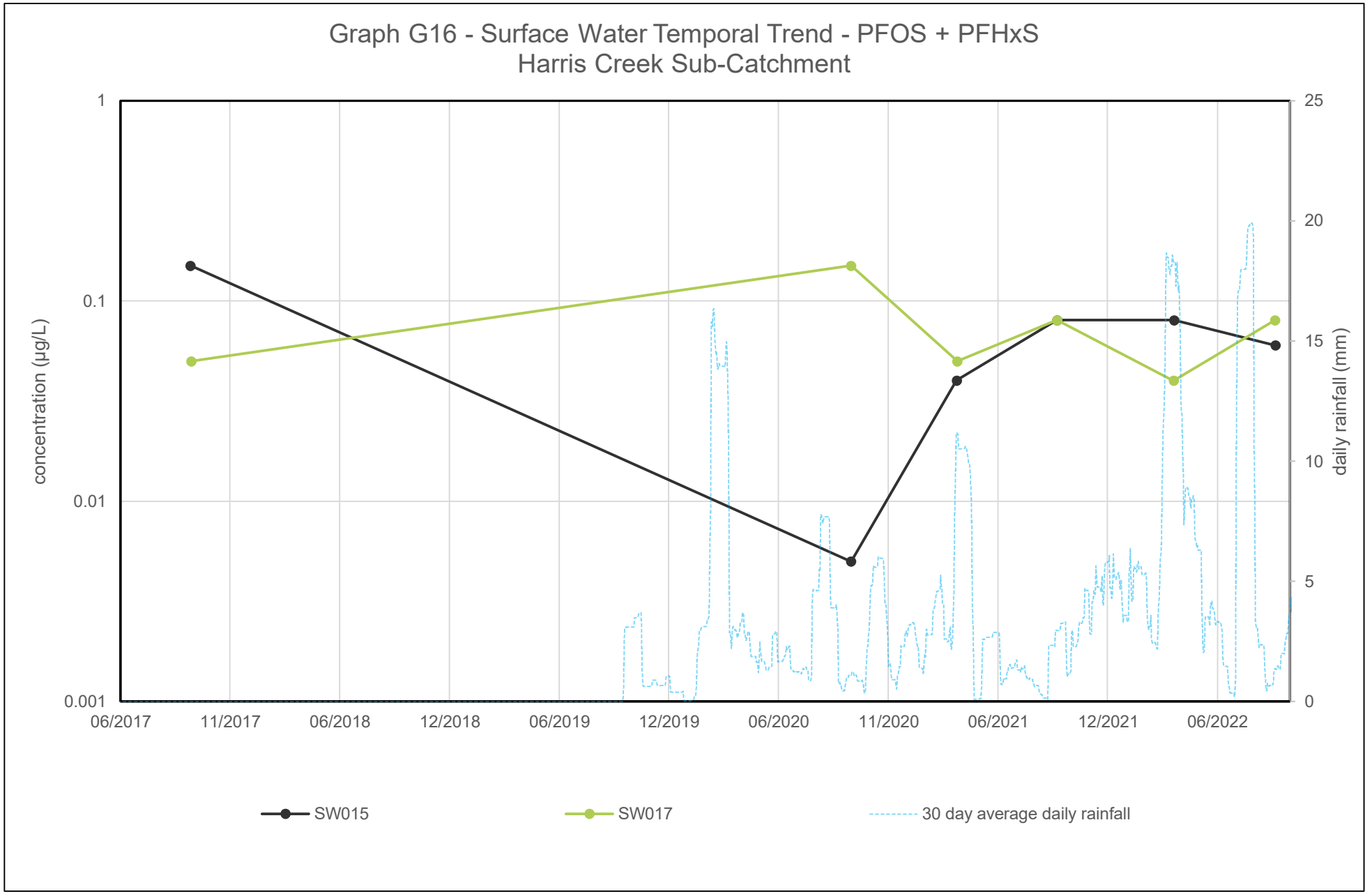

Graph G11 - Surface Water Temporal Trend - PFOA
Anzac Creek Sub-Catchment
concentration (µg/L)
1
0.1
0.01
0.001
daily rainfall (mm)
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
SW001
SW059
SW111
30 day average daily rainfall

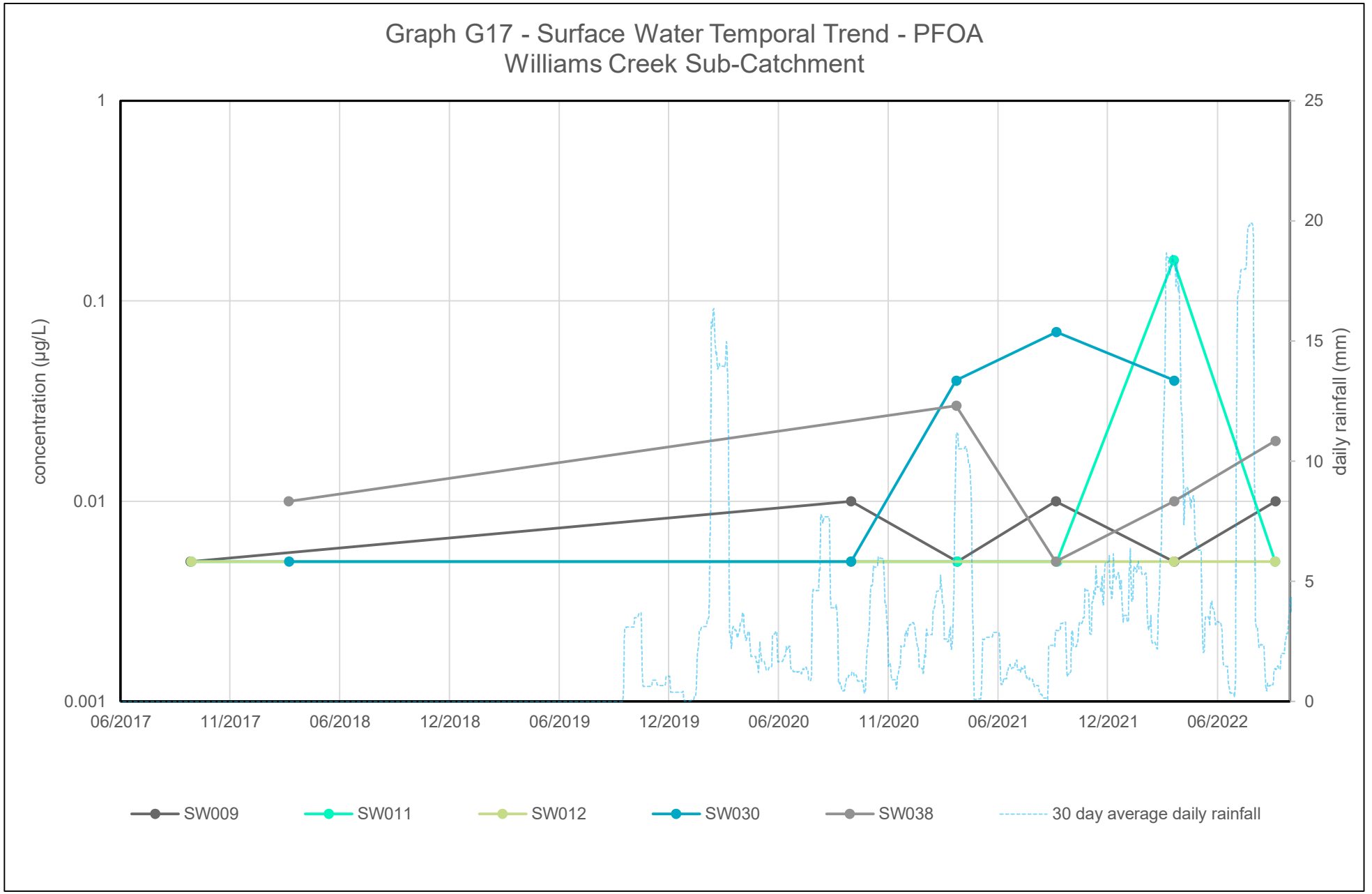

Graph G12 - Surface Water Temporal Trend - PFOS + PFHxS
Anzac Creek Sub-Catchment
concentration (µg/L)
daily rainfall (mm)
100
10
1
0.1
0.01
25
20
15
10
5
0
01/2018
07/2018
01/2019
07/2019
01/2020
07/2020
01/2021
07/2021
01/2022
07/2022
SW001
SW059
SW111
30 day average daily rainfall


Graph G13 - Surface Water Temporal Trend - PFOA
Georges River Sub-Catchment
concentration (µg/L)
1
0.1
0.01
0.001
daily rainfall (mm)
25
20
15
10
5
0
06/2016
11/2016
06/2017
12/2017
06/2018
12/2018
06/2019
12/2019
06/2020
12/2020
06/2021
12/2021
06/2022
SW025
SW062
SW063
SW103
SW104
SW105
30 day average daily rainfall

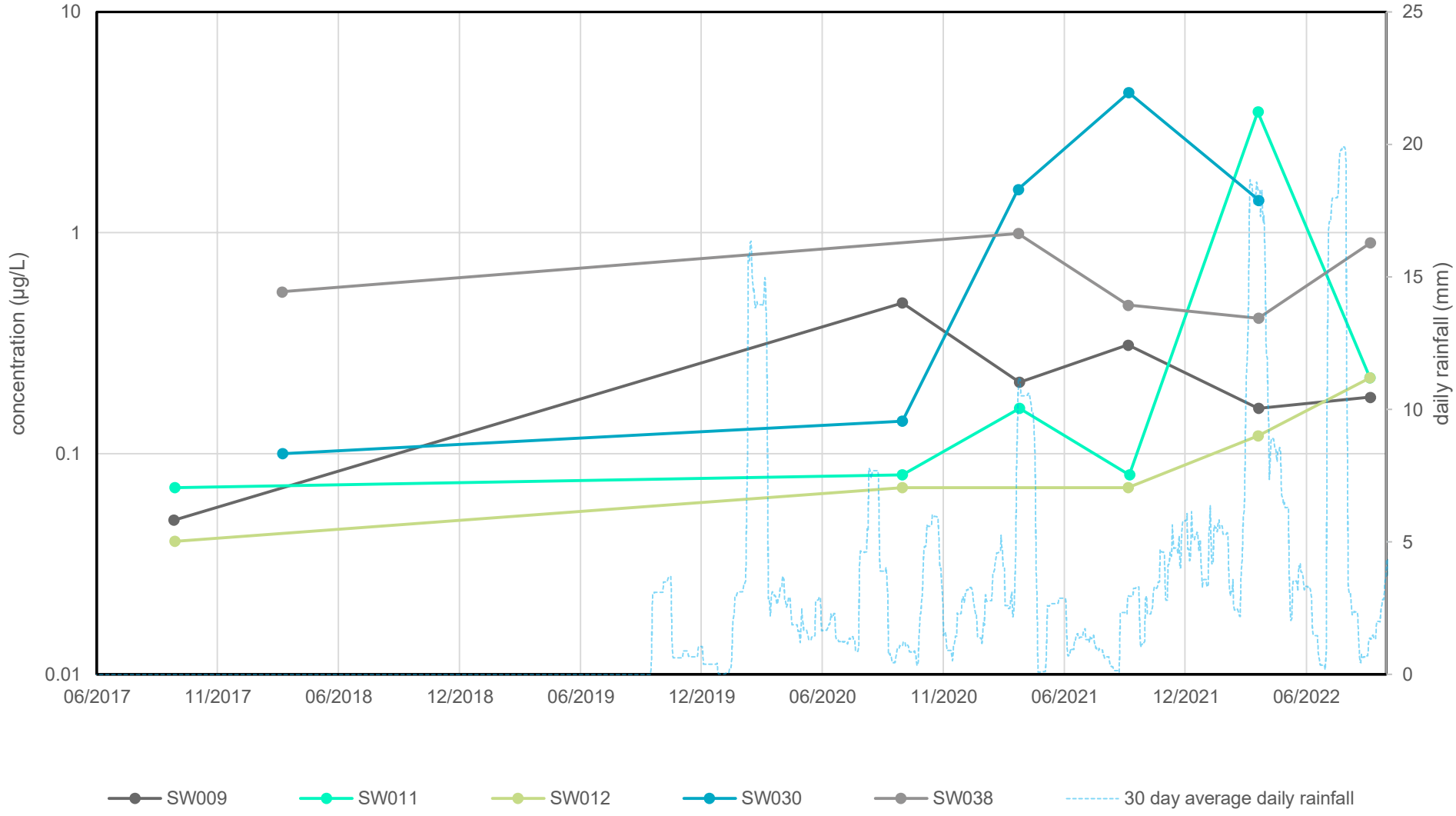

Graph G14 - Surface Water Temporal Trend - PFOS + PFHxS
Georges River Sub-Catchment
concentration (µg/L)
1
0.1
0.01
0.001
daily rainfall (mm)
25
20
15
10
5
0
06/2016
11/2016
06/2017
12/2017
06/2018
12/2018
06/2019
12/2019
06/2020
12/2020
06/2021
12/2021
06/2022
SW025
SW062
SW063
SW103
SW104
SW105
30 day average daily rainfall

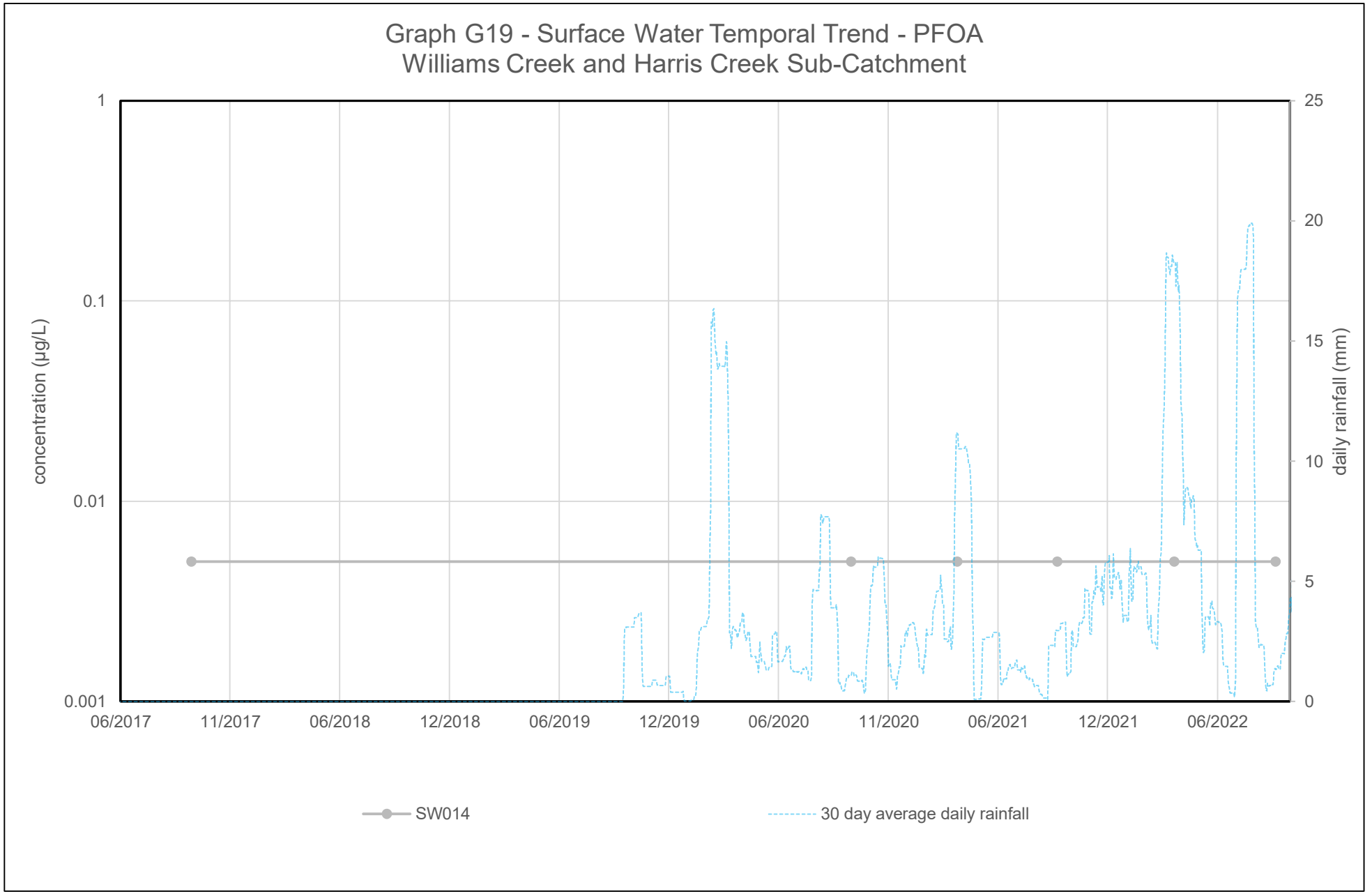

Graph G15 - Surface Water Temporal Trend - PFOA
Harris Creek Sub-Catchment
concentration (µg/L)
1
0.1
0.01
0.001
daily rainfall (mm)
25
20
15
10
5
0
06/2017
11/2017
06/2018
12/2018
06/2019
12/2019
06/2020
11/2020
06/2021
12/2021
06/2022
SW015
SW017
30 day average daily rainfall

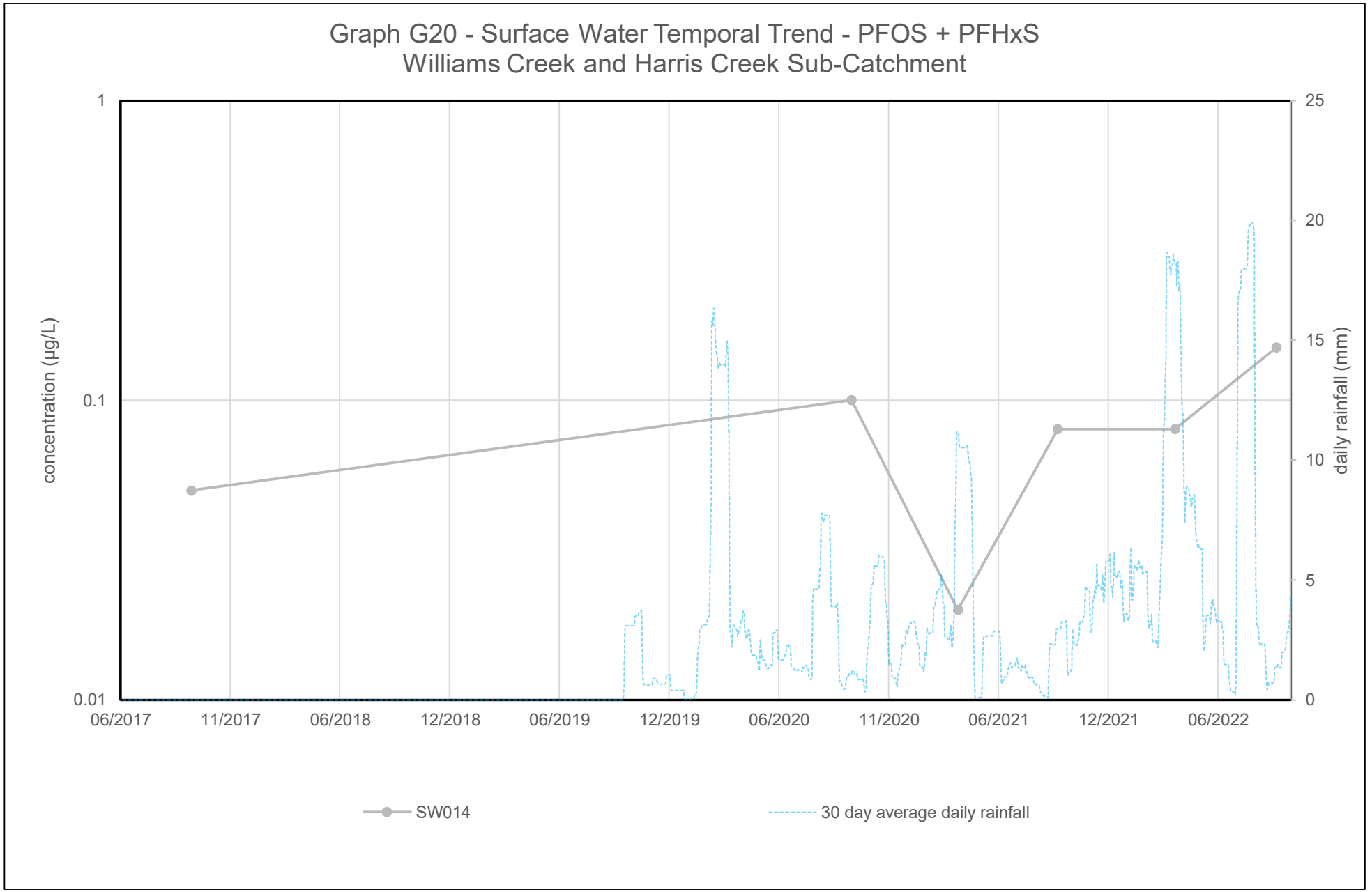

Graph G16 - Surface Water Temporal Trend - PFOS + PFHxS
Harris Creek Sub-Catchment
concentration (µg/L)
1
0.1
0.01
0.001
daily rainfall (mm)
25
20
15
10
5
0
06/2017
11/2017
06/2018
12/2018
06/2019
12/2019
06/2020
11/2020
06/2021
12/2021
06/2022
SW015
SW017
30 day average daily rainfall


Graph G17 - Surface Water Temporal Trend - PFOA
Williams Creek Sub-Catchment
concentration (µg/L)
1
0.1
0.01
0.001
daily rainfall (mm)
25
20
15
10
5
0
06/2017
11/2017
06/2018
12/2018
06/2019
12/2019
06/2020
11/2020
06/2021
12/2021
06/2022
SW009
SW011
SW012
SW030
SW038
30 day average daily rainfall

Graph G18 - Surface Water Temporal Trend - PFOS + PFHxS
Williams Creek Sub-Catchment




Graph G19 - Surface Water Temporal Trend - PFOA
Williams Creek and Harris Creek Sub-Catchment
concentration (µg/L)
1
0.1
0.01
0.001
daily rainfall (mm)
25
20
15
10
5
0
06/2017
11/2017
06/2018
12/2018
06/2019
12/2019
06/2020
11/2020
06/2021
12/2021
06/2022
SW014
30 day average daily rainfall


Graph G20 - Surface Water Temporal Trend - PFOS + PFHxS
Williams Creek and Harris Creek Sub-Catchment
concentration (µg/L)
1
0.1
0.01
daily rainfall (mm)
25
20
15
10
5
0
06/2017
11/2017
06/2018
12/2018
06/2019
12/2019
06/2020
11/2020
06/2021
12/2021
06/2022
SW014
30 day average daily rainfall

AECOM

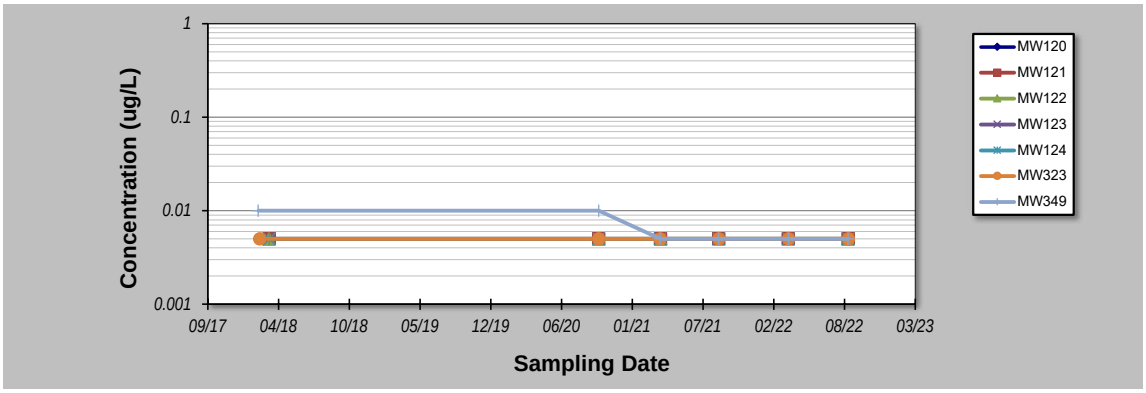
Mann Kendall Analysis - Groundwater
Cantonment and Driver Training Area

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Feb-24**
Facility Name: **Holsworthy Army Barracks**
Conducted By: **DDT**

Job ID: **60612562**
Constituent: **PFOA**
Concentration Units: **ug/L**

Sampling Point ID:	MW120	MW121	MW122	MW123	MW124	MW323	MW349
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	12/02/2018							0.01
2	16/02/2018						0.005	
3	14/03/2018	0.005	0.005	0.005				
4	15/03/2018				0.005	0.005		
5	1/10/2020	0.005	0.005	0.005	0.005	0.005	0.005	0.01
6	24/03/2021				0.005	0.005	0.005	0.005
7	25/03/2021	0.005	0.005					
8	26/03/2021			0.005				
9	6/09/2021	0.005	0.005		0.005	0.005	0.005	0.005
10	21/03/2022	0.005	0.005					
11	22/03/2022				0.005	0.005	0.005	0.005
12	6/09/2022	0.005	0.005	0.005	0.005			0.005
13	7/09/2022					0.005	0.005	
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.00	0.00	0.00	0.00	0.00	0.00	0.39
Mann-Kendall Statistic (S):		0	0	0	0	0	0	-8
Confidence Factor:		39.3%	39.3%	37.5%	39.3%	39.3%	39.3%	89.8%
Concentration Trend:		-	-	-	-	-	-	-



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

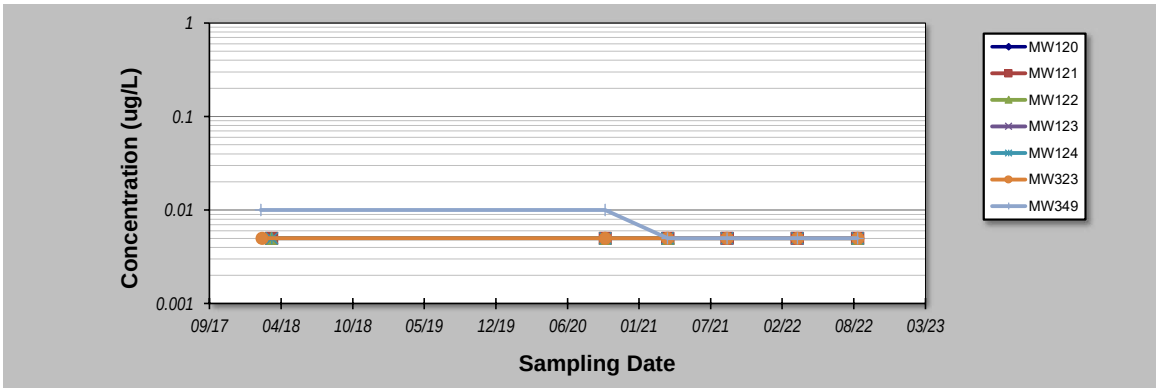
AECOM

Mann Kendall Analysis - Groundwater
Cantonment and Driver Training Area

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Feb-24	Job ID:	60612562
Facility Name:	Holsworthy Army Barracks	Constituent:	PFOA
Conducted By:	DDT	Concentration Units:	ug/L

Sampling Point ID:	MW120	MW121	MW122	MW123	MW124	MW323	MW349
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	12/02/2018							0.01
2	16/02/2018						0.005	
3	14/03/2018	0.005	0.005	0.005				
4	15/03/2018				0.005	0.005		
5	1/10/2020	0.005	0.005	0.005	0.005	0.005	0.005	0.01
6	24/03/2021				0.005	0.005	0.005	0.005
7	25/03/2021	0.005	0.005					
8	26/03/2021			0.005				
9	6/09/2021	0.005	0.005		0.005	0.005	0.005	0.005
10	21/03/2022	0.005	0.005					
11	22/03/2022				0.005	0.005	0.005	0.005
12	6/09/2022	0.005	0.005	0.005	0.005			0.005
13	7/09/2022					0.005	0.005	
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.00	0.00	0.00	0.00	0.00	0.00	0.39
Mann-Kendall Statistic (S):		0	0	0	0	0	0	-8
Confidence Factor:		39.3%	39.3%	37.5%	39.3%	39.3%	39.3%	89.8%
Concentration Trend:		-	-	-	-	-	-	-



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

AECOM

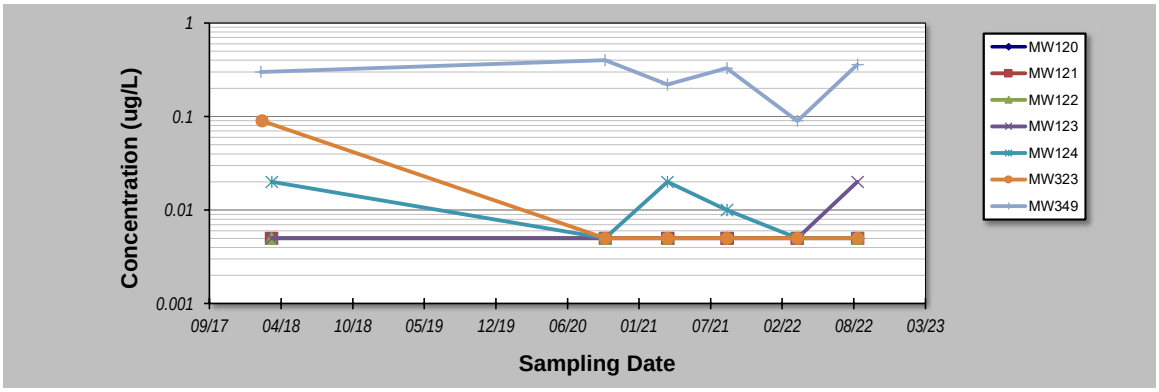
Mann Kendall Analysis - Groundwater
Cantonment and Driver Training Area

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 9-Feb-24
Facility Name: Holsworthy Army Barracks
Conducted By: DDT

Job ID: 60612562
Constituent: PFOS+PFHxS
Concentration Units: ug/L

Sampling Point ID:	MW120	MW121	MW122	MW123	MW124	MW323	MW349
Sampling Event	Sampling Date	PFOS+PFHXS CONCENTRATION (ug/L)						
1	12/02/2018							0.3
2	16/02/2018						0.09	
3	14/03/2018	0.005	0.005	0.005				
4	15/03/2018				0.005	0.02		
5	1/10/2020	0.005	0.005	0.005	0.005	0.005	0.005	0.4
6	24/03/2021				0.005	0.02	0.005	0.22
7	25/03/2021	0.005	0.005					
8	26/03/2021			0.005				
9	6/09/2021	0.005	0.005		0.005	0.01	0.005	0.33
10	21/03/2022	0.005	0.005					
11	22/03/2022				0.005	0.005	0.005	0.09
12	6/09/2022	0.005	0.005	0.005	0.02			0.36
13	7/09/2022					0.005	0.005	
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.00	0.00	0.00	0.82	0.68	1.81	0.40
Mann-Kendall Statistic (S):		0	0	0	5	-7	-5	-1
Confidence Factor:		39.3%	39.3%	37.5%	76.5%	86.4%	76.5%	50.0%
Concentration Trend:		-	-	-	-	-	-	Stable



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

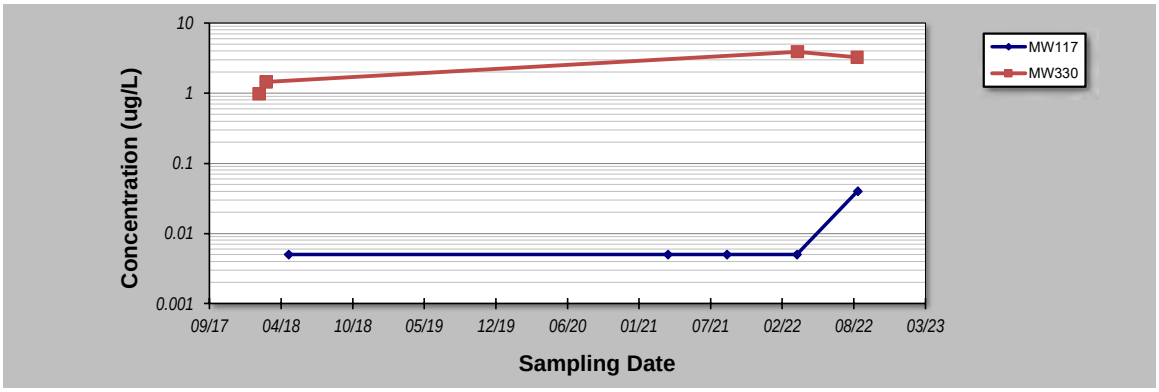
AECOM

Mann Kendall Analysis - Groundwater
Former 85 Transport Area

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Feb-24	Job ID:	60612562
Facility Name:	Holsworthy Army Barracks	Constituent:	PFOA
Conducted By:	DDT	Concentration Units:	ug/L

Sampling Point ID:	MW117	MW330					
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)					
1	7/02/2018		0.98				
2	27/02/2018		1.45				
3	1/05/2018	0.005					
4	26/03/2021	0.005					
5	7/09/2021	0.005					
6	21/03/2022	0.005					
7	22/03/2022		3.9				
8	5/09/2022		3.24				
9	7/09/2022	0.04					
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		1.30	0.58				
Mann-Kendall Statistic (S):		4	4				
Confidence Factor:		75.8%	83.3%				
Concentration Trend:		-	No Trend				



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

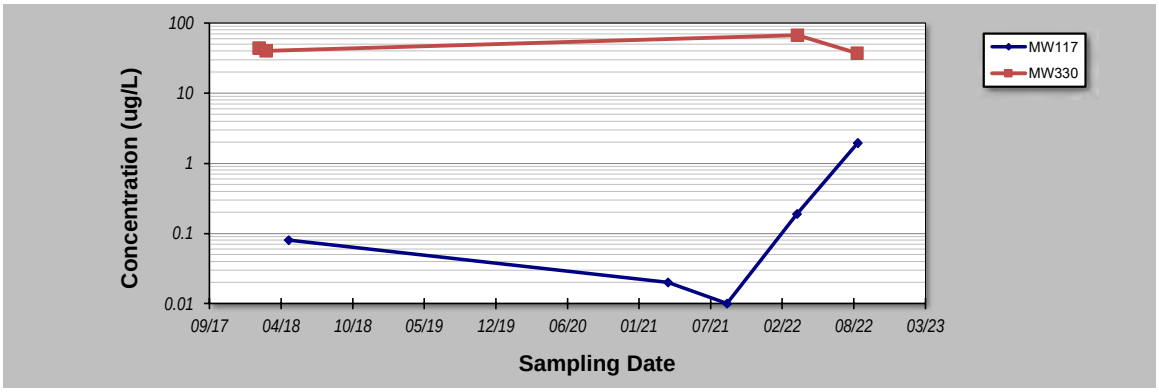
AECOM

Mann Kendall Analysis - Groundwater
Former 85 Transport Area

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Feb-24	Job ID:	60612562
Facility Name:	Holsworthy Army Barracks	Constituent:	PFOS+PFHxS
Conducted By:	DDT	Concentration Units:	ug/L

Sampling Point ID:	MW117	MW330					
Sampling Event	Sampling Date	PFOS+PFHXS CONCENTRATION (ug/L)					
1	7/02/2018		44.05				
2	27/02/2018		40.03				
3	1/05/2018	0.08					
4	26/03/2021	0.02					
5	7/09/2021	0.01					
6	21/03/2022	0.19					
7	22/03/2022		67				
8	5/09/2022		37.1				
9	7/09/2022	1.95					
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		1.87	0.29				
Mann-Kendall Statistic (S):		4	-2				
Confidence Factor:		75.8%	62.5%				
Concentration Trend:		No Trend	Stable				



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

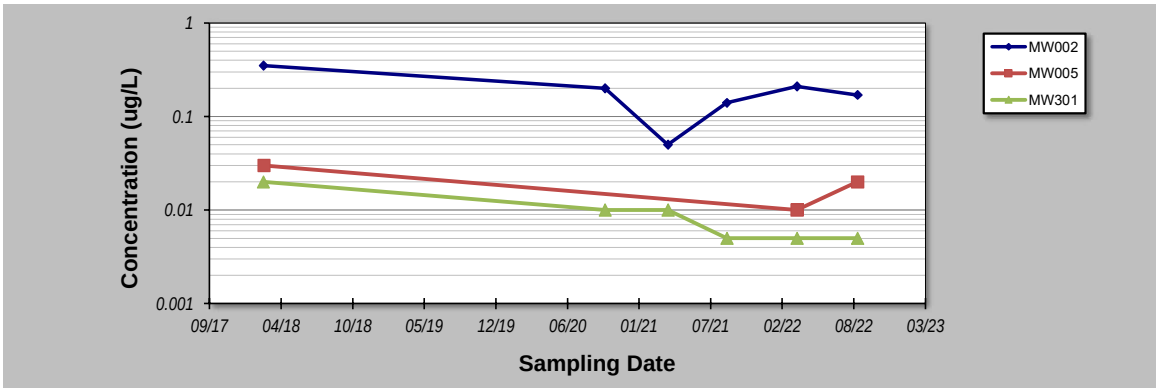
AECOM

Mann Kendall Analysis - Groundwater
Former STP Area

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Feb-24	Job ID:	60612562
Facility Name:	Holsworthy Army Barracks	Constituent:	PFOA
Conducted By:	DDT	Concentration Units:	ug/L

Sampling Point ID:	MW002	MW005	MW301				
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	19/02/2018			0.02				
2	20/02/2018	0.35						
3	21/02/2018		0.03					
4	1/10/2020	0.2		0.01				
5	26/03/2021	0.05		0.01				
6	6/09/2021	0.14		0.005				
7	21/03/2022	0.21	0.01	0.005				
8	6/09/2022	0.17	0.02	0.005				
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.53	0.50	0.64				
Mann-Kendall Statistic (S):		-3	-1	-11				
Confidence Factor:		64.0%		97.2%				
Concentration Trend:		Stable		Decreasing				



Notes:

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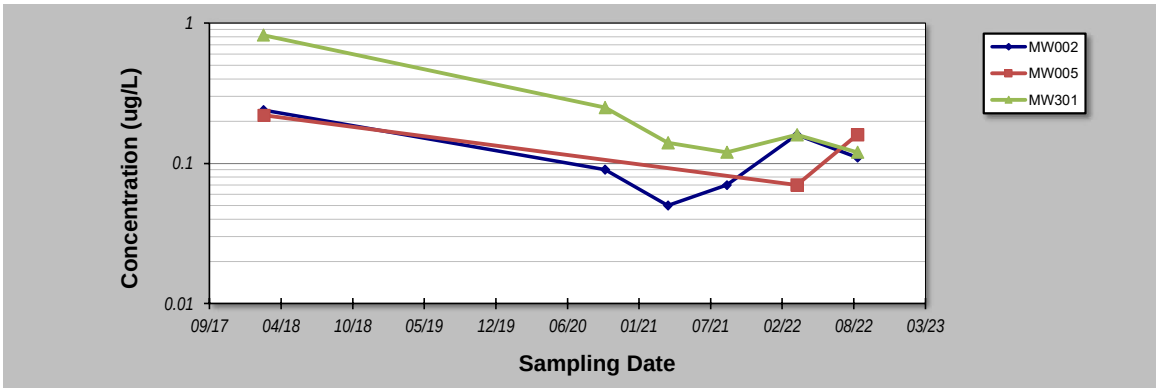
AECOM

Mann Kendall Analysis - Groundwater
Former STP Area

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Feb-24	Job ID:	60612562
Facility Name:	Holsworthy Army Barracks	Constituent:	PFOS+PFHxS
Conducted By:	DDT	Concentration Units:	ug/L

Sampling Point ID:	MW002	MW005	MW301				
Sampling Event	Sampling Date	PFOS+PFHXS CONCENTRATION (ug/L)						
1	19/02/2018			0.82				
2	20/02/2018	0.24						
3	21/02/2018		0.22					
4	1/10/2020	0.09		0.25				
5	26/03/2021	0.05		0.14				
6	6/09/2021	0.07		0.12				
7	21/03/2022	0.16	0.07	0.16				
8	6/09/2022	0.11	0.16	0.12				
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.58	0.50	1.02				
Mann-Kendall Statistic (S):		-1	-1	-10				
Confidence Factor:		50.0%		95.2%				
Concentration Trend:		Stable		Decreasing				



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

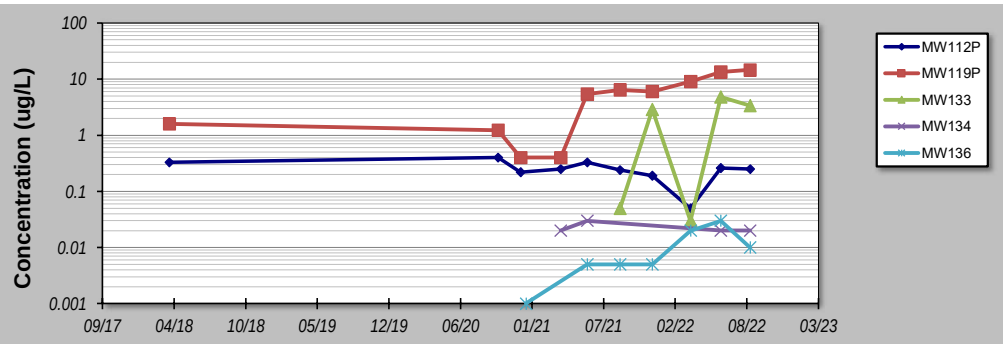
AECOM

Mann Kendall Analysis - Groundwater
Liverpool Fire Station - Shallow Alluvial Aquifer

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Feb-24	Job ID:	60612562
Facility Name:	Holsworthy Army Barracks	Constituent:	PFOA
Conducted By:	DDT	Concentration Units:	ug/L

Sampling Point ID:	MW112P	MW119P	MW133	MW134	MW136		
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	28/03/2018	0.33	1.60					
2	1/10/2020	0.40	1.22					
3	3/12/2020	0.22	0.40					
4	18/12/2020					0.00		
5	25/03/2021	0.25	0.40		0.02			
6	7/06/2021	0.33	5.40		0.03	0.01		
7	7/09/2021	0.24	6.40	0.05		0.01		
8	6/12/2021	0.19	6.06	2.88		0.01		
9	23/03/2022	0.05	9.02	0.03		0.02		
10	15/06/2022	0.26	13.40	4.80	0.02	0.03		
11	5/09/2022	0.25	14.60	3.39	0.02	0.01		
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.37	0.89	0.95	0.22	0.96		
Mann-Kendall Statistic (S):		-15	32	4	-1	14		
Confidence Factor:		89.2%	99.9%	75.8%	50.0%	97.5%		
Concentration Trend:		Stable	Increasing	No Trend	Stable	Increasing		



Notes:

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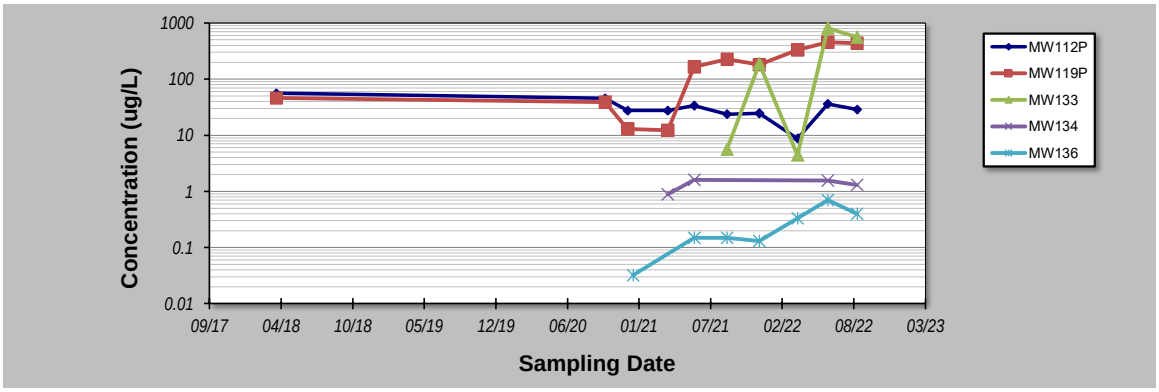
AECOM

Mann Kendall Analysis - Groundwater
Liverpool Fire Station - Shallow Alluvial Aquifer

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 9-Feb-24
Facility Name: Holsworthy Army Barracks
Conducted By: DDT
Job ID: 60612562
Constituent: PFOS+PFHxS
Concentration Units: ug/L

Sampling Point ID:	MW112P	MW119P	MW133	MW134	MW136		
Sampling Event	Sampling Date	PFOS+PFHXS CONCENTRATION (ug/L)						
1	28/03/2018	56.00	46.00					
2	1/10/2020	45.40	39.10					
3	3/12/2020	27.60	13.00					
4	18/12/2020					0.03		
5	25/03/2021	27.60	12.20		0.89			
6	7/06/2021	33.80	166.00		1.60	0.15		
7	7/09/2021	23.80	226.00	5.64		0.15		
8	6/12/2021	24.70	182.00	190.00		0.13		
9	23/03/2022	8.75	332.00	4.43		0.33		
10	15/06/2022	36.30	457.00	808.00	1.56	0.70		
11	5/09/2022	28.70	438.00	561.00	1.31	0.40		
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.41	0.89	1.14	0.24	0.84		
Mann-Kendall Statistic (S):		-16	29	4	0	14		
Confidence Factor:		90.7%	99.5%	75.8%	37.5%	97.5%		
Concentration Trend:		Prob. Decreasing	Increasing	No Trend	Stable	Increasing		



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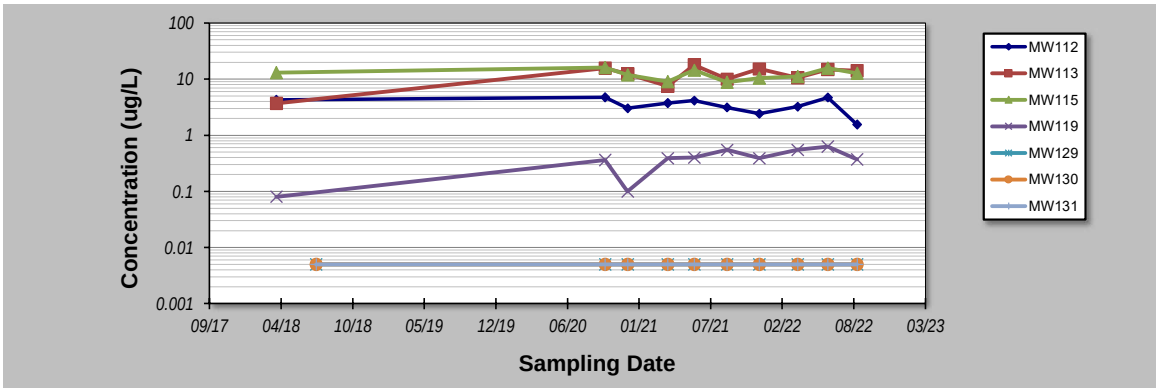
AECOM

Mann Kendall Analysis - Groundwater
Liverpool Fire Station - Deep Alluvial Aquifer

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Feb-24	Job ID:	60612562
Facility Name:	Holsworthy Army Barracks	Constituent:	PFOA
Conducted By:	DDT	Concentration Units:	ug/L

Sampling Point ID:	MW112	MW113	MW115	MW119			
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	28/03/2018	4.30	3.70	13.00	0.08			
2	17/07/2018							
3	1/10/2020	4.75	15.70	16.10	0.36			
4	3/12/2020	3.03	12.40	12.00	0.10			
5	25/03/2021	3.76	7.56	9.06	0.39			
6	7/06/2021	4.14	17.80	14.40	0.40			
7	7/09/2021	3.12	10.00	8.78	0.55			
8	6/12/2021	2.43	15.20	10.40	0.39			
9	23/03/2022	3.25	10.60	11.20	0.55			
10	15/06/2022	4.72	14.90	15.70	0.63			
11	5/09/2022	1.56	14.20	12.70	0.37			
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.29	0.35	0.21	0.47	0.00	0.00	0.00
Mann-Kendall Statistic (S):		-15	7	-3	25	0	0	0
Confidence Factor:		89.2%	70.0%	56.9%	98.6%	0	0	0
Concentration Trend:		Stable	No Trend	Stable	Increasing			.



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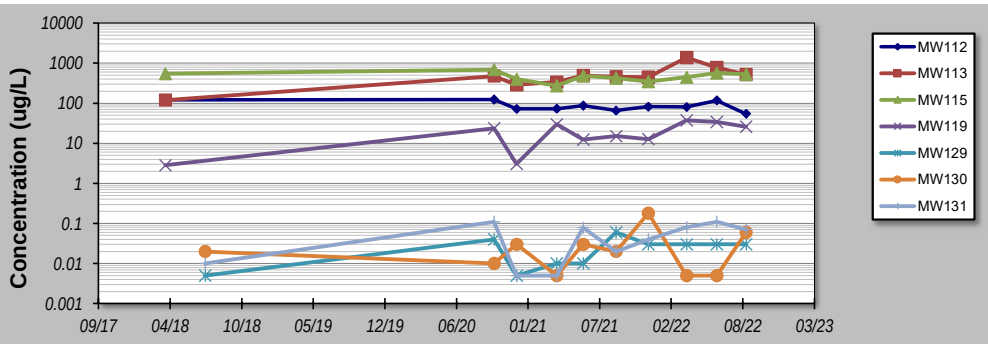
AECOM

Mann Kendall Analysis - Groundwater
Liverpool Fire Station - Deep Alluvial Aquifer

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Feb-24	Job ID:	60612562
Facility Name:	Holsworthy Army Barracks	Constituent:	PFOS+PFHxS
Conducted By:	DDT	Concentration Units:	ug/L

Sampling Point ID:	MW112	MW113	MW115	MW119	MW129	MW130	MW131
Sampling Event	Sampling Date	PFOS+PFHXS CONCENTRATION (ug/L)						
1	28/03/2018	122.00	120.00	540.00	2.82			
2	17/07/2018					0.01	0.02	0.01
3	1/10/2020	123.00	478.00	687.00	23.80	0.04	0.01	0.11
4	3/12/2020	72.40	287.00	400.00	3.07	0.01	0.03	0.01
5	25/03/2021	73.10	336.00	273.00	29.80	0.01	0.01	0.01
6	7/06/2021	87.40	488.00	484.00	12.40	0.01	0.03	0.08
7	7/09/2021	65.20	457.00	424.00	15.00	0.06	0.02	0.02
8	6/12/2021	81.70	449.00	343.00	12.80	0.03	0.18	0.04
9	23/03/2022	80.60	1380.00	441.00	37.40	0.03	0.01	0.08
10	15/06/2022	118.00	780.00	561.00	33.80	0.03	0.01	0.11
11	5/09/2022	54.40	520.00	531.00	25.90	0.03	0.06	0.07
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.28	0.65	0.25	0.62	0.71	1.46	0.79
Mann-Kendall Statistic (S):		-13	25	1	21	15	2	15
Confidence Factor:		85.4%	98.6%	50.0%	96.4%	89.2%	53.5%	89.2%
Concentration Trend:		Stable	Increasing	No Trend	Increasing	No Trend	No Trend	No Trend



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Appendix D

Aurecon Source Area and Sub-Catchment Figures

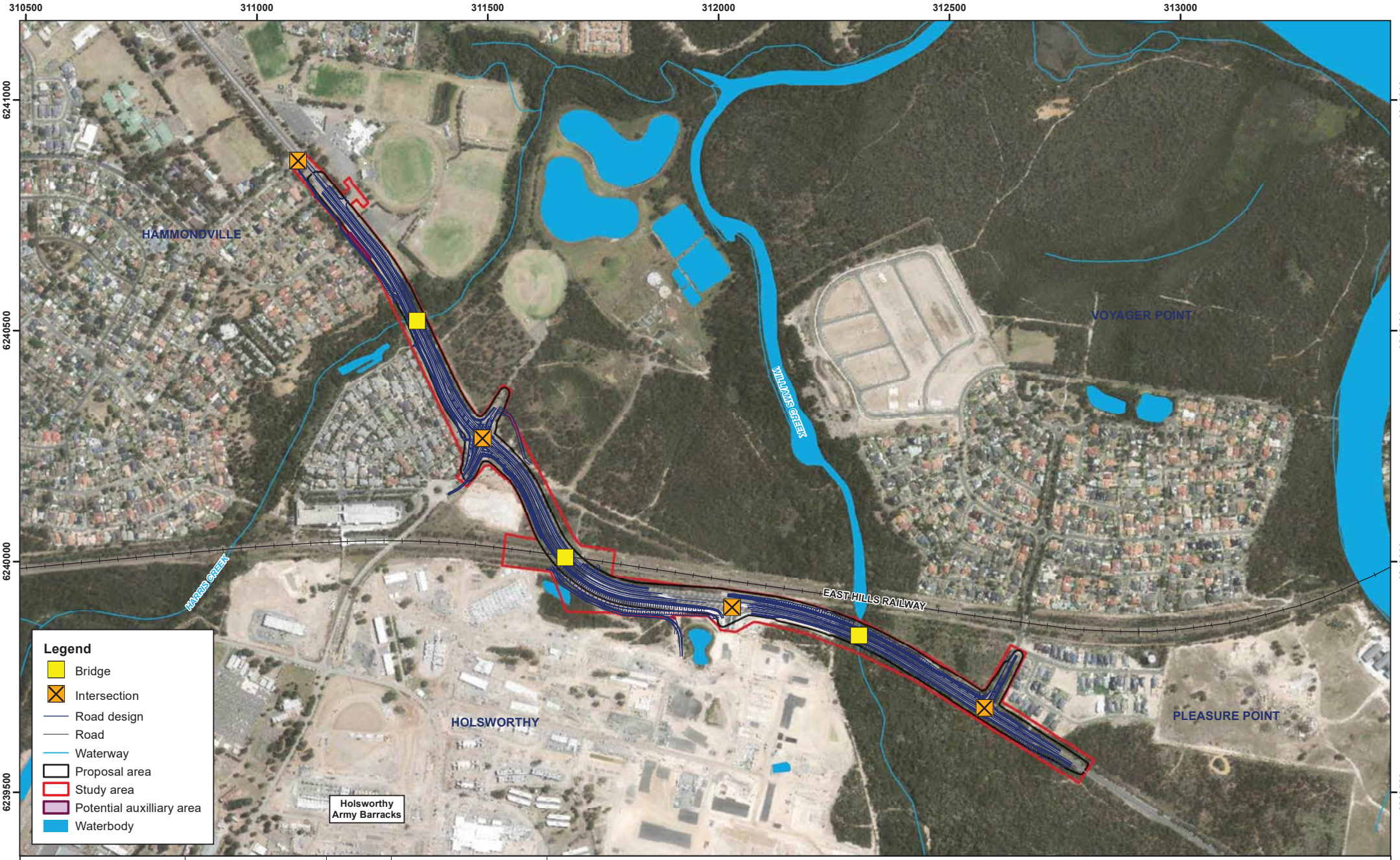
N

0 200 400
Metres

Primary Source Area
Holsworthy Range Sector Boundaries
Holsworthy Site Boundary

Notes:
1. Image Source: NearMap, 2017;Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 4
PFAS Source Areas
Holsworthy Barracks and Training Area
New South Wales
PFAS Management Area Plan



Map: 2113368_GIS_015_A2	Author: RP
Date: 17/08/2016	Approved by: CR

Data source: © Roads and Maritime Services

1:7,500

Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

Heathcote Road Upgrade
Figure 1-2
Proposal overview

Appendix E

SAQP

Prepared for
Department of Defence
ABN: 68 706 814 312

DRAFT

Holsworthy Barracks - Sampling and Analysis Quality Plan

PFAS OMP

23-Aug-2022
PFAS Ongoing Monitoring Program
Doc No. 20220823_OMP002_Holsworthy_SAQP_Rev H

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Delivering a better world

D R A F T

Holsworthy Barracks - Sampling and Analysis Quality Plan

PFAS OMP

Client: Department of Defence

ABN: 68 706 814 312

Prepared by

AECOM Australia Pty Ltd
Level 21, 420 George Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia
T +61 2 8008 1700 www.aecom.com
ABN 20 093 846 925

23-Aug-2022

Job No.: 60612562

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 and ISO45001.

D R A F T

Quality Information

Document Holsworthy Barracks - Sampling and Analysis Quality Plan
Ref 60612562
Date 23-Aug-2022
Originator [redacted]
Checker/s [redacted]
Verifier/s

Revision History

Rev	Revision Date	Details	Approved	
			Name/Position	Signature
A	22-Sep-20	Draft	[redacted] Project Manager	
B	03-Nov-2020	Draft	[redacted] Project Manager	
C	16-Mar-2021	Draft	[redacted] Project Manager	
D	28-May-2021	Draft	[redacted] Project Manager	
E	03-Aug-2021	Draft	[redacted] Project Manager	
F	02-Feb-2022	Draft	[redacted] Project Manager	
G	18-Feb-2022	Draft	[redacted] Project Manager	
H	23-Aug-2022	Draft	[redacted] Project Manager	

D R A F T

Table of Contents

D R A F T

D R A F T

1.0 Introduction

1.1 Preamble

AECOM Australia Pty Ltd (AECOM) has prepared this Sampling and Analysis Quality Plan (SAQP) for the per- and poly-fluoroalkyl substance (PFAS) Ongoing Monitoring Plan at **Australian Army Holsworthy Barracks (Holsworthy)** (the 'Site') (Site ID 0382) and at the Fire & Rescue NSW Liverpool Fire Station (LFS), together referred to as the 'Study Area' (refer to **Figure 1** in **Appendix A**).

The SAQP supports the Ongoing Monitoring Plan presented in Attachment 1 of the *PFAS Management Area Plan* – June 2020 (Defence, 2020) for the Site, here-in referred to as the OMP (Defence, 2020).

The purpose of the OMP is to collect data that will enable Defence to maintain an up to date understanding of the distribution, concentration, transport (migration pathways and rates) and transformation of PFAS in the Management Area. The OMP (Defence, 2020) aims to achieve the following:

- an evidence base for targeted and effective risk management of PFAS contamination to protect human health and environmental receptors.
- an early indication that additional management of PFAS contamination may be warranted in areas not currently affected by PFAS.

The data will assist in the timely identification of risks and inform Defence's approach to the management of PFAS, including updates and revisions to the PFAS Management Area Plan (PMAP)(Defence, 2020) throughout the initial three-year implementation period.

This SAQP has been updated to reflect the recommended changes outlined in the AECOM (2022b) Annual Interpretive Report – 2021.

1.2 SAQP Objectives

The objectives of this SAQP are to:

- define the proposed scope of works in detail.
- outline the proposed sampling methodology to be adopted.
- outline the proposed quality assurance and quality control (QA/QC) measures to be adopted.
- define the data collection and management requirements for the project.

1.3 Scope of Works

To meet the program objectives, as per the OMP (Defence, 2020) scope of works included monitoring changes in PFAS concentrations:

- in surface water in Anzac, Harris and Williams Creeks, the key surface water transport pathways from the Site and the LFS.
- in Georges River near the inferred overland flow discharge from the Former 85 Transport Area.
- in groundwater in PFAS source areas.
- in groundwater along the northern boundary of the Cantonment and Driver Training Area to act as a sentinel system for PFAS migration.
- to further refine the understanding of the contribution of PFAS from Holsworthy and the LFS to surface water bodies.

1.4 Guidelines and Legislation

The SAQP has been developed with reference to the following guidelines and legislation:

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- PFAS National Environmental Management Plan (NEMP) Version 2.0, Heads of Environmental Protection Agencies (HEPA), January 2020.
- National Environment Protection (Assessment of Site Contamination) Measure (NEPM), National Environment Protection Council (NEPC), 2013.
- Department of Defence, Pollution Prevention Guideline – Annex 1L Routine Water Quality Monitoring. August 2019.
- Department of Defence, Contamination Management Manual, 2018 amended August 2019.
- Department of Health (DoH), Health Based Guidance Values for PFAS. September 2019.
- National Health and Medical Research Council (NHMRC), Guidance on PFAS in Recreational Water. August 2019.
- National Environmental Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013 (NEPC), 2013.
- Standards Australia 1998. AS/NZ 5667:1998 Water Quality – Sampling.
- Australian and New Zealand Guidelines, 2018. Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

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2.0 Site Identification

2.1 Study Area Details

The Site has been a training area and artillery range for the Australian Army since the First World War. The Site has been used as an artillery range since 1913 with the first barracks developed in 1951. Following the Second World War, the Site became a major property for the permanent component of the Australian Army in New South Wales.

The Site is located approximately 25 kilometres (km) southwest of the Sydney central business district within a broader rural, agricultural and public open space (National Park and State Forest) setting. The Site features include:

- an airfield (Luscombe Airfield) and associated buildings.
- operations, training, maintenance and administrative facilities.
- generally unsealed road verges and non-operational areas.
- surface drains and creeks, including Harris Creek, Williams Creek and Complete Creek that drain surface water from the Site in a northerly direction to Anzac Creek and Georges River.

The Liverpool Fire Station (LFS) is located to the north of the Site, in a mixed industrial and residential area. The LFS was previously operated by the Australian Army but was transferred to Fire & Rescue NSW in 2000. Fire & Rescue NSW continue to operate the property as an active fire station.

These areas are presented on **Figure 1** in **Appendix A**.

2.2 Conceptual Site Model

The Conceptual Site Model (CSM) is presented in the PMAP which summarises the linkages between sources, exposure pathways and receptors.

Further assessment of risk exposure pathways are presented in the Human Health and Ecological Risk Assessment (HHERA) (Environmental Risk Sciences [EnRiskS], 2017) and the Addendum HHERA (EnRiskS, 2018).

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3.0 Data Quality Assessment

3.1 Data Quality Objectives

The amended National Environmental Protection Measure (NEPM, Schedule B [2]) Guideline on Site Characterisation (2013) specifies that the nature and quality of the data produced in an investigation will be determined by the Data Quality Objectives (DQOs). As referenced by the NEPM, the DQO process is detailed in the United States Environmental Protection Agency (US EPA) *Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4: EPA/240/B-06/001), February 2006.*

The US EPA defines the process as *'a strategic planning approach based on the Scientific Method that is used to prepare for a data collection activity. It provides a systematic procedure for defining the criteria that a data collection design should satisfy, including when to collect samples, where to collect samples, the tolerable level of decision errors for the study, and how many samples to collect'.*

The process of establishing appropriate DQOs is defined according to the seven steps outlined in Table 1 below:

Table 1 The seven steps in defining DQOs

Step	Data Quality Objective Step
1	**State the problem** – Define the problem that necessitates the study; identify the planning team, examine budget, schedule.
2	**Identify the goal of the study** – State how environmental data will be used in meeting objectives and solving the problem, identify study questions, define alternative outcomes.
3	**Identify information inputs** – Identify data and information needed to answer study questions.
4	**Define the boundaries of the study** – Specify the target population and characteristics of interest, define spatial and temporal limits, scale of inference.
5	**Develop the analytic approach** – Define the parameter of interest, specify the type of inference, and develop the logic for drawing conclusions from findings.
6	**Specify performance or acceptance criteria** – Develop performance criteria for new data being collected or acceptable criteria for existing data being considered for use.
7	**Develop the plan for obtaining data** – Select the resource-effective sampling and analysis plan that meets the performance criteria.

The approach adopted relative to the seven steps presented above is outlined in the OMP (Defence, 2019), and provided below:

3.1.1 Step 1 – State the Problem

PFAS source areas at Holsworthy and the LFS are contributing to the presence of PFAS in surface water off-property. This has led to risks to human health and the environment.

Actions will be implemented to reduce these risks.

Monitoring is needed to assess the effectiveness of these actions and to provide data for future risk management.

3.1.2 Step 2 – Identify the Goal of the Study

The principle objectives of the OMP are to:

- further refine the understanding of the distribution and variability of PFAS in the environment.
- monitor changes due to management actions and other conditions such as seasonal variations.
- collect data to inform future management actions.

3.1.3 Step 3 – Identify Information Inputs

To allow assessment of the data against the study goal listed in Step 2 above, the following inputs will be considered:

- existing data relevant to PFAS in soil and waters obtained through the DSI (Jacobs, 2018, herein referred to as the DSI) and HHERA.
- surface water and groundwater flow regimes identified in the DSI.
- location and types of human and environmental receptors as defined in the DSI and HHERA.

3.1.4 Step 4 – Define the Boundaries of the Study

The OMP Study Area comprises sampling locations within the Holsworthy Barracks and on and surrounding the Liverpool Fire Station.

There are more significant (non-Defence) PFAS sources discharging to the Georges River (PMAP, 2020) and therefore the OMP does not include sampling in the Georges River except around the inferred overland flow discharge from the Former 85 Transport Area.

In relation to groundwater, sampling will be conducted in source areas and at locations within and along the northern boundary of the Cantonment and Driver Training Area in order to identify potential migration of PFAS impacted groundwater to off-property areas.

In relation to temporal boundaries, an initial period of two years of monitoring will be undertaken. A review of the data will be undertaken after the two-year monitoring period and the OMP will be refined, based on the data.

3.1.5 Step 5 – Develop the Analytical Approach

The purpose of this step is to define the parameters of interest, specify action levels and combine the outputs of the previous DQO steps to develop a series of options if certain trigger events occur.

The key decision rules for the OMP are:

1. Have the analytical data collected as part of the OMP met the Data Quality Indicators (DQI) developed as part of the SAQP? If yes, then the data can be used for decision making. If no, then an assessment of the need to collect additional data will be required.
2. Does the data indicate a change to the risks defined in the DSI and HHERA? If yes, then further risk assessment will need to be carried out. This may lead to a need to revise the PMAP. If no, then continue monitoring as per the OMP.
3. Does the data conform with the CSM as outlined in the PMAP? If yes, then continue monitoring as per the OMP. If no, then further risk assessment will need to be carried out. This may lead to a need to revise the PMAP.
4. Is the data meeting the DQOs as outlined in the OMP? If yes, then continue monitoring as per the OMP. If not, then a revision to the OMP should be undertaken.

Additional trigger levels for the OMP are discussed in Section 4.3 of the OMP.

3.1.6 Step 6 – Specify Performance or Acceptance Criteria

The investigation criteria adopted for the DSI will be used to determine if data collected as part of the OMP indicates a change in the risk to human health or environmental receptors. It is noted that guideline values for PFAS in recreational water have been revised by NHMRC (2019) since the DSI and therefore these revised guidelines will be used.

As data is collected for the OMP, an analysis of trends will be undertaken with potential outliers identified. This analysis will include data collected as part of the DSI and HHERA as well as consideration of whether the data is reasonable in relation to the CSM.

As more time series data is collected, a statistical approach to determining acceptance criteria may become possible.

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3.1.7 Step 7 – Optimise the Design for Obtaining Data

The monitoring plan has been developed in accordance with relevant guidelines through targeted monitoring of potential source-pathway-receptors.

Optimisation of the data collection process will be achieved by:

- working closely with the analytical laboratories and sampling equipment suppliers to ensure that appropriate procedures and processes are developed and implemented prior to and during the fieldwork, to ensure that sample handling, and transport to and processing by the analytical laboratories is appropriate.
- conducting sampling according to Defence and Australian Standards for the type of sampling being conducted. These standards are as follows:
  - Department of Defence *Contamination Management Manual* (March 2018, Amended August 2019),
  - Standards Australia (AS/NZS5667.11–1998) *Water Quality – Sampling, part 11: Guidance on sampling of groundwater,*
  - Standards Australia (AS 4482.1-2005) *Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds.*
- conducting sampling in accordance with AECOM's internal PFAS Sample Collection Guidance.
- sampling conducted by suitably qualified and experienced field staff who have completed AECOM's internal PFAS 101 Training.
- basing the sampling upon a CSM developed using the information available at the implementation of the OMP (Defence, 2020). Updating the CSM as new data becomes available in the course of the implementation of the OMP (Defence, 2020), as required.
- progressive review of the data and modification of sampling programs to optimise the value of data generated.
- continually seeking to identify opportunities for refinement and optimisation of the OMP, including, but not limited to, identifying redundant locations that can be excluded from the monitoring program. This will be achieved through an annual review of the SAQP across the two-year primary implementation period.

3.2 Assessment of Data Quality

The quality of data collected as part of the sampling will be assessed on a range of factors including:

- documentation and data completeness; and
- data quality – comparability, representativeness, precision and accuracy of the analytical data.

The project target for data completeness is to achieve 95% of data as suitable for use.

The acceptance criteria for DQIs for samples are provided in **Table 2**.

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Table 2 Acceptance Criteria for Data Quality Indicators for Sample Analysis

Data Quality Indicators	Acceptance Criteria
Water Samples	
Field Program	Sampling to be completed by suitably qualified and experienced field teams employing appropriate sampling procedures.
Rinsates (where sampling equipment is reused)	Rinsates are to be collected at a rate of one per day of sampling with concentrations of PFAS to be less than the laboratory LOR.
Field duplicates/Inter-lab duplicates	Field duplicates and inter-laboratory duplicates are to be collected and analysed at a rate of 10% (1 per 10 primary samples). The RPDs will be assessed as acceptable if less than or equal to 30% as per the NEPM Schedule B3. Where the results show greater than 30% difference a review of the cause will be conducted (NEPM, 2013). It is noted that RPDs that exceed this range may be considered acceptable where: • results are less than 10 times the LOR (no limit); • results are less than 20 times the LOR and the RPD is less than 50%; and • heterogeneous materials are encountered.
Laboratory duplicates	RPDs less than: • 20% for high level laboratory duplicates (i.e. >20 x LOR); and • 50% for medium level laboratory duplicates (i.e. 10 to 20 x LOR).
Matrix spikes	Recoveries between 70-130% of the theoretical recovery or as nominated in the laboratory's QC report, based on their historical database.
Method blanks	Less than the laboratory LOR.
Laboratory control samples	Recoveries between laboratories specified range for each particular analyte/analytical suite.

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4.0 Sampling Location Rationale and Methodology

4.1 OMP

The OMP (Defence, 2020) presents an overview of specific monitoring works to be undertaken and provides the basis for the preparation of this SAQP. This scope of works presented in this SAQP is generally consistent with that detailed in the OMP (Defence, 2020).

Deviations from the OMP (Defence, 2020) are presented in **Table 11**, **Section 4.15**.

4.2 Proposed Schedule

4.2.1 Quarterly and Bi-Annual Monitoring

The OMP (Defence, 2020) outlines the monitoring, as follows:

- surface water and groundwater monitoring at all locations (excluding locations around the LFS) is to be undertaken twice per year:
  - once during the February to March period when rainfall is slightly higher; and
  - once during the remainder of the year.

  One of the monitoring rounds is to be conducted during a dry period and the other conducted during or shortly after a rainfall event. The initial biannual surface water and groundwater monitoring event is scheduled to be completed in September 2020.
- in relation to the surface water and groundwater monitoring around the LFS, during the initial 12-month monitoring period, the sampling will be undertaken at a three-monthly frequency. Following the first year, the surface water and groundwater data will be reviewed to determine an ongoing sampling frequency.

  The initial quarterly surface water sampling round and groundwater monitoring event was completed in September 2020.

The proposed schedule of fieldworks across the initial two-year period is presented in **Table 3** below.

Table 3 Proposed Fieldwork Schedule

Sampling Round No.	Description of works	Proposed Schedule
1	Bi-annual surface water and groundwater sampling. Quarterly surface water and groundwater sampling (LFS).	September 2020
2	Quarterly surface water and groundwater sampling (LFS).	December 2020
3	Bi-annual surface water and groundwater sampling. Quarterly surface water and groundwater sampling (LFS).	March 2021
4	Quarterly surface water and groundwater sampling (LFS).	June 2021
5	Bi-annual surface water and groundwater sampling. Quarterly surface water and groundwater sampling (LFS).	September 2021
6	Quarterly surface water and groundwater sampling (LFS)*.	December 2021
7	Bi-annual surface water and groundwater sampling, quarterly surface water and groundwater sampling (LFS)*.	March 2022
8	Quarterly surface water and groundwater sampling (LFS)*.	June 2022
9	Bi-annual surface water and groundwater sampling. Quarterly surface water and groundwater sampling (LFS).	September 2022

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Sampling Round No.	Description of works	Proposed Schedule
10	Quarterly surface water and groundwater sampling (LFS).	December 2022
11	Bi-annual surface water and groundwater sampling. Quarterly surface water and groundwater sampling (LFS).	March 2023
12	Quarterly surface water and groundwater sampling (LFS).	June 2023
13	Bi-annual surface water and groundwater sampling. Quarterly surface water and groundwater sampling (LFS).	September 2023
14	Quarterly surface water and groundwater sampling (LFS)*.	December 2023
15	Bi-annual surface water and groundwater sampling, quarterly surface water and groundwater sampling (LFS)*.	March 2024
16	Quarterly surface water and groundwater sampling (LFS)*.	June 2024

*Review data from 1st year to confirm ongoing sample event frequency.

4.2.2 Ad Hoc Sampling

Ad hoc sampling will be undertaken upon request from Defence, as per comms during the project Kick Off Meeting on 2 July 2020.

4.3 Sample Location Rationale

4.3.1 Groundwater Sampling Locations

The groundwater locations to be monitored during the quarterly and bi-annual events are provided in **Table 4** below and are presented on **Figure 2** in **Appendix A**. Note that the monitoring well IDs presented in the OMP (Defence, 2020) have been updated here to comply with Defence Contamination Management Manual (DCMM) nomenclature requirements.

Table 4 Groundwater Sample Locations

Area	Location ID	Easting	Northing	Top of Casing (ToC) Elevation (m AHD)	Total
Cantonment and Driver Training Area	MW120	307980.15	6239724.5	16.69	7
	MW121	308518.29	6239747.26	15.83	
	MW122	310079.65	6239896.92	17.79	
	MW123	310934.05	6239938.2	6.35	
	MW124	312243.91	6239806.73	5.76	
	MW323	310790.68	6238833.63	36.38	
	MW349	311605.91	6238811.03	18.42	
Former 85 Transport Area	MW330	307817.34	6238845.61	29.53	2
	MW117	310586.25	6239807.43	17.38	
Former STP Area	MW301	311957.11	6240475.972	3.38	3
	MW002	311989.588	6240689.883	3.53	
	MW005	311709.959	6240985.121	3.1566	
Liverpool Fire Station	MW113	308876.09	6242099.52	13.65	12
	MW115	308832.11	6242106.07	14.08	
	MW130	308866.578	6242259.361	12.99	

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Area	Location ID	Easting	Northing	Top of Casing (ToC) Elevation (m AHD)	Total
	MW131	309044.649	6242249.063	12.18	
	MW112	308827.83	6242011.63	13.56	
	MW112P	[redacted]		13.55	
	MW119	[redacted]		11.14	
	MW119P	[redacted]		11.22	
	MW129	[redacted]		9.53	
	MW133	[redacted]		13.52	
	MW134	[redacted]		13.37	
	MW136	[redacted]		12.03	

Note: ND – No Data
Eastings, northings and ToC elevation sourced from DSI (Jacobs, 2018).
Off-Site monitoring locations have been selected in publicly accessible areas.

4.3.2 Surface Water Sampling Locations

The locations to be monitored during the quarterly and bi-annual events are provided in **Table 5** below and are presented on **Figure 3** (in **Appendix A**). Note that the location IDs presented in the OMP (Defence, 2020) have been updated here to comply with DCMM nomenclature requirements.

Table 5 Surface Water Sampling Locations

Area	Location ID	Easting	Northing	Surface Water Body	Total
Former 85 Transport Area and Georges River	SW103	307799.85	6238850.84	Wash bay source within the Former 85 Transport Area	6
	SW104	307797.62	6238850.75	Wash bay source within the Former 85Transport Area	
	SW105	307796.08	6238852.69	Wash bay source within the Former 85 Transport Area	
	SW025	307092.405	6239136.649	Drainage line from the Former 85 Transport Area	
	SW062	307064.1079	6238548.817	Georges River	
	SW063	307171.973	6239690.639	Georges River	
Luscombe Airfield	SW038	311304.1897	6237089.32	Drainage line adjacent to the Former Luscombe Sewage Disposal Area	4
	SW030	311021.365	6235897.542	Inferred drainage line off the Luscombe Airfield which drains to Williams Creek	
	SW009	312310.87	6239846.89	Williams Creek	
	SW015	310991.971	6240044.828	Harris Creek	

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Area	Location ID	Easting	Northing	Surface Water Body	Total
Former STP Area	SW011	312089.255	6240650.658	Former STP, on Williams Creek	4
	SW012	311975.148	6240955.779	Former STP, on Williams Creek	
	SW017	311626.23	6241030.249	Former STP, on Harris Creek	
	SW014	312519.056	6241208.513	Williams Creek	
Liverpool Fire Station	SW001	308870.287	6242044.653	Drainage ditch on the southern side of Anzac Road	3
	SW111	309356.12	6241898.415	Anzac Creek	
	SW059	309636.4392	6242152.009	Anzac Creek	

4.4 Sample Collection and Handling

4.4.1 Groundwater Sampling

The groundwater sampling methodology and schedule is presented in **Table 6**.

Table 6 Groundwater Sampling Methodology and Schedule

Item	Details
Groundwater gauging	The depth to groundwater will be measured in each monitoring well prior to collection of groundwater samples in accordance with Australian guidance and industry standards. The following locations may be tidally influenced, hence the gauging is proposed to be undertaken on an outgoing tide: **MW301**, **MW002**, and **MW005**.
Sample Collection Methodology	**Groundwater Monitoring Wells** Groundwater samples will be collected from monitoring wells using no-purge methodology with HydraSleeves™ which will be installed within the screened interval of the wells a minimum of 24 hours prior to sampling for the initial sampling round. Once sampling is completed, new HydraSleeves™ will be deployed at the screened interval depth in preparation for the next scheduled sampling round. Hydrasleeve sampling will be completed in accordance with the manufactures guidance. In the event that a HydraSleeve fails to deploy or has been removed inadvertently (i.e. by non-OMP project), the sample will be collected using a dedicated, disposable bailer. The following locations may be tidally influenced, hence sampling proposed to be undertaken on an outgoing tide: **MW301**, **MW002**, and **MW005**.
QA/QC Samples to be Collected	Field QA/QC samples are to include intra-laboratory duplicate and inter-laboratory duplicate samples (i.e. splits) and rinsate samples.
Field Parameters	Temperature, electrical conductivity (EC), dissolved oxygen (DO), ORP (oxidation-reduction potential), pH and observations of water quality will be recorded for all samples, including: • Physical indicators such as the presence (and percentage) of suspended solids, colour. • The presence/absence and nature of odours and the presence/absence of slicks or sheens on water.

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Item	Details
Sample Analysis	All primary samples will be submitted for PFAS extended suite using the standard levels of detection.
Sampling Schedule	The monitoring will include, each year, for four years (until June 2024): - two bi-annual monitoring events across the Site (24 groundwater locations); and - four quarterly monitoring events at the LFS (12 groundwater locations) Following the first year (up until June 2021), the perched groundwater data from the LFS should be reviewed to determine the ongoing sampling frequency i.e. a reduction to biannual or remain at quarterly sampling events.

4.4.2 Surface Water Sampling

Table 7 provides the surface water sampling methodology and schedule.

Table 7 Surface Water Sampling Methodology and Schedule

Item	Details
Sample Collection Methodology	Surface water samples will be collected in accordance with Australian guidance and industry standards. Samples will be collected from immediately below the water surface to minimise collection of sediment or floating materials in the samples. At each location, a new, laboratory supplied container should be lowered into the water with the cap immediately applied once the container is full. Samples should be collected without capturing any surface film and to minimise collection of sediment or floating materials in the samples. At each location, a new, laboratory supplied container should be lowered into the water with the cap immediately applied once the container is full. For completeness, a description of each sampling location will be recorded. The following locations may be tidally influenced, hence sampling proposed to be undertaken on an outgoing tide: **SW011**, **SW012**, **SW017** and **SW014**.
QA/QC Samples to be Collected	Field QA/QC samples are to include intra-laboratory duplicate and inter-laboratory duplicate samples (i.e. splits) and rinsate samples.
Field Parameters	Temperature, Electrical Conductivity (EC), DO, ORP (oxidation-reduction potential), pH and observations of water quality will be recorded for all samples.
Sample Analysis	All primary samples will be submitted for PFAS extended suite using the standard levels of detection.
Sampling Schedule	The monitoring will include, each year, for four years (until June 2024): - 2 bi-annual monitoring events across the Site (14 surface water locations); and - 4 quarterly monitoring events at the LFS (3 surface water locations). Following the first year (up until June 2021), the surface water data from the LFS should be reviewed to determine the ongoing sampling frequency i.e. a reduction to biannual or remain at quarterly sampling events.

4.4.3 Sample Handling and Transport to Laboratory

AECOM personnel will attempt to reduce potential heterogeneity in the sample media matrix by dividing the sample collected between primary and intra-laboratory jars or bottles during sampling. All samples will be placed on ice in eskies immediately after sampling.

All samples will be kept chilled during transit to the laboratory. Prior to sampling, assessment of the analytical holding times will be made and the sampling planned accordingly to ensure that holding times are not breached or minimised.

Samples will be transported directly to the laboratory for analytical testing under standard chain of custody (CoC) procedures. Primary and associated duplicate QA/QC samples will be analysed by Australian Laboratory Services (ALS). The inter-laboratory duplicate samples will be analysed by the Envirolab Services Pty Ltd (Envirolab).

4.5 Calibration

The water quality meter will be calibrated each day prior to the commencement of field activities with relevant solutions, including pH, Ec and ORP. The calibration will be in accordance with manufacturers' instructions or NATA publication "General Requirements for Registration: Supplementary Requirement: Chemical Testing (NATA 1993) and Technical Note No. 19 (NATA 1994)". Where satisfactory calibration cannot be achieved, the water quality data will not be used for interpretive purposes.

Calibration details will be recorded on field sheets and included in the reports for each sampling round.

4.6 Logistics

The laboratory sample containers will be shipped from the laboratory to the AECOM office in Sydney prior to the commencement of fieldwork. All primary samples will be transported by an ALS supplied courier at the completion of fieldwork. All inter-laboratory duplicate samples will be couriered directly to the secondary laboratory under a separate CoC for analysis.

4.7 Analytical Suite and Laboratory Analysis Methods

4.7.1 Laboratory NATA Accreditation Details

The laboratory is required to use NATA accredited methods based on NEPM, US EPA, Table B 15 of the US Department of Defence/Department of Energy (US DOD/DoE) and American Society for Testing and Materials (ASTM) methods as appropriate.

The primary and secondary laboratories selected for this program are ALS (NATA Accreditation Number 825) and Envirolab (NATA Accreditation Number2901), respectively.

4.7.2 Analytical Schedule

All media sampled will be analysed for the extended PFAS suite in accordance with the Defence (2018) *Standard PFAS Analytical Suite* Guidance Document (**Appendix C**).

The current standard laboratory limits of reporting (LOR) are described in **Table 8** below.

Table 8 Laboratory Limits of Reporting

Sample Media	Parameter	Technique/Method Reference	LOR*
Groundwater and Surface Water	Extended PFAS Suite	LC/MS-MS	0.002 – 0.1 µg/L

LC/MS-MS = Liquid chromatography–mass spectrometry, GC = Gas chromatography
*LOR for Australian Laboratory Services (ALS)

4.8 Sample Nomenclature

In order to meet Defence data management requirements, a consistent sample nomenclature has been adopted for the Program. All primary samples will be labelled using the following naming convention:

PPPP_XX000_ZZZ_YYMMDD

[property ID][type of sample][THREE DIGIT sample number]_[top of sample depth]_[yearmonthday]

e.g. 0382_MW001_191015

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Location types and codes are prescribed by the Defence Contamination Management Manual, Annex L Data Management (August 2019) and the Site's investigation history.

Primary Sample Types/Location Codes relevant to this SAQP include:

- MW = monitoring well
- SW = surface water – no depth required.

QA/QC Samples will be labelled in accordance with the following convention:

- Blind duplicate (duplicate): PPPP_QC1XX_YYMMDD
- Split duplicate (triplicate): PPPP_QC2XX_YYMMDD
- Rinsate: PPPP_QC3XX_YYMMDD.

4.9 Defence Esdat Requirements

Defence has contracted Earth Science Information Systems (EscIS), to provide contamination data management services through a cloud instance of its Esdat product.

All SAQP field and laboratory data collected by AECOM will be uploaded, stored and managed in Defence's Esdat database in accordance with Section 6 of Annex L to the Defence Contamination Management Manual. AECOM will refer to historical investigation data to ensure consistent location codes are used to enable analysis of data trends. Where required under Annex L, non-compliant location codes will be resolved under direction from Defence.

AECOM will upload the data from each monitoring event into Esdat prior to submitting the Sampling Event Factual Report.

4.10 Adopted Screening Criteria

Adopted screening criteria references national guidance in the form of the PFAS National Environmental Management Plan, Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance.

At the time of preparing this SAQP, a number of guidance documents were in circulation in Australia including:

- PFAS National Environmental Management Plan (NEMP) Version 2.0, Heads of EPA (HEPA) Australia and New Zealand. January 2020 (HEPA 2020).
- Department of Health (DoH), 2017. Health Based Guidance Values for PFAS for use in site investigations in Australia. April 2017 (FSANZ 2017).
- National Health and Medical Research Council (NHMRC), 2019. Guidance on PFAS in Recreational Water. August 2019 (NHMRC 2019).

The adopted PFAS screening criteria to assess the data generated as part of the SAQP are presented in **Table 9**.

4.10.1 PFAS Screening Criteria

The adopted screening criteria which have been adopted are presented in Table 9 and Table 10 below.

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Table 9 Summary of Adopted Screening Criteria

Pathway	Compound	Criteria	Comment/Reference
Drinking water – groundwater	PFOS + PFHxS	0.07 µg/L	The values presented in the PFAS NEMP, 2020 are from DoH 2017, which published final health-based guidance values for PFAS for use in site investigations in Australia. DoH utilised the TDI for PFOS and PFOA from FSANZ, 2017 and the methodology described in Chapter 6.3.3 of the National Health and Medical Research Council's (NHMRC) Australian Drinking Water Guidelines (ADWG), 2022 to determine drinking water values. For PFHxS, DoH 2017 noted that '*FSANZ concluded that there was not enough toxicological and epidemiological information to justify establishing a tolerable daily intake. However, as a precaution, and for the purposes of site investigations, the PFOS tolerable daily intake should apply to PFHxS. In practice, this means that the level of PFHxS exposure should be added to the level of PFOS exposure; and this combined level be compared to the tolerable daily intake for PFOS*'. *All groundwater results will be compared to these criteria.*
	PFOA	0.56 µg/L	
Recreational use – surface water	PFOS + PFHxS	2 µg/L	In August 2019, NHMRC released guidance on the assessment of PFAS in surface water. Rather than adopting an ingestion rate of 0.2 L of water per day (as per the ADWG formula), NHMRC adjusted this rate with consideration of an event frequency (150 events/year) to calculate an annual ingestion rate of 30 L per year. *All surface water results will be compared to these criteria.*
	PFOA	10 µg/L	

Table 10 PFAS criteria summary: Ecological

Media	Pathway	Chemical	Criteria	Comment/Reference
Water	Freshwater	PFOS	0.13 µg/L	The values are from the PFAS NEMP, 2020 (HEPA 2020) which endorsed the Australian and New Zealand Guidelines for Fresh and Marine Water Quality – draft default guideline values. AECOM understands that these guidelines are currently being reviewed and will consider the appropriateness of considering any future revision.
		PFOA	220 µg/L	

4.11 Waste Management

Due to the proposed "no purge" sampling methodology, it is not anticipated that significant volumes of liquid waste would be generated that would require management or disposal.

All consumables (i.e. HydraSleeves™, filter cartridges, general rubbish) will be bagged and placed in on-Site general waste bins for disposal.

4.12 Quality Assurance/Quality Control Sampling

4.12.1 Field Duplicate and Inter-laboratory Duplicate Samples

Field duplicate (intra-laboratory) split duplicate samples (inter-laboratory field duplicates) are to be collected and analysed at a minimum frequency of 1 in 10 primary samples.

4.12.2 Rinsate Samples

Rinsate samples are to be collected at a rate of one sample per fieldwork day by pouring laboratory supplied deionised water over the decontaminated sampling equipment.

4.13 Fieldwork Documentation

4.13.1 Field Notes

Field notes will be maintained to record all field sampling events and include observations made at each sample location. Field notes will include information specific to the sample media as follows:

- groundwater Samples –the observed characteristics of the sample (e.g. colour, turbidity, odour, sheen) and reported field water quality parameters (pH, EC, DO, ORP, temperature) will be recorded at regular intervals;
- surface Water Samples – the observed characteristics of the sample (e.g. colour, turbidity, odour, sheen) and field water quality parameters (pH, EC, DO, ORP, temperature) will be recorded. Additionally, a description of each surface water sampling location will be recorded; and
- the geo-coordinates for each surface water sample location will be noted. The quality control (e.g. duplicate and inter-laboratory duplicate) sample details will also be recorded.

AECOM's tablet-based Environmental Data Collection and Analysis ('EDCA') tool will be utilized by field staff to capture consistent field data based on project specific requirements, minimise potential data transcription errors, allow on-the-spot identification of potentially erroneous data in comparison to historical data and facilitate efficient data transfer to multiple data systems including Esdat.

4.13.2 Sample Labels

Sample containers will be labelled, as a minimum, with the following information:

- AECOM project number;
- name of sampler;
- sample ID;
- date of sample collection; and
- filtered vs non-filtered (for water samples only).

An indelible felt pen will be used for labelling, to ensure that the lettering is not erased during transit to the laboratory.

AECOM will utilize the tablet-based EDCA tool to streamline sample labelling and chain of custody (CoC) creation to ensure compliant sample IDs are used in the field.

4.13.3 Chain of Custody Forms

A CoC form will be completed, documenting the sample identification number and analytes. The CoC documents the chain of events from sample collection to delivery at the laboratory and provides a traceable account of sample handling. The CoC form will be signed by both the sample collector and the receiving laboratory.

The CoC form will include the following information:

- job number (Note: the name of the site is not identified for confidentiality purposes);
- date and time of sample collection;
- sample ID;
- type of containers;
- name of sampler;
- laboratory to be used;

- analyses required;
- any comments; and
- signatures of the sampler and laboratory receiver.

In the event that additional samples are collected during the field investigations due to observations made by the field team, (i.e. samples not proposed in this SAQP), Defence will be provided the rationale for collection of those samples and proposed laboratory analyses. Defence approval will be sought to include these samples on the CoC and to dispatch these samples to the laboratory.

Upon receipt of the original documents accompanying the samples at the laboratory, the laboratory will provide a sample receipt document (noting the temperature of samples upon receipt, analyses required and any non-conformances) and return the signed CoC form to confirm analyses to be performed and the due date for the analytical results.

4.13.4 Sampling Documentation

Field sampling sheets will be completed for each location, and will include the following information (as appropriate for the media being sampled):

- name of sampler;
- sample location;
- date/time of monitoring/sampling;
- sampling method;
- observations of the sampled media;
- description of location being sampled (surface water only); and
- calibration records.

Records of all equipment calibration will be included in the reports for each sampling round.

4.14 Reporting

4.14.1 Sampling Event Factual Report

AECOM will prepare and submit a Sampling Event Factual Report to Defence following the completion of each sampling event. The Sampling Event Factual Report will include:

- details of the scope of monitoring completed.
- a description of the sampling methodologies used.
- a summary of observations made while sampling (e.g. any visual or olfactory observations that may indicate impacts to surface water or groundwater).
- a summary of any changes to the monitoring network condition that may affect data integrity, or require rectification works, and recommendations for repair, replacement of decommissioning of a location.
- a presentation of the analysis results in a table that includes comparisons with PFAS guidelines, highlighting any significant statistical deviations from historical monitoring and investigation data.
- a presentation of groundwater levels for the event on a figure with inferred contours and inferred groundwater flow direction.
- discussion of the analytical data quality, including review of the quality control sampling results and laboratory quality control data.
- inclusion of the following information as attachments:
    - groundwater sampling forms including field water quality parameter measurements;
        - chain of custody forms;

- laboratory analytical certificates; and
- equipment calibration certificates.

The Sampling Event Factual Report will be provided to Defence no later than four weeks after completion of the field component. AECOM will inform Defence in the case of delays in laboratory results.

4.14.2 Annual Interpretive Report

At the end of each 12-month monitoring period, AECOM will prepare and submit an Annual Interpretive Report to Defence. Each Interpretive Report will include:

- evidence of compliance with the requirements of the SAQP and meeting stated objectives of the OMP (Defence, 2020).
- relevant figures depicting sampling locations and site-specific hydrogeological features.
- laboratory results and analysis including comparison with relevant screening criteria as identified in the OMP (Defence, 2020)a.
- assessment and commentary on appropriate QA/QC procedures.
- a review of the Conceptual Site Model and provision of a revised Conceptual Site Model, if required.
- data interpretation, including trends in groundwater concentration, gradient and flow directions.
- assessment of statistically based trends that may inform decision making when it comes to the revision of the OMP (Defence, 2020).
- a statement as to whether the risk profile has changed overall, or for any specific location at the Site, and a recommendation as to whether this should trigger an OMP and/or PMAP review, or other action.

4.15 Deviations from OMP

While the scope of works and methodology described in this SAQP are generally consistent with that presented in the OMP (Defence, 2020), a number of points of deviation are noted (refer to **Table 11** below).

Table 11 Deviations from OMP

No.	Description	Rationale
1	Adoption of Revised Recreational Screening Criteria for PFOS+PFHxS and PFOA	Following the release of the OMP (Defence, 2020) in April 2020, the National Health and Medical Research Council (NHMRC), published guidance on PFAS in Recreational Water. The adopted screening criteria for PFOS+PFHxS and PFOA in surface water have therefore been revised to 2 µg/L and 10 µg/L, respectively. This is reflected in **Table 9**.
2	Surface water and groundwater sample location IDs	AECOM has renamed a number of surface water and groundwater sampling locations presented in the OMP (Defence, 2020) to comply with DCMM Nomenclature requirements. The new location IDs are presented in the SAQP text and figures. **Table T1** in **Appendix B** presents the list of new location IDs against historical IDs.

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No.	Description	Rationale
3	Reporting Requirements	The reporting requirements outlined in the OMP (Defence, 2020) were superseded by the reporting requirements provided in the OMP Order (2.5.6, received 10 September 2020). The revised reporting is included in this SAQP.
4	Sampling Locations Omitted from OMP Figures 1 and 2	The monitoring locations, namely MW113 and MW115 were listed in Section 3 of the OMP (Defence, 2020) as proposed sampling locations, however they were not presented on the Figures 1 and 2 in the OMP (Defence, 2020). AECOM considers the omission of these locations from Figures 1 and 2 is likely to be an oversight and therefore these locations have been included in this SAQP.
5	Surface water sampling methodology	The OMP (Defence, 2020) states that surface water samples should be collected from either mid-way through the water column or approximately 0.5 m below the surface (if possible). AECOM proposes to follow the surface water sampling methodology undertaken at other Sites being monitored in the PFAS OMP for consistency. This involves collecting a sample immediately below the water surface to minimise collection of sediment or floating materials in the samples. This approach is considered to be consistent with the Australian Water Quality Guidelines, which advises to '*immerse a sample bottle by hand to just below the surface (typically 0.25 to 0.50 m depth), and hold the sampler downstream of where the sample is to be collected'*.
6	Removal of monitoring wells MW317 and MW326	On 3 December 2020, Defence instructed AECOM to remove monitoring wells MW317 and MW326 from the OMP scope of works as they are not considered to be critical well locations.
7	Non-PFAS Analysis	On 27 January 2021, Defence instructed AECOM to discontinue the analysis of samples for non-PFAS analytes unless it was specifically requested in the OMP or approved by Defence.
8	Installation of Perched Wells at LFS	On 16 March 2021, Jacobs informed AECOM that they had successfully completed the installation of proposed monitoring wells MW133P, MW134P and MW136P. It was noted that proposed monitoring wells MW126P, MW130P, MW131P and MW135P were not installed, and have be removed from the OMP scope of works.
9	Renaming Wells MW133P, MW134P and MW136P, MW112_P and MW119_P	On 5 May 2021, Jacobs informed AECOM that monitoring well location IDs MW133P, MW134P and MW136P were being amended (removing the "P") to align with DCMM nomenclature requirements. These monitoring wells are now identified as MW133, MW134 and MW136, respectively. Additionally, to comply with current DCMM nomenclature requirements, monitoring well IDs MW112_P and MW119_P have been renamed as MW112P and MW119P, respectively.

D R A F T

No.	Description	Rationale
10	Replacement of MW361	Following the flood event in March 2021, AECOM was unable to locate monitoring well MW361 at the Former Sewage Disposal Area during the March 2021 and September 2021 monitoring events. It is considered likely that this monitoring well has been destroyed. Following consultation with Defence's Lead Consultant, AECOM recommended monitoring well MW361 be replaced with the nearby monitoring well MW005.
11	Removal of Sampling Locations	During OMP sampling events in September 2020, March 2021 and September 2021, no surface water was observed between the Former 85 Transport Area and Anzac Creek (indicating no observable surface water pathway exists). Therefore, no samples were collected at SW110. Following the completion of the Annual Interpretive Report – 2021 (AECOM 2022b) it was found that due to a location coordinate error in the Defence ESdat database, AECOM had collected samples from an incorrect location at SW029 during the September 2020, March 2021 and September 2021 OMP events. Subsequently, Defence has directed AECOM to remove SW029 from the OMP scope noting that the Lead Consultant would undertake monitoring in the original intended location (Harris Creek) during future works. Therefore, following consultation with Defence, it was agreed that surface water locations SW029 and SW110 would be removed from the OMP scope of works.

D R A F T

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National Health and Medical Research Council (NHMRC), 2011. *Australian Drinking Water Guidelines 6, 2011. Version 3.7 Updated January 2022*. January 2022.

Standards Australia (AS 4482.2-1999) *Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile Substances.*

D R A F T

Standards Australia (AS 4482.1-2005) *Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds.*

Standards Australia 1998. AS/NZ 5667:1998 *Water quality – sampling.*

Appendix A

Figures

D R A F T

Appendix A Figures

AECOM

N

0 360 720 m

Legend

- Site Boundary
- Primary Source Area

FIGURE 1:
STUDY AREA

PROJECT NAME:
PFAS OMP
REPORT NAME:
SAQP
Holsworthy Barracks (0382)
February 2022
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 380 760 m

Legend

- Site Boundary
- Primary Source Area
- Groundwater Sample Location
- Groundwater Sample Lost/ Destroyed

FIGURE 2:
GROUNDWATER SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
SAQP
Holsworthy Barracks (0382)
February 2022
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

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N

0 380 760 m

Legend

- Site Boundary
- Primary Source Area
- Surface Water Sample Location

FIGURE 3:
SURFACE WATER SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
SAQP
Holsworthy Barracks (0382)
February 2022
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

Appendix B

Sample Locations

D R A F T

Appendix B Sample Locations

Holsworthy OMP Sampling Locations

DCMM Compliant Location ID	Historical Location ID	Investigation Area	Easting	Northing	Matrix (SW / GW)
SW103	SW103	Former 85 Transport Area and Georges River	307799.85	6238850.84	Surface Water
SW104	SW104	Former 85 Transport Area and Georges River	307797.62	6238850.75	Surface Water
SW105	SW105	Former 85 Transport Area and Georges River	307796.08	6238852.69	Surface Water
SW025	SW025	Former 85 Transport Area and Georges River	307092.405	6239136.649	Surface Water
SW062	SW062	Former 85 Transport Area and Georges River	307064.1079	6238548.817	Surface Water
SW063	SW063	Former 85 Transport Area and Georges River	307171.973	6239690.639	Surface Water
SW009	SW009	Luscombe Airfield	312310.87	6239846.89	Surface Water
SW030	SW030	Luscombe Airfield	311021.365	6235897.542	Surface Water
SW038	SW038	Luscombe Airfield	311304.1897	6237089.32	Surface Water
SW015	SW015	Luscombe Airfield	310991.971	6240044.828	Surface Water
SW011	SW011	Former STP Area	312089.255	6240650.658	Surface Water
SW012	SW012	Former STP Area	311975.148	6240955.779	Surface Water
SW017	SW017	Former STP Area	311626.23	6241030.249	Surface Water
SW014	SW014	Former STP Area	312519.056	6241208.513	Surface Water
SW001	SW001	Liverpool Fire Station	308870.287	6242044.653	Surface Water
SW111	SW111	Liverpool Fire Station	309356.12	6241898.415	Surface Water
SW059	SW059	Liverpool Fire Station	309636.4392	6242152.009	Surface Water
MW120	MW120	Cantonment and Driver Training Area	307980.15	6239724.5	Groundwater
MW121	MW121	Cantonment and Driver Training Area	308518.29	6239747.26	Groundwater
MW122	MW122	Cantonment and Driver Training Area	310079.65	6239896.92	Groundwater
MW123	MW123	Cantonment and Driver Training Area	310934.05	6239938.2	Groundwater
MW124	MW124	Cantonment and Driver Training Area	312243.91	6239806.73	Groundwater
MW323	BH345	Cantonment and Driver Training Area	310790.68	6238833.63	Groundwater
MW349	BH612	Cantonment and Driver Training Area	311605.91	6238811.03	Groundwater
MW330	BH365	Former 85 Transport Area	307817.34	6238845.61	Groundwater
MW117	MW117	Former 85 Transport Area	310586.25	6239807.43	Groundwater
MW301	MW1	Former Luscombe Sewage Disposal Area	311957.11	6240475.972	Groundwater
MW002	MW02	Former Luscombe Sewage Disposal Area	311989.588	6240689.883	Groundwater
MW005	MW05	Former Luscombe Sewage Disposal Area	311709.959	6240985.121	Groundwater
MW113	MW113	Liverpool Fire Station	308876.1	6242099.5	Groundwater
MW115	MW115	Liverpool Fire Station	308832.1	6242106.1	Groundwater
MW130	MW130	Liverpool Fire Station	308866.578	6242259.361	Groundwater
MW131	MW131	Liverpool Fire Station	309044.649	6242249.063	Groundwater
MW112	MW112	Liverpool Fire Station	308827.83	6242011.63	Groundwater
MW112P	MW112P	Liverpool Fire Station	308826.49	6242011.91	Groundwater
MW119	MW119	Liverpool Fire Station	[redacted]		Groundwater
MW119P	MW119S	Liverpool Fire Station			Groundwater
MW129	MW129	Liverpool Fire Station			Groundwater
MW133	MW133P	Liverpool Fire Station			Groundwater
MW134	MW134P	Liverpool Fire Station			Groundwater
MW136	MW136P	Liverpool Fire Station			Groundwater

DRAFT

Appendix C

Standard PFAS Analytical Suite Guidance

D R A F T

Appendix C Standard PFAS Analytical Suite Guidance

Australian Government
Defence

Department of Defence

PFAS INVESTIGATION AND MANAGEMENT

GUIDANCE DOCUMENT E
STANDARD PFAS ANALYTICAL SUITE

Document Version History

Document Reference	Revision	Date
AF29889468	1	10 July 2017
AF32594670	2	21 March 2018
AF32594670	3	6 April 2018
BS24034025	4	1 October 2021
BS24034025	5	29 June 2022

Analytical laboratories analyse a range of PFAS which includes a small subset of all possible PFAS. These analytical suites vary between laboratories and over time as new chemical standards become available. The minimum suite required for Defence PFAS investigations and management is listed in Table 1.

Table 1 Minimum PFAS analytical suite for Defence PFAS investigations and management

Group	Acronym	Chemical Compound	CAS No.
Perfluoroalkane Sulfonic Acids	PFBS	Perfluorobutane sulfonic acid	375-73-5
	PFPeS	Perfluoropentane sulfonic acid	2706-91-4
	PFHxS	Perfluorohexane sulfonic acid	355-46-4
	PFHpS	Perfluoroheptane sulfonic acid	375-92-8
	PFOS	Perfluorooctane sulfonic acid	1763-23-1
	PFDS	Perfluorodecane sulfonic acid	335-77-3
Perfluoroalkane Carboxylic Acids	PFBA	Perfluorobutanoic acid	375-22-4
	PFPeA	Perfluoropentanoic acid	2706-90-3
	PFHxA	Perfluorohexanoic acid	307-24-4
	PFHpA	Perfluoroheptanoic acid	375-85-9
	PFOA	Perfluorooctanoic acid	335-67-1
	PFNA	Perfluorononanoic acid	375-95-1
	PFDA	Perfluorodecanoic acid	335-76-2
	PFUnDA	Perfluoroundecanoic acid	2058-94-8
	PFDoDA	Perfluorododecanoic acid	307-55-1
	PFTrDA	Perfluorotridecanoic acid	72629-94-8
	PFTeDA	Perfluorotetradecanoic acid	376-06-7
Perfluoroalkyl Sulfonamides	FOSA	Perfluorooctane sulfonamide	754-91-6
	MeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8
	EtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2
	MeFOSE	N-methyl perfluorooctane sulfonamidoethanol	24448-09-7
	EtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2
	MeFOSAA	N-methyl perfluorooctane sulfonamidoacetic acid	2355-31-9
	EtFOSAA	N-ethyl perfluorooctane sulfonamidoacetic acid	2991-50-6
(n:2) Fluorotelomer Sulfonic Acids	4:2 FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4
	6:2 FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2
	8:2 FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4
	10:2 FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0

The minimum PFAS analytical suite is based on consideration of analytical capability and the dominant PFAS that are likely to be present in environmental media due to legacy contamination from AFFF used by Defence. In specific instances, for example analysis of AFFF concentrates, it may be necessary to use other methods such as the TOP and/or TOF assays. In these cases, the analytical methods need to be established by data quality objectives (DQOs) for the project.

The laboratory is required to use NATA accredited methods for PFAS quantification based on guidance in the *PFAS National Environmental Management Plan* (NEMP, 2020).

END OF TEXT

Appendix F

OMP Factual Reports

Prepared for
Department of Defence
ABN: 68706814312

AECOM

Sampling Event Factual Report, December 2021

PFAS OMP - Holsworthy Barracks

03-Mar-2022
PFAS OMP - Holsworthy Barracks
Doc No. 20220303_OMP002_Holsworthy_0

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Delivering a better world

Sampling Event Factual Report, December 2021

PFAS OMP - Holsworthy Barracks

Client: Department of Defence

ABN: 68706814312

Prepared by

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03-Mar-2022

Job No.: 60612562

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 and ISO45001.

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Date	03-Mar-2022
Prepared by	[redacted]
Reviewed by	[redacted]

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			Name/Position	Signature
A	21-Jan-2022	Draft	[redacted] Project Manager	
B	24-Feb-2022	Draft	[redacted] Project Manager	
0	03-Mar-2022	Final	[redacted] Project Manager	[redacted]

Table of Contents

List of Tables (in Text)

List of Acronyms

Acronyms	Term
ADWG	Australian Drinking Water Guidelines
AECOM	AECOM Australia Pty Ltd
AHD	Australian Height Datum
ASC NEPM	Assessment of Site Contamination National Environment Protection
Defence	Department of Defence
DO	Dissolved Oxygen
DoH	Department of Health
DQI	Data Quality Indicator
DQO	Data Quality Objective
EC	Electrical conductivity
HEPA	Heads of Environment Protection Authority
LOR	Limit of Reporting
MW	Monitoring Well
NEMP	National Environmental Management Plan
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NSW	New South Wales
OMP	Ongoing Monitoring Plan
ORP	Oxidation Reduction Potential
PFAS	Per- and poly-fluoroalkyl substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PMAP	PFAS Management Area Plan
QA/QC	Quality Assurance and Quality Control
RPD	Relative Percentage Difference
SAQP	Sample and Analysis Quality Plan
SW	Surface Water
SWL	Standing Water Level

Units	Term
g	Grams
km	Kilometre
L	Litres
m	Metre
mbgl	Metres below ground level

Units	Term
m btoc	Metres below top of casing
mg/kg	Milligrams per kilogram
µg/L	Micrograms per Litre

1.0 Introduction

1.1 General

AECOM Australia Pty Ltd (AECOM) has been engaged by the Department of Defence (Defence) to implement the per- and poly-fluoroalkyl substances (PFAS) Ongoing Monitoring Program at the Holsworthy Barracks (the 'Site') in the NSW and Jervis Bay Region. The location of the Site is shown in **Figure F1** (in **Appendix A**).

The Ongoing Monitoring Plan (OMP) (Defence, 2019a) for the Site outlines the requirement to complete groundwater and/or surface water sampling at pre-determined intervals during the initial 3-year implementation period.

Following each sampling event, a sampling event factual report will be prepared. Annual interpretative reports will be prepared following the completion of each 12-month sampling period.

This Sampling Event Factual Report has been prepared to report the results of the quarterly groundwater and surface water sampling event completed on 6 December 2021, specifically highlighting first time detections and/or first-time exceedances of human health and ecological screening criteria for Perfluorooctanesulfonic acid (PFOS) + Perfluorohexanesulfonic acid (PFHxS) and/or Perfluorooctanoic acid (PFOA).

This report has been prepared in accordance with the Defence *PFAS OMP Factual Report Guidance,* Version 0.2 dated May 2021 (Defence, 2021).

1.2 Objectives

The objectives of the Ongoing Monitoring Program are to:

- Implement the OMP (Defence, 2019a) prepared as part of the Detailed Environmental Investigations; and
- Collect data that will enable Defence to maintain an up to date understanding of the distribution, concentration, transport and transformation of PFAS at each property.

The data will assist in the timely identification of risks and inform Defence's approach to the management of PFAS, including updates and revisions to the PFAS Management Area Plan (PMAP) (Defence, 2019b).

The objective of this phase of works is to implement the scope of works for the December 2021 quarterly groundwater and surface water sampling event in accordance with the Sampling and Analysis Quality Plan (SAQP) (AECOM, 2021).

2.0 Scope of Work

2.1 Summary of Scope

The quarterly groundwater and surface water sampling event was completed on 6 December 2021 in general accordance with the SAQP (AECOM, 2021). In summary, the scope of works completed included:

- Obtain permission (where required) to conduct works at the Site, off-site publicly accessible areas and commercial properties
- Gauging of groundwater level in monitoring wells prior to the collection of samples
- Groundwater sampling and collection of water quality parameters at 11 groundwater wells (refer to **Table 1** below and **Figure F2** in **Appendix A** for specific locations). It is noted that samples from one monitoring well location could not be collected during this sampling event. Refer to **Table 8** for further details.
- Surface water sampling and collection of water quality parameters at three surface water locations (refer to **Table 2** below and **Figure F3** in **Appendix A** for specific locations).
- Collection of field duplicate samples at a rate of 1 in 10 primary samples
- Analysis of the samples for the PFAS suite at the standard limit of reporting (LOR)
- Data management of the OMP field and laboratory data in Defence ESdat database
- Preparation of this Sampling Event Factual Report.

Note: due to privacy considerations, selected monitoring locations are not shown on the figures.

2.2 Planned Monitoring Locations

The monitoring locations outlined within the SAQP (AECOM, 2021) for the planned quarterly groundwater and surface water sampling event is outlined in **Table 1** and **Table 2** below.

Table 1 Groundwater Sampling Locations

Area	Description	Sampling Locations	Number of Locations
Off Site Road Reserve	Off Site road verges associated with Liverpool Fire Station	MW112, MW112P, MW119, MW119P, MW129, MW130, MW131, MW133, MW134*, MW136	10
Off Site Commercial Property	Liverpool Fire Station	MW113, MW115	2

* Location not sampled. Refer to **Table 3** for further details

Table 2 Surface Water Sampling Locations

Area	Description	Sampling Locations	Number of Locations
Off Site	Liverpool Fire Station	SW001, SW059, SW111	3

3.0 Deviations from the SAQP

The December 2021 quarterly OMP sampling event was completed in general accordance with the SAQP (AECOM, 2021) with the exception of the deviations outlined in **Table 3** below.

Table 3 Deviations from SAQP (AECOM, 2021)

SAQP	December 2021 Sampling Event
12 groundwater locations are identified to be sampled as part of the quarterly sampling event	Groundwater monitoring well MW134 was noted to be dry during this event and could not be sampled.
Groundwater samples are to be collected using Hydrasleeves™ deployed prior to the sampling event	The groundwater sample at monitoring well MW133 was collected using a dedicated disposable bailer as there was insufficient water present in the well for the HydraSleeve™ to deploy.

4.0 Methodology

4.1 Sampling Methodology

The methodology adopted for the December 2021 quarterly groundwater and surface water sampling event was generally in accordance with the SAQP (AECOM, 2021) and is summarised below in **Table 4**:

Table 4 Sampling Methodology

Item	Details
Groundwater gauging	The depth to groundwater was measured in each monitoring well immediately prior to collection of groundwater samples using an interface probe.
Field parameters	Temperature, electrical conductivity (EC), dissolved oxygen (DO), oxidation-reduction potential (ORP), pH and observations of water quality were recorded for all groundwater and surface water samples, with the exception of monitoring well MW134 which was dry.
Sampling methodology-	The majority of groundwater samples were collected from the monitoring wells using no-purge methodology HydraSleeves™, which were installed within the screened interval of the wells following the completion of previous sampling round in September 2021. This was based on a review of the well construction log. Once sampling was completed, new HydraSleeves™ were deployed at the screened interval depth in preparation for the next sampling round. At monitoring well MW133, the groundwater sample was collected using a dedicated, disposable bailer as there was insufficient water present in the well for the HydraSleeve™ to deploy. Surface water samples at all locations were collected by placing the laboratory sample bottle immediately below the water surface to minimise the collection of sediment or surface materials with the cap immediately applied once the container was full.
QA/QC Samples	A QA/QC program was implemented for the sampling and analysis program in order to obtain representative data and assess the reliability of the data obtained. To facilitate the QA/QC program the following sample types were obtained during the sampling program: • *Primary duplicates* collected at a rate of a rate of 1 per 10 primary samples. The relative percentage difference (RPD) should be less than 30%. • *Secondary duplicates* collected at a rate of 1 per 10 primary samples. The relative percentage difference (RPD) should be less than 30%. • *Rinsate blanks* collected at a frequency of one per day where sampling equipment was decontaminated and reused between locations. Analytical results should be below the laboratory limit of reporting (LOR). For this quarterly sampling event, the QA/QC samples included: • 2 x intra-laboratory duplicate • 2 x inter-laboratory duplicate; and • 1 x rinsate. Equipment supplier calibration and service report certificates are presented in **Appendix C**, and the data validation assessment is presented in **Appendix D**.
Sample analysis	Samples were submitted to the primary and secondary laboratories for PFAS suite analysis at the standard LOR. ALS Environmental (ALS) Sydney, NSW was used as the primary laboratory. Envirolab Sydney, NSW was used as the secondary laboratory. ALS and

Item	Details
	Envirolab methods for analyses were certified by the National Association of Testing Authorities (NATA). Laboratory certificates are presented in **Appendix E**.

4.2 Adopted Screening Criteria

Adopted screening criteria references national guidance in the form of the PFAS National Environmental Management Plan, Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance. Guidance documents used to assess the dataset includes the following:

- PFAS National Environmental Management Plan 2.0 (NEMP), (HEPA 2020), https://environment.gov.au/protection/publications/pfas-nemp-2
- Department of Health (DoH), 2017. Health Based Guidance Values for PFAS for use in site investigations in Australia. April 2017 (FSANZ 2017)
- National Health and Medical Research Council (NHMRC), 2019. Guidance on PFAS in Recreational Water. August 2019 (NHMRC 2019)
- National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, as amended in 2013 (ASC NEPM).

The adopted PFAS screening criteria to assess the data generated as part of the OMP are presented in **Table 5** and **Table 6** below.

Table 5 Summary of Adopted Screening Criteria

Pathway	Compound	Criteria	Comment/Reference
Drinking water - groundwater	PFOS + PFHxS	0.07 µg/L	The values presented in the PFAS NEMP, 2020 are from DoH 2017, which published final health-based guidance values for PFAS for use in site investigations in Australia. DoH utilised the TDI for PFOS and PFOA from FSANZ, 2017 and the methodology described in Chapter 6.3.3 of the National Health and Medical Research Council's (NHMRC) Australian Drinking Water Guidelines (ADWG), 2022 to determine drinking water values. For PFHxS, DoH 2017 noted that '*FSANZ concluded that there was not enough toxicological and epidemiological information to justify establishing a tolerable daily intake. However, as a precaution, and for the purposes of site investigations, the PFOS tolerable daily intake should apply to PFHxS. In practice, this means that the level of PFHxS exposure should be added to the level of PFOS exposure; and this combined level be compared to the tolerable daily intake for PFOS*'.
	PFOA	0.56 µg/L	
Recreational use – surface water	PFOS + PFHxS	2 µg/L	In August 2019, NHMRC released guidance on the assessment of PFAS in surface water. Rather than adopting an ingestion rate of 0.2 L of water per day (as per the ADWG formula), NHMRC adjusted this rate with consideration of an event frequency (150 events/year) to calculate an annual ingestion rate of 30 L per year.
	PFOA	10 µg/L	

Table 6 PFAS criteria summary: Ecological

Media	Pathway	Chemical	Criteria	Comment/Reference
Water	Freshwater	PFOS	0.13 µg/L	HEPA (2020) NEMP 95% species protection
		PFOA	220 µg/L	HEPA (2020) NEMP 95% species protection

4.3 Data Quality Objectives and Data Validation

The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2021).

Data validation assessment is provided in **Appendix D**.

Data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported analytical results are representative of the sample locations and that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report.

All data collected during this event has been reviewed and uploaded to the Defence ESdat database in accordance with DCMM requirements.

5.0 Field Observations and Results

5.1 General Field Observations

The field observations recorded during the sampling event are presented in **Table 7** below.

Table 7 General Field Observations

Items	Observations
Weather Conditions	During the December 2021 sampling event, the weather was observed to be partly cloudy and a cool temperature with a maximum daily temperature of 21.2°C recorded on Monday, 6 December 2021. Rainfall was recorded as 8.2 mm between 29 November 2021 and 6 December 2021 at Holsworthy Army Barracks (Holsworthy Defence AWS, 068263) (Bureau of Meteorology, 2021).
Estate Management Works or Training Activities	No estate management works or training activities were observed during the December 2021 sampling event that would have the potential to impact upon the results.

5.2 Groundwater and Surface Water Observations and Field Measurements

The groundwater and surface water observations and field measurements recorded during the sampling event are presented in **Table 8** below.

Table 8 Groundwater and Surface Water Observations and Field Measurements

Compound	Criteria
Fieldwork Dates	The sampling event was completed on 6 December 2021.
Access and Sample Collection	All locations were either accessible or able to be sampled with the exception of groundwater well MW134, which was dry and could not be sampled.
Monitoring Well Network Condition	All wells were noted to be in good condition.
Contamination Observations	No obvious visible signs of contamination in groundwater or surface water were observed at the locations sampled.
Depth to Groundwater and Flow Direction	Depth to groundwater ranged from 1.721 (MW129) to 5.732 (MW115) metres below top of casing (mbTOC). Groundwater elevation ranged from 7.538 (MW131) to 11.215 (MW112P) metres Australian height datum (mAHD). Groundwater gauging data is presented in **Table T1** in **Appendix B**. Inferred groundwater contours and groundwater flow directions based on the current data are shown on **Figure F4** in **Appendix A**. The inferred local groundwater flow direction was to the northeast in the vicinity of the Liverpool Fire Station. This is generally consistent with the inferred groundwater flow direction in the Detailed Site Investigation (CH2M Hill, 2018), which was towards the Georges River, located to the east of the Site. It is noted that gauging data from six wells (MW112P, MW119P, MW131, MW133, MW134 and MW136) in the vicinity of the Fire Station were excluded from the groundwater elevation plan in **Figure F4** in **Appendix A** due to the wells being screened across discontinuous perched water.

Compound	Criteria
Geochemical Parameters	Groundwater and surface water geochemical parameters were measured prior to collecting samples. The stabilised readings are presented in **Table T1** and **Table T2** in **Appendix B** and are summarised below: **Groundwater Geochemical Parameters** • Dissolved oxygen ranged from 1.16 mg/L (MW112P) to 4.52 mg/L (MW119P) indicating poorly to moderately oxygenated conditions. • Electrical conductivity ranged from 248.9 µS/cm (MW113) to 3,386 µS/cm (MW136) indicating fresh to brackish conditions. • pH ranged from 4.81 (MW113) to 6.53 (MW133) indicating moderately acidic to near neutral conditions. • Corrected Redox ranged from 81.8 mV (MW133) to 358.4 mV (MW130) indicating reducing conditions. **Surface Water Geochemical Parameters** • Dissolved oxygen readings were 2.99 mg/L (SW001), 2.27 mg/L (SW059), and 7.14 mg/L (SW111) indicating poorly to moderately oxygenated conditions. • Electrical conductivity was recorded at 286.2 µS/cm (SW111), 339.5 µS/cm (SW059), and 374.2 µS/cm (SW001) indicating relatively freshwater conditions. • pH was recorded at 6.29 (SW001), 6.65 (SW059), and 6.94 (SW111) indicating slightly acidic to near neutral conditions. • Corrected Redox were calculated to be 250.3 mV (SW059), 318.1 mV (SW111), and 323.2.4 mV (SW001) indicating reducing conditions.

5.2.1 Groundwater Analytical Results - PFAS

The PFAS groundwater analytical results from this sampling event are presented in **Table T3** in **Appendix B**. In summary, PFAS compounds were reported at concentrations above the laboratory LOR in all 11 primary groundwater samples analysed. Concentrations of PFOS+PFHxS and/or PFOA exceeded the adopted human health criteria in nine of the 11 of the primary groundwater samples analysed. Concentrations of PFOS and/or PFOA exceeded the adopted ecological screening criteria in seven of the primary samples analysed.

Deviations from the historical dataset are provided in **Table 9** below and graphically on **Figure F5** in **Appendix A.**

Table 9 Deviations from Historical Groundwater Dataset

Deviation Type	Groundwater sampling location	Sum of PFOS+PFHxS (µg/L)		PFOA (µg/L)		PFOS (µg/L)	
		Dec 2021	Previous Maximum	Dec 2021	Previous Maximum	Dec 2021	Previous Maximum
First time detections of PFOS+PFHxS and/or PFOA in groundwater	No first-time detections were reported in the groundwaters samples analysed						
First time exceedance of the NEMP (HEPA, 2020) drinking water guidelines	MW130	0.18	0.03	<0.01	<0.01	0.11	0.03
First time exceedance of the adopted Ecological Screening Criteria	No first time exceedences of the adopted ecological screening criteria were reported in the groundwaters samples analysed						
Legend							
Bold	Bold text indicates existing detection or exceedance of NEMP Human Health Screening Criteria						
*	No previous historical results.						
Blue Shading	Blue shading indicates sampling location with first time detection of PFOS+PFHxS and/or PFOA						
Yellow Shading	Yellow shading indicates sampling location with first time exceedance of NEMP Human Health Screening criteria						
Purple Shading	Purple shading indicates sampling location with first time exceedance of NEMP Ecological Screening criteria						

5.2.2 Surface Water Analytical Results – PFAS

The PFAS analytical results for surface water samples from this event are presented in **Table T4** in **Appendix B**. In summary, PFAS compounds were reported at concentrations above the laboratory LOR in all two primary surface water samples analysed. Concentrations of PFOS+PFHxS and/or PFOA did not exceeded the adopted human health screening criteria in the primary surface water samples analysed. Concentrations of PFOS and/or PFOA exceeded the adopted ecological screening criteria in one of the primary samples analysed.

There were no first-time detections or first-time exceedances of human health or ecological screening criteria for PFOS+PFHxS, PFOS and/or PFOA at the surface water sampling locations.

5.3 Historical Sampling Data

Historical groundwater and surface water sampling data are presented in **Tables T5** and **T6** (respectively) in **Appendix B**.

6.0 Summary and Next Sampling Events

6.1 Summary of Monitoring Event

The quarterly groundwater and surface water monitoring event was completed at the targeted off-site areas on 6 December 2021. The program included:

- Gauging of groundwater levels at 12 planned monitoring well locations
- Sampling of groundwater from 11 of 12 planned monitoring wells. It is noted that one planned sampling location could not be sampled
- Sampling of surface water at 3 planned locations.

The **Table 10** below summarises the findings of the December 2021 sampling event and the recommended actions.

Table 10 Summary of Sampling Event

Item	Comment	Recommended Actions
Access to sampling locations	The following were accessed and able to be sampled: • 11 monitoring wells • 3 surface water sampling locations	Nil.
Monitoring wells unable to be located	All wells within the quarterly monitoring scope were able to be located.	Nil.
Inaccessible or dry locations	Groundwater location MW134 was not sampled as it was dry.	AECOM will attempt to collect samples from groundwater location MW134 during the next scheduled sampling event.
Monitoring well network condition	All groundwater monitoring wells were observed to be in good condition.	Nil.
Analytical Results	PFAS was detected at concentrations above the laboratory LOR in nine of the 11 primary groundwater samples analysed and two of the three primary surface water samples analysed.	No actions recommended
First time detections of PFOS+PFHxS and/or PFOA	No groundwater or surface water locations reported a first-time detection of either PFOS+PFHxS and/or PFOA.	Locations will be sampled again during the next scheduled sampling event to monitor concentrations over time.

Item	Comment	Recommended Actions
First time exceedance of Human Health Screening Criteria	Groundwater well location MW130 reported first time exceedances of NEMP Human Health Screening Criteria for PFOS+PFHxS. No groundwater locations reported a first-time exceedance of PFOA. No surface water locations reported a first-time exceedance of Human Health Screening Criteria for PFOS+PFHxS and/or PFOA.	Locations will be sampled again during the next scheduled sampling event to monitor concentrations over time.
First time exceedance of adopted ecological screening criteria	No groundwater or surface water locations reported a first-time exceedance of the adopted ecological screening criteria for PFOS and/or PFOA.	Locations will be sampled again during the next scheduled sampling event to monitor concentrations over time.

6.2 Upcoming Sampling Events

The next scheduled sampling event is in March 2022.

6.3 Upcoming Annual Interpretive Report

The 2021 annual interpretative report is scheduled to be delivered in Q1 2022.

7.0 References

AECOM, 2021. *Sampling and Analysis Quality Plan, Holsworthy Barracks, PFAS OMP*. 3 August 2021 – Revision E.

CH2M Hill, 2018. *Holsworthy Barracks – PFAS Investigations – Detailed Site Investigation, Revision 2.0* – November 2018.

Australian and New Zealand Guidelines, 2018. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.*

ASC NEPM, 2013. *Schedule B2. National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) Schedule B2 Guideline on Site Characterisation*.

ASC NEPM, 2013. *Schedule B4. National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) Schedule B4 Guideline on Site-Specific Health Risk Assessment Methodology*.

ASC NEPM, 2013. *Schedule B7. National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) Schedule B7 Guideline on Derivation of Health-Based Investigation Levels*.

Department of Defence, 2019a. *Ongoing Monitoring Plan - Holsworthy Barracks*. July 2019

Department of Defence, 2019b. *PFAS Management Area Plan - Holsworthy Barracks.* July 2019

Department of Defence, 2021. *PFAS OMP Factual Report Guidance,* Version 0.2 dated May 2021.

Heads of EPAs Australia and New Zealand (HEPA) 2020. *PFAS National Environmental Management Plan 2.0*. January 2020.

National Health and Medical Research Council (NHMRC), 2011. *Australian Drinking Water Guidelines 6, 2011. Version 3.7 Updated January 2022*. January 2022.

Standards Australia (AS 4482.2-1999) *Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile Substances*

Standards Australia (AS 4482.1-2005) *Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds*

Standards Australia 1998. AS/NZ 5667:1998 *Water quality – sampling*

Appendix A

Figures

AECOM

N

0 360 720 m

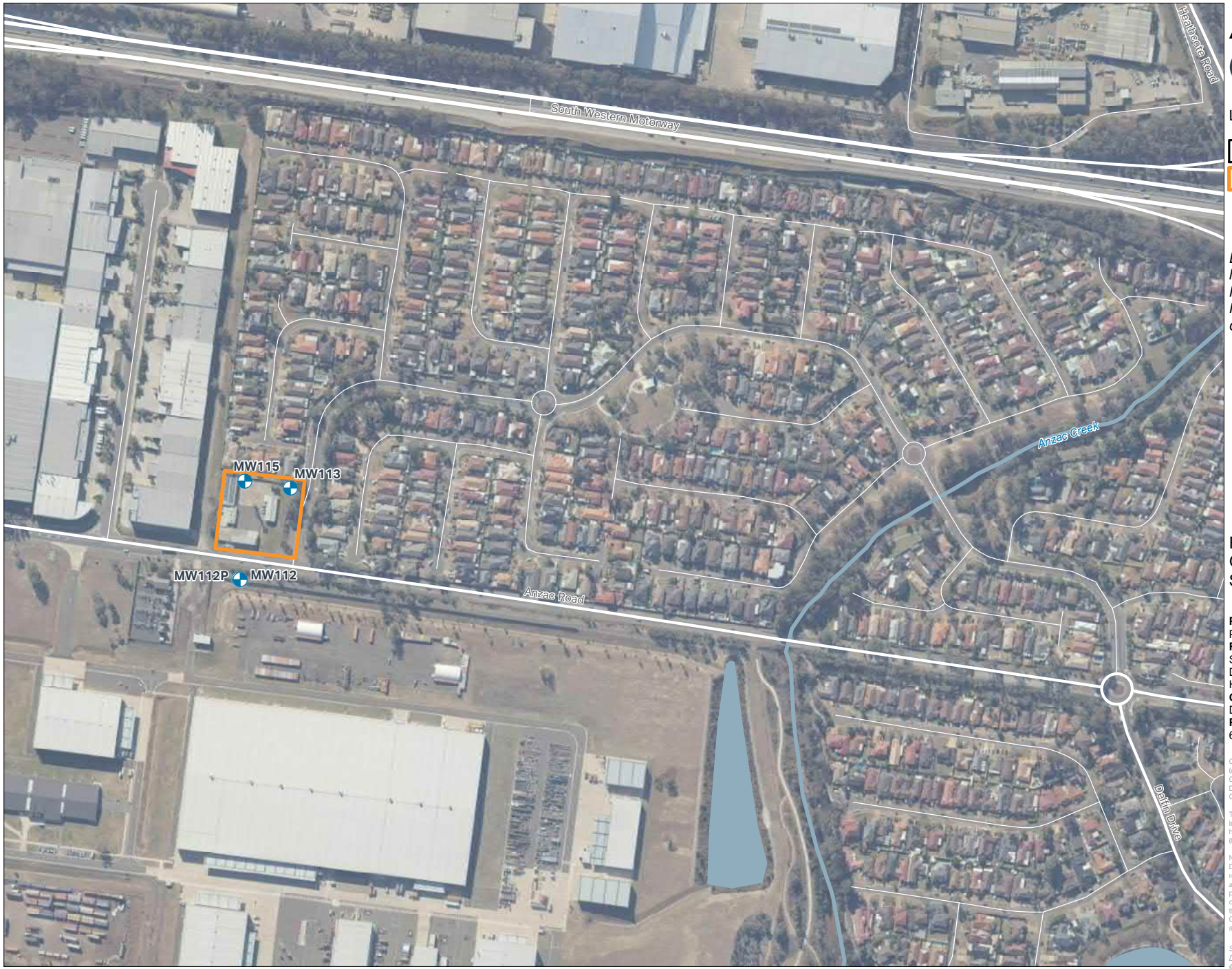
Legend

- Site Boundary
- Primary Source Area
- Study Area

FIGURE F1:
STUDY AREA

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
December 2021
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020



AECOM

N

0 50 100 m

Legend

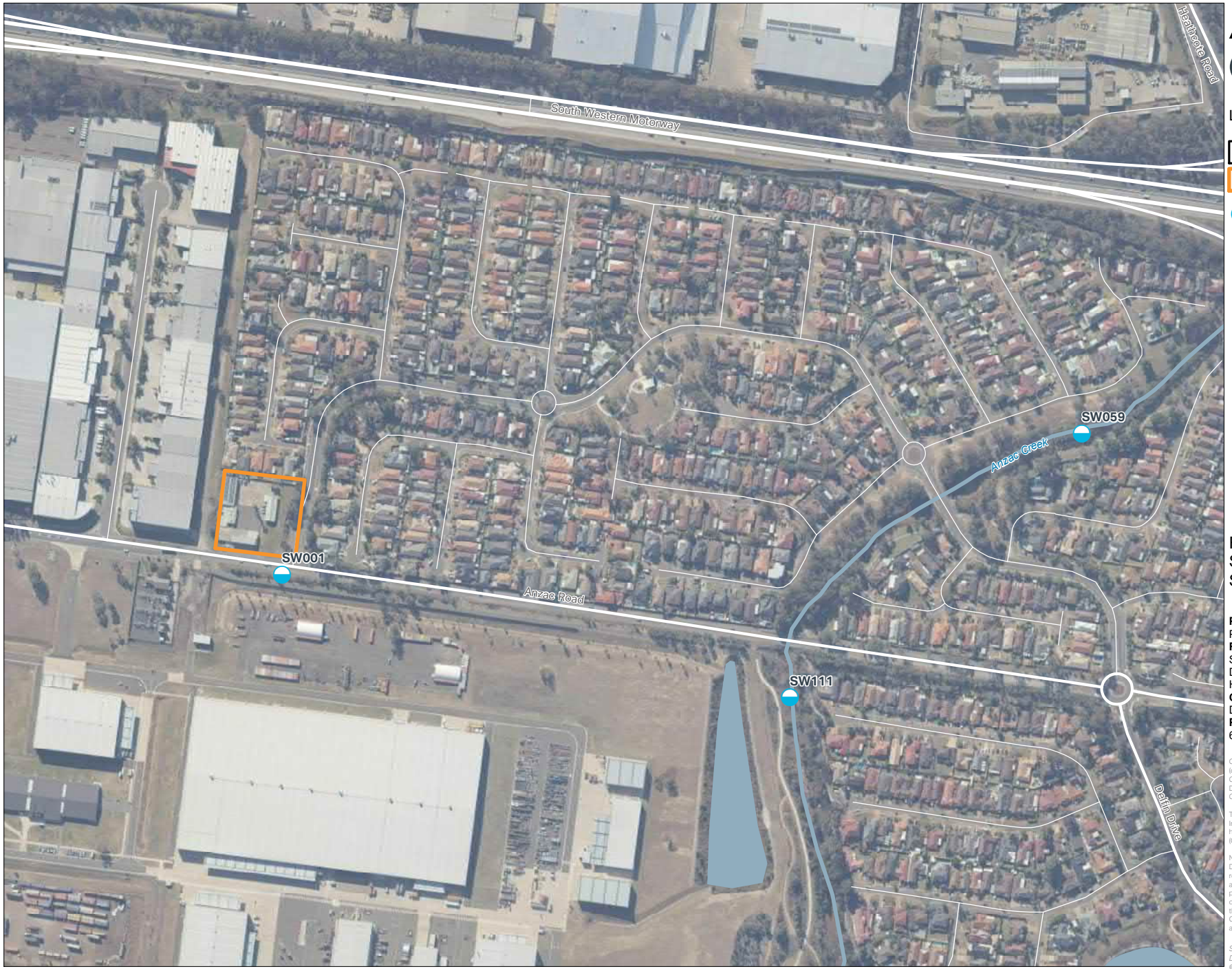
- Site Boundary
- Primary Source Area
- Groundwater Location (sampled)

Due to privacy considerations, locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136 cannot be shown

FIGURE F2: GROUNDWATER SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
December 2021
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020



AECOM

N

0 50 100 m

Legend

- Site Boundary
- Primary Source Area
- Surface Water Location (sampled)

FIGURE F3: SURFACE WATER SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
December 2021
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 30 60 m

Legend

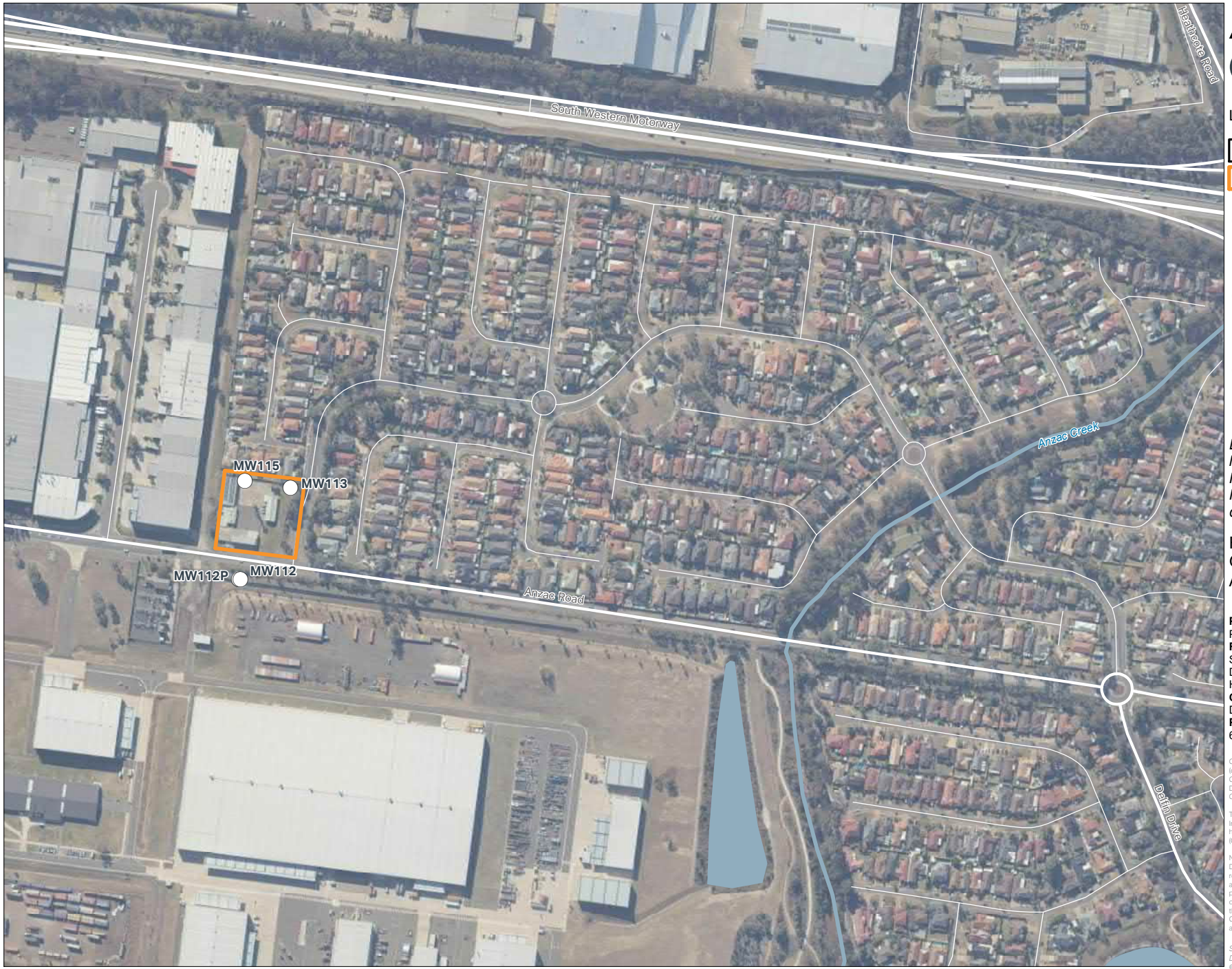
- Site Boundary
- Primary Source Area
- Groundwater Contours (mAHD)
- Inferred Groundwater Flow Direction
- Groundwater Location (sampled)
- 8.348 Groundwater Elevation (mAHD)

Due to privacy considerations, locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136 cannot be shown

FIGURE F4: GROUNDWATER ELEVATION PLAN

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
December 2021
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020



AECOM

N

0 50 100 m

Legend

- Site Boundary
- Primary Source Area
- Sampled, no new detection or exceedance
- First time exceedance of human health screen criteria for PFOS+PFHxS and/or PFOA
- First time detection of PFOS+PFHxS and/or PFOA

Due to privacy considerations, locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136 cannot be shown

FIGURE F5: GROUNDWATER ANALYTICAL RESULTS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
December 2021
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

Appendix B

Tables

Table T1
Gauging Data and Groundwater Geochemical Parameters

AECOM

													Field Measurements					
													DO (Field)	Temp (Field)	EC (field)	pH (Field)	Redox Er (Field)	Redox Eh (Corrected)
													mg/L	°C	µS/cm	pH Units	mV	mV
Location Code	**Alternative Name**	**Easting**	**Northing**	**Top of Casing (mAHD)**	**Top Screen (mbTOC)**	**Bottom Screen (mbTOC)**	**HydraSleeve Collar Depth (mbTOC)**	**Water Depth (mbTOC)**	**Water Elevation (mAHD)**	**Depth to Base of Well (mbTOC)**	**Visit / Gauging / Sampled Date**	**Comments**						
MW112	BH112	308827.830	6242011.630	13.42	10.3	13.3	12.30	5.161	8.259	13.39	6/12/2021	Clear, no turbidity, no odour, no sheen.	1.58	20.2	3,046.0	5.12	101.7	307.5
MW112P	BH112_P	308826.490	6242011.910	13.43	2	5	4.50	2.215	11.215	5.1	6/12/2021	Clear, no turbidity, no odour, no sheen.	1.16	19.2	418.9	4.87	103.9	309.7
MW113	BH113	308876.090	6242099.520	13.46	10.9	14.9	14.00	5.489	7.971	14.74	6/12/2021	Clear, no turbidity, no odour, no sheen. Orange suspended solids.	2.15	19.9	248.9	4.81	146.2	352.0
MW115	BH115	308832.110	6242106.070	14.08	10.1	13.1	12.20	5.732	8.348	13.41	6/12/2021	Clear, no turbidity, no odour, no sheen.	4.03	20.8	490.4	4.96	137.0	342.8
MW119	BH119	**	**	11.01	8	11	10.30	3.152	7.858	11.19	6/12/2021	Clear, low turbidity, no odour, no sheen.	4.08	18.7	1,148.0	6.43	131.6	337.4
MW119P	BH119_P, MW119S	**	**	11.12	2	5	4.15	3.24	7.88	4.66	6/12/2021	Light yellow / brown, low turbidity, no odour, no sheen. Orange suspended solids.	4.52	18.5	1,920.0	4.91	147.7	353.5
MW129		**	**	9.5258	5	8	6.70	1.721	7.8048	7.64	6/12/2021	Light yellow / brown, low turbidity, no odour, no sheen.	1.60	19.3	2,830.0	5.85	85.0	290.8
MW130		**	**	12.9861	6	9	7.70	5.447	7.5391	8.7	6/12/2021	Light brown, low turbidity, no odour, no sheen.	2.51	21.0	442.7	5.56	152.6	358.4
MW131		**	**	12.1794	7	10	9.10	4.642	7.5374	9.94	6/12/2021	Clear, low turbidity, no odour, no sheen. Orange/brown suspended solids.	2.33	19.5	586.0	6.15	-58.5	147.3
MW133	MW133P	**	**	13.35	2	4	3.50	4.543	8.807	4.97	6/12/2021	Clear, low turbidity, no odour, no sheen. Black suspended solids. Bailer sample taken, no water in Hydrasleeve.	2.30	22.0	1,355.0	6.53	-123.2	82.6
MW134		**	**	13.21	1.9	3.9	3.40	Dry	Dry	4.66	6/12/2021	Well is dry, no parameters or sample taken.	-	-	-	-	-	-
MW136	MW136P	**	**	11.86	2.25	4.25	3.75	2.937	8.923	4.94	6/12/2021	Light brown, medium turbidity, weak hydrogen sulphide odour, no sheen.	1.56	20.8	3,386.0	5.93	7.0	212.8

Notes

**	Co-ordinates removed due to privacy considerations
mV	milliVolts
mg/L	milligrams per Litre
°C	degrees Celsius
µS/cm	microSiemens per centremetre
mbTOC	meters below top of casing
-	Not measured
n/a	Not applicable

Corrected field Redox measurement Eh = Er + 205.8

Table T2
Surface Water Geochemical Parameters

								Field Measurements					
Location Code	Easting	Northing	Sampled Date	Location Comments	Sample Depth From (m)	Sample Depth To (m)	Sample Comment	DO (Field)	Temp (Field)	EC (field)	pH (Field)	Redox Er (Field)	Redox Eh (Corrected)
								mg/L	°C	µS/cm	pH_Units	mV	mV
SW001	308867.480	6242016.780	6/12/2021	Drainage line with tall grass. Waterbody width (approx): 0.5 m, Waterbody depth (approx) 0.1 m	0.05	0.10	Brown, low turbidity, no odour, no sheen. No water flow observed. Green algae on surface.	2.99	18.1	374.2	6.29	117.4	323.2
SW059	309636.439	6242152.009	6/12/2021	Creek. Waterbody width (approx): 4 m, Waterbody depth (approx) 1 m	0.05	0.10	Light brown, low turbidity, no odour, no sheen. No water flow observed.	2.27	19.5	339.5	6.65	44.5	250.3
SW111	309356.120	6241898.415	6/12/2021	Creek. Water body width: (approx.) 2m. Waterbody depth (approx.): 0.5m	0.05	0.10	Brown, low turbidity, no odour, no sheen. Water flow observed. Some algae on surface.	7.14	20.0	286.2	6.94	112.3	318.1

Notes

mV	milliVolts
mg/L	milligrams per Litre
°C	degrees Celsius
µS/cm	microSiemens per centremetre
mbTOC	meters below top of casing
-	Not measured
n/a	Not applicable

Corrected field Redox measurement Eh = Er + 205.8

Table T3
Groundwater Analytical Results

AECOM

															Per- and Poly-fluoroalkyl Substances																							
															Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluoroundecanoic acid (PFUnDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecane sulfonic acid (PFDS)	Perfluorododecanoic acid (PFDoDA)	Perfluorodecanoic acid (PFDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorooctane sulfonamide (FOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	Sum of PFAS	Sum of PFAS (WA DER List)
															µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR															0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.1	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.01	0.01
PFAS NEMP 2020 Drinking Water															**0.56**			**0.07**																										
PFAS NEMP 2020 Freshwater 95%															*220*	*0.13*																												
Location Code	**Alternative Name**	**Sampled Date**	**Field ID**	**Sample Type**	**Lab Report Number**																																							
MW112	BH112	6/12/2021	0382_MW112_211206	Normal	ES2144340	**2.43**	*34.9*	46.8	**81.7**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	5.51	1.26	<0.02	9.28	3.65	1.32	<0.02	<0.02	<0.02	5.31	0.9	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	111	102
MW112P	BH112_P	6/12/2021	0382_MW112P_211206	Normal	ES2144340	0.19	*20.8*	3.9	**24.7**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.24	0.2	<0.02	1.17	0.23	0.08	<0.02	<0.02	<0.02	0.18	0.2	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	27.2	26.7
MW113	BH113	6/12/2021	0382_MW113_211206	Normal	ES2144340	**15.2**	*183*	266	**449**	<0.05	1.16	<0.05	<0.05	<0.04[#1]	<0.04[#1]	<0.1[#1]	46.6	9.43	0.1	58.9	20.4	7.81	0.08	<0.04[#1]	<0.04[#1]	43	4.5	<0.1[#1]	<0.1[#1]	<0.1[#1]	<0.1[#1]	<0.04[#1]	<0.04[#1]	<0.04[#1]	656	589
MW113	BH113	6/12/2021	0382_QC100_211206	Field_D	ES2144340	**14.6**	*182*	262	**444**	<0.05	1.15	<0.05	<0.05	<0.04[#1]	<0.04[#1]	<0.1[#1]	45.1	8.74	0.08	58.4	20	7.42	0.09	<0.04[#1]	<0.04[#1]	39.8	4.7	<0.1[#1]	<0.1[#1]	<0.1[#1]	<0.1[#1]	<0.04[#1]	<0.04[#1]	<0.04[#1]	644	579
MW115	BH115	6/12/2021	0382_MW115_211206	Normal	ES2144340	**10.4**	*210*	133	**343**	<0.05	0.6	<0.05	<0.05	<0.04[#1]	<0.04[#1]	<0.1[#1]	18.2	5.08	0.12	32.8	10.8	4.61	<0.04[#1]	<0.04[#1]	<0.04[#1]	15.9	3.2	<0.1[#1]	<0.1[#1]	<0.1[#1]	<0.1[#1]	<0.04[#1]	<0.04[#1]	<0.04[#1]	445	416
MW119	BH119	6/12/2021	0382_MW119_211206	Normal	ES2144340	0.39	*7.43*	5.36	**12.8**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.89	0.46	<0.02	2.4	0.25	0.21	<0.02	<0.02	<0.02	1.07	0.4	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	18.9	17.7
MW119P	BH119_P, MW119S	6/12/2021	0382_MW119P_211206	Normal	ES2144340	**6.06**	*52.5*	130	**182**	<0.05	0.44	<0.05	<0.05	<0.04[#1]	<0.04[#1]	<0.1[#1]	15.4	2.6	<0.04[#1]	22.6	7.23	3.18	<0.04[#1]	<0.04[#1]	<0.04[#1]	9.3	1	<0.1[#1]	<0.1[#1]	<0.1[#1]	<0.1[#1]	<0.04[#1]	<0.04[#1]	<0.04[#1]	250	228
MW129		6/12/2021	0382_MW129_211206	Normal	ES2144340	<0.01	0.02	0.01	0.03	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.03	0.03
MW130		6/12/2021	0382_MW130_211206	Normal	ES2144340	<0.01	0.11	0.07	**0.18**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.18	0.18
MW131		6/12/2021	0382_MW131_211206	Normal	ES2144340	<0.01	0.03	0.01	0.04	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.04	0.04
MW131		6/12/2021	0382_QC200_211206	Interlab_D	284721	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<0.5	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.05	<0.02	<0.01	<0.02	<0.05	<0.5	<0.1	<0.05	<0.02	<0.1	<0.02	0.02	-
MW133	MW133P	6/12/2021	0382_MW133_211206	Normal	ES2144340	**2.88**	*168*	22	**190**	<0.05	<0.05	<0.05	<0.05	<0.04[#1]	<0.04[#1]	<0.1[#1]	0.97	0.92	<0.04[#1]	4.82	6.37	0.36	<0.04[#1]	<0.04[#1]	<0.04[#1]	1.15	1	<0.1[#1]	<0.1[#1]	<0.1[#1]	<0.1[#1]	<0.04[#1]	<0.04[#1]	<0.04[#1]	208	201
MW136	MW136P	6/12/2021	0382_MW136_211206	Normal	ES2144340	<0.01	0.05	0.08	**0.13**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.03	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.24	0.21

Notes:

LOR	Limit of Reporting
Normal	Primary sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
	Denotes first time detection above LOR
	Denotes new exceedence of human health screening criteria
	Denotes new exceedence of ecological screening criteria
Bold	Denotes exceedence of adoped human health screening criteria
Italics	Denotes exceedence of adopted ecological screening criteria

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Table T4
Surface Water Analytical Results

AECOM

						Per- and Poly-fluoroalkyl Substances																														
						Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluoroundecanoic acid (PFUnDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecane sulfonic acid (PFDS)	Perfluorododecanoic acid (PFDoDA)	Perfluorodecanoic acid (PFDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorooctane sulfonamide (FOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	Sum of PFAS	Sum of PFAS (WA DER List)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.1	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.01	0.01
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																													
PFAS NEMP 2020 Recreational Water						**10**			**2**																											
Location Code	**Sampled Date**	**Field ID**	**Sample Type**	**Lab Report Number**																																
SW001	6/12/2021	0382_SW001_211206	Normal	ES2144340		0.05	*0.76*	0.5	1.26	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.04	0.12	<0.02	0.22	0.02	0.03	<0.02	<0.02	<0.02	0.06	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	1.8	1.74
SW001	6/12/2021	0382_QC101_211206	Field_D	ES2144340		0.04	*0.72*	0.49	1.21	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.04	0.11	<0.02	0.22	0.02	0.03	<0.02	<0.02	<0.02	0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	1.72	1.66
SW059	6/12/2021	0382_SW059_211206	Normal	ES2144340		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
SW059	6/12/2021	0382_QC201_211206	Interlab_D	284721		<0.01	0.07	0.04	0.11	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<0.5	<0.01	<0.02	<0.01	0.02	<0.01	<0.01	<0.02	<0.05	<0.02	<0.01	<0.02	<0.05	<0.5	<0.1	<0.05	<0.02	<0.1	<0.02	0.13	-
SW111	6/12/2021	0382_SW111_211206	Normal	ES2144340		0.01	0.06	0.03	0.09	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.12	0.12

Notes:

LOR	Limit of Reporting
Normal	Primary sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
	Denotes first time detection above LOR
	Denotes new exceedence of human health screening criteria
	Denotes new exceedence of human health screening criteria
Bold	Denotes exceedence of adoped human health screening criteria
Italics	Denotes exceedence of adopted ecological screening criteria

Table T5: Historical Groundwater Analytical Results

AECOM

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids									PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																									
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																											
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																													
MW002	MW02	20/02/2018	0382_MW02_180220	Normal	NSW_0382_PFAS	0.35	*0.16*	0.08	**0.24**	0.02	<0.01	<0.01	<0.01	0.05	0.1	0.14	0.1	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05
MW002	MW02	1/10/2020	0382_MW002_201001	Normal	NSW_0382_PFASOMP_20	0.2	0.04	0.05	**0.09**	0.28	<0.02	<0.02	<0.02	<0.1	0.08	0.16	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	MW02	1/10/2020	0382_QC102_201001	Field_D	NSW_0382_PFASOMP_20	0.17	0.03	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	0.08	0.07	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	MW02	26/03/2021	0382_MW002_210326	Normal	NSW_0382_PFASOMP_20	0.05	0.03	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.03	<0.05	<0.05	0.03	<0.05
MW002	MW02	6/09/2021	0382_MW002_210906	Normal	NSW_0382_PFASOMP_20	0.14	0.04	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	28/03/2018	0382_MW112_180328	Normal	NSW_0382_PFAS	**4.3**	*64*	58	**122**	6.7	12	3.3	<0.01	0.99	1.5	9.7	1.7	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW112	BH112	1/10/2020	0382_MW112_201001	Normal	NSW_0382_PFASOMP_20	**4.75**	*52.8*	70.4	**123**	6.32	10.3	6.01	<0.02	1	1.87	11.6	1.97	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	3/12/2020	0382_MW112_201203	Normal	NSW_0382_PFASOMP_20	**3.03**	*30*	42.4	**72.4**	3.86	6.31	2.92	<0.02	0.9	1.29	8.16	1.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	25/03/2021	0382_MW112_210325	Normal	NSW_0382_PFASOMP_20	**3.76**	*25.7*	47.4	**73.1**	5.13	6.3	2.92	<0.02	0.9	1.46	8.38	1.58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	7/06/2021	0382_MW112_210607	Normal	NSW_0382_PFASOMP_20	**4.14**	*37.9*	49.5	**87.4**	5.33	8.27	4.27	<0.02	0.9	1.53	9.4	1.58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	7/09/2021	0382_MW112_210907	Normal	NSW_0382_PFASOMP_20	**3.12**	*21.2*	44	**65.2**	4.61	6.47	3.01	<0.02	0.8	1.33	7.88	1.29	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	6/12/2021	0382_MW112_211206	Normal	NSW_0382_PFASOMP_20	**2.43**	*34.9*	46.8	**81.7**	5.31	5.51	3.65	<0.02	0.9	1.26	9.28	1.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	28/03/2018	0382_MW112_P_180328	Normal	NSW_0382_PFAS	0.33	*50*	6	**56**	0.33	1.2	0.34	<0.01	0.16	0.3	1.4	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW112P	BH112_P, MW112_P	1/10/2020	0382_MW112_P_201001	Normal	NSW_0382_PFASOMP_20	0.4	*37.3*	8.1	**45.4**	0.33	0.64	0.52	<0.02	0.2	0.35	1.78	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	3/12/2020	0382_MW112_P_201203	Normal	NSW_0382_PFASOMP_20	0.22	*23.2*	4.43	**27.6**	0.2	0.38	0.29	<0.02	0.1	0.22	1.09	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	25/03/2021	0382_MW112_P_210325	Normal	NSW_0382_PFASOMP_20	0.25	*20.1*	4.75	**24.8**	0.19	0.28	0.24	<0.02	0.2	0.24	1.35	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	25/03/2021	0382_QC100_210325	Field_D	NSW_0382_PFASOMP_20	0.25	*22.5*	5.06	**27.6**	0.21	0.31	0.27	<0.02	0.2	0.26	1.45	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	7/06/2021	0382_MW112P_210607	Normal	NSW_0382_PFASOMP_20	0.33	*28.2*	5.56	**33.8**	0.24	0.4	0.36	<0.02	0.2	0.28	1.32	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	7/09/2021	0382_MW112P_210907	Normal	NSW_0382_PFASOMP_20	0.24	*19.1*	4.68	**23.8**	0.2	0.32	0.29	<0.02	0.2	0.23	1.26	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	6/12/2021	0382_MW112P_211206	Normal	NSW_0382_PFASOMP_20	0.19	*20.8*	3.9	**24.7**	0.18	0.24	0.23	<0.02	0.2	0.2	1.17	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	28/03/2018	0382_MW113_180328	Normal	NSW_0382_PFAS	**3.7**	*46*	74	**120**	11	13	3	<0.01	1.2	2.1	13	1.9	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.24	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW113	BH113	1/10/2020	0382_MW113_201001	Normal	NSW_0382_PFASOMP_20	**15.7**	*194*	284	**478**	36.2	46.6	29.6	0.17	4.4	8.81	53	7.59	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	3/12/2020	0382_QC200_201203	Interlab_D	NSW_0382_PFASOMP_20	**8.2**	*97*	180		22	21	6.2	<0.01	3.4	6.1	31	4.2	0.024	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	0.54	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW113	BH113	3/12/2020	0382_MW113_201203	Normal	NSW_0382_PFASOMP_20	**11.8**	*108*	162	**270**	27.3	38.9	9.7	0.05	4.2	6.48	38	6.05	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	3/12/2020	0382_QC100_201203	Field_D	NSW_0382_PFASOMP_20	**12.4**	*122*	165	**287**	29	40.5	10.6	0.05	4.2	6.4	39.8	6.11	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.64	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	25/03/2021	0382_MW113_210325	Normal	NSW_0382_PFASOMP_20	**7.56**	*247*	89	**336**	10.4	12.5	5.91	0.54	3.7	9.56	20.8	3.77	0.56	0.06	<0.02	<0.02	<0.02	<0.05	<0.05	5.68	0.1	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	7/06/2021	0382_MW113_210607	Normal	NSW_0382_PFASOMP_20	**17.8**	*219*	269	**488**	38.4	51.1	26.6	0.16	4.8	10	63	9.13	0.16	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	1.7	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	7/09/2021	0382_MW113_210907	Normal	NSW_0382_PFASOMP_20	**10**	*205*	252	**457**	36	56.4	22.7	0.07	4.9	8.76	46.4	7.12	0.1	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.83	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	6/12/2021	0382_MW113_211206	Normal	NSW_0382_PFASOMP_20	**15.2**	*183*	266	**449**	43	46.6	20.4	0.08	4.5	9.43	58.9	7.81	0.1	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	1.16	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW113	BH113	6/12/2021	0382_QC100_211206	Field_D	NSW_0382_PFASOMP_20	**14.6**	*182*	262	**444**	39.8	45.1	20	0.09	4.7	8.74	58.4	7.42	0.08	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	1.15	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW115	BH115	28/03/2018	0382_MW115_180328	Normal	NSW_0382_PFAS	**13**	*360*	180	**540**	21	30	14	<0.2	3.2	5.7	31	5.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
MW115	BH115	1/10/2020	0382_MW115_201001	Normal	NSW_0382_PFASOMP_20	**16.1**	*469*	218	**687**	20.1	38.4	28.2	<0.02	3.9	7.38	41.7	6.53	0.15	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.7	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	3/12/2020	0382_MW115_201203	Normal	NSW_0382_PFASOMP_20	**12**	*267*	133	**400**	16	20.9	13.4	<0.02	3.5	4.92	28.4	4.92	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.57	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	25/03/2021	0382_MW115_210325	Normal	NSW_0382_PFASOMP_20	**9.06**	*160*	113	**273**	13	16.2	8.63	<0.02	3.6	4.3	23.8	3.98	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.68	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	7/06/2021	0382_MW115_210607	Normal	NSW_0382_PFASOMP_20	**14.4**	*306*	178	**484**	17	28.1	17.5	<0.02	3.6	6.53	32.6	6.07	0.14	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.74	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	7/09/2021	0382_MW115_210907	Normal	NSW_0382_PFASOMP_20	**8.78**	*262*	162	**424**	17.5	27.6	14.9	<0.02	3.5	5.66	31.6	3.94	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.67	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	6/12/2021	0382_MW115_211206	Normal	NSW_0382_PFASOMP_20	**10.4**	*210*	133	**343**	15.9	18.2	10.8	<0.04	3.2	5.08	32.8	4.61	0.12	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.6	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW117	BH117	1/05/2018	0382_MW117_180501	Normal	NSW_0382_PFAS	<0.01	0.06	0.02	**0.08**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW117	BH117	1/05/2018	0382_QC101_180501	Field_D	NSW_0382_PFAS	<0.01	0.06	0.02	**0.08**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW117	BH117	1/05/2018	0382_QC201_180501	Interlab_D	NSW_0382_PFAS	<0.01	0.04	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	BH117	26/03/2021	0382_MW117_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	BH117	7/09/2021	0382_MW117_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	28/03/2018	0382_MW119_180328	Normal	NSW_0382_PFAS	0.08	*0.62*	1.9	**2.52**	0.42	0.58	0.03	<0.01	0.05	0.07	0.44	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119	BH119	28/03/2018	0382_QC102_180328	Field_D	NSW_0382_PFAS	0.08	*0.62*	2.2	**2.82**	0.43	0.49	0.04	<0.01	0.05	0.07	0.46	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119	BH119	1/10/2020	0382_MW119_201001	Normal	NSW_0382_PFASOMP_20	0.36	*18.6*	5.17	**23.8**	0.62	0.62	0.37	<0.02	<0.1	0.16	0.8	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	3/12/2020	0382_MW119_201203	Normal	NSW_0382_PFASOMP_20	0.1	*2.03*	1.04	**3.07**	0.19	0.19	0.06	<0.02	<0.1	0.06	0.27	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	25/03/2021	0382_MW119_210325	Normal	NSW_0382_PFASOMP_20	0.39	*24*	5.78	**29.8**	0.78	0.56	0.32	<0.02	0.4	0.43	1.53	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	7/06/2021	0382_MW119_210607	Normal	NSW_0382_PFASOMP_20	0.4	*8.8*	3.59	**12.4**	0.81	0.55	0.15	<0.02	0.4	0.47	1.53	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	7/06/2021	0382_QC100_210607	Field_D	NSW_0382_PFASOMP_20	0.4	*7.53*	3.41	**10.9**	0.78	0.53	0.14	<0.02	0.4	0.49	1.47	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	7/09/2021	0382_MW119_210907	Normal	NSW_0382_PFASOMP_20	0.55	*8.84*	6.17	**15**	1.12	1.08	0.31	<0.02	0.46	0.59	2.28	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	6/12/2021	0382_MW119_211206	Normal	NSW_0382_PFASOMP_20	0.39	*7.43*	5.36	**12.8**	1.07	0.89	0.25	<0.02	0.4	0.46	2.4	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	28/03/2018	0382_MW119_P_180328	Normal	NSW_0382_PFAS	**1.6**	*30*	16	**46**	2.2	3.9	2	<0.01	0.33	0.48	3.3	0.44	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119P	BH119_P, MW119_P	1/10/2020	0382_MW119_P_201001	Normal	NSW_0382_PFASOMP_20	**1.22**	*4.32*	34.8	**39.1**	4	5.55	1.26	<0.02	0.7	1.73	10.4	1.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	3/12/2020	0382_MW119_P_201203	Normal	NSW_0382_PFASOMP_20	0.4	*2.65*	10.3	**13**	1.53	2.76	0.3	<0.02	0.4	0.59	3.16	0.43	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	25/03/2021	0382_MW119_P_210325	Normal	NSW_0382_PFASOMP_20	0.4	*1.89*	10.3	**12.2**	1.61	1.93	0.27	<0.02	0.3	0.51	2.95	0.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	7/06/2021	0382_MW119P_210607	Normal	NSW_0382_PFASOMP_20	**5.4**	*51.6*	114	**166**	16.3	26	6.42	<0.02	1.8	6.24	44.4	4.09	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.38	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	7/09/2021	0382_MW119P_210907	Normal	NSW_0382_PFASOMP_20	**6.4**	*69.5*	156	**226**	13.4	23.8	6.64	<0.02	1.35	4.32	29.5	4.64	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.42	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	6/12/2021	0382_MW119P_211206	Normal	NSW_0382_PFASOMP_20	**6.06**	*52.5*	130	**182**	9.3	15.4	7.23	<0.04	1	2.6	22.6	3.18	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.44	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW120	BH120	14/03/2018	0382_MW120_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW120	BH120	1/10/2020	0382_MW120_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	BH120	25/03/2021	0382_MW120_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	BH120	6/09/2021	0382_MW120_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	14/03/2018	0382_MW121_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW121	BH121	14/03/2018	0382_QC101_180314	Field_D	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Table T5: Historical Groundwater Analytical Results

AECOM

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids									PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																									
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																											
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																													
MW121	BH121	14/03/2018	0382_QC201_180314	Interlab_D	NSW_0382_PFAS	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	1/10/2020	0382_QC202_201001	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.02	<0.01		<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW121	BH121	1/10/2020	0382_MW121_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	25/03/2021	0382_MW121_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	6/09/2021	0382_MW121_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW122	BH122	14/03/2018	0382_MW122_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW122	BH122	1/10/2020	0382_MW122_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW122	BH122	26/03/2021	0382_MW122_210326	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	15/03/2018	0382_MW123_180315	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW123	BH123	1/10/2020	0382_MW123_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	24/03/2021	0382_MW123_210324	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	6/09/2021	0382_QC201_210906	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW123	BH123	6/09/2021	0382_MW123_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	15/03/2018	0382_MW124_180315	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	0.02	<0.01	0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW124	BH124	1/10/2020	0382_MW124_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	24/03/2021	0382_MW124_210324	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	6/09/2021	0382_QC200_210906	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.01	0.01	0.03	<0.01	<0.01	<0.02	<0.02	<0.02	0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW124	BH124	6/09/2021	0382_MW124_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		17/07/2018	0382_MW129_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW129		1/10/2020	0382_MW129_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		3/12/2020	0382_MW129_201203	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		25/03/2021	0382_MW129_210325	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		7/06/2021	0382_MW129_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		7/09/2021	0382_MW129_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		6/12/2021	0382_MW129_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.01	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		17/07/2018	0382_MW130_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	0.02	0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW130		1/10/2020	0382_MW130_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		3/12/2020	0382_MW130_201203	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		25/03/2021	0382_MW130_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		7/06/2021	0382_MW130_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		7/09/2021	0382_MW130_210907	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		7/09/2021	0382_QC103_210907	Field_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		6/12/2021	0382_MW130_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.11	0.07	**0.18**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		17/07/2018	0382_MW131_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW131		1/10/2020	0382_MW131_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.08	0.03	**0.11**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		3/12/2020	0382_MW131_201203	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		25/03/2021	0382_MW131_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		7/06/2021	0382_QC200_210607	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.078	<0.01		<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW131		7/06/2021	0382_MW131_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		7/09/2021	0382_MW131_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		6/12/2021	0382_QC200_211206	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW131		6/12/2021	0382_MW131_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.01	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW133		7/09/2021	0382_MW133_210907	Normal	NSW_0382_PFASOMP_20	0.05	*4.06*	1.58	**5.64**	0.41	0.12	0.07	<0.02	0.6	0.45	1.81	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW133		6/12/2021	0382_MW133_211206	Normal	NSW_0382_PFASOMP_20	**2.88**	*168*	22	**190**	1.15	0.97	6.37	<0.04	1	0.92	4.82	0.36	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	<0.05	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW134		25/03/2021	0382_QC200_210325	Interlab_D	NSW_0382_PFASOMP_20	0.018	*0.35*	0.38		0.085	0.062	<0.01	<0.01	0.17	0.13	0.17	0.011	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW134		25/03/2021	0382_MW134P_210325	Normal	NSW_0382_PFASOMP_20	0.02	*0.41*	0.48	**0.89**	0.1	0.07	<0.02	0.07	0.2	0.16	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW134		7/06/2021	0382_MW134_210607	Normal	NSW_0382_PFASOMP_20	0.03	*0.44*	1.16	**1.6**	0.23	0.26	0.02	<0.02	0.1	0.16	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136		18/12/2020	0382_MW136_201218	Normal	NSW_0382_PFAS	<0.002	0.016	0.016	0.032	0.008	0.004	<0.002	<0.002	<0.01	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	0.082	<0.005	<0.005	<0.005	<0.002	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005
MW136		7/06/2021	0382_MW136_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.11	0.04	**0.15**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136		7/09/2021	0382_MW136_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.11	**0.15**	0.06	0.03	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136		6/12/2021	0382_MW136_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.05	0.08	**0.13**	0.06	0.03	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	19/02/2018	0382_MW1_180219	Normal	NSW_0382_PFAS	0.02	0.1	0.72	**0.82**	0.03	0.04	<0.01	<0.01	<0.05	0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW301	MW1	1/10/2020	0382_MW301_201001	Normal	NSW_0382_PFASOMP_20	0.01	*0.16*	0.09	**0.25**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	26/03/2021	0382_MW301_210326	Normal	NSW_0382_PFASOMP_20	0.01	0.08	0.06	**0.14**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	6/09/2021	0382_MW301_210906	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.04	**0.1**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	6/09/2021	0382_QC101_210906	Field_D	NSW_0382_PFASOMP_20	<0.01	0.07	0.05	**0.12**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	16/02/2018	0382_BH345_180216	Normal	NSW_0382_PFAS	<0.01	0.09	<0.01	**0.09**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW323	BH345	16/02/2018	0382_QC101_180216	Field_D	NSW_0382_PFAS	<0.01	0.09	<0.01	**0.09**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW323	BH345	16/02/2018	0382_QC201_180216	Interlab_D	NSW_0382_PFAS	<0.01	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	1/10/2020	0382_MW323_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	24/03/2021	0382_MW323_210324	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	6/09/2021	0382_MW323_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW330	BH365	7/02/2018	0382_BH365_180207	Normal	NSW_0382_PFAS	**0.98**	0.05	44	**44.05**	3.4	7.7	0.49	<0.01	1.6	3.2	19	1.8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	BH365	27/02/2018	0382_BH365_180227	Normal	NSW_0382_PFAS	**1.3**	0.03	40	**40.03**	1.7	5.1	0.48	<0.01	1.1	1.9	11	1.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Table T5: Historical Groundwater Analytical Results

AECOM

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																								
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																										
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																												
MW330	BH365	27/02/2018	0382_QC101_180227	Field_D	NSW_0382_PFAS	**1.3**	0.03	39	**39.03**	1.7	4.6	0.47	<0.01	1	1.9	11	1.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	BH365	27/02/2018	0382_QC201_180227	Interlab_D	NSW_0382_PFAS	**1.45**	0.04	25.8	**25.8**	1.11	3.13	0.4	<0.02	<0.1	1.23	10	1.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	12/02/2018	0382_BH612_180212	Normal	NSW_0382_PFAS	0.01	0.1	0.2	**0.3**	0.02	0.03	0.02	<0.01	<0.05	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW349	BH612	1/10/2020	0382_MW349_201001	Normal	NSW_0382_PFASOMP_20	0.01	0.12	0.28	**0.4**	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	24/03/2021	0382_MW349_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.16	**0.22**	0.03	0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	6/09/2021	0382_MW349_210906	Normal	NSW_0382_PFASOMP_20	<0.01	0.1	0.23	**0.33**	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW361	HMW7	21/02/2018	0382_HMW7_180221	Normal	NSW_0382_PFAS	0.03	0.07	0.11	**0.18**	0.02	0.02	<0.01	<0.01	<0.05	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW361	HMW7	1/10/2020	0382_MW361_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.03	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Notes:

LOR	Limit of Reporting
Normal	Primary sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
Bold	Denotes exceedence of adoped human health screening criteria
Italics	Denotes exceedence of adopted ecological screening criteria

Table T6: Historical Surface Water Analytical Results

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluoroheptane sulfonic acid (PFHpS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Recreational Water						**10**			**2**																								
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																										
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																												
SW001		15/03/2018	0382_SW001_180315	Normal	NSW_0382_PFAS	0.86	*3.9*	0.36	**10.8**	0.36	1	6.9	0.04	0.41	0.92	2.7	0.45	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW001		25/03/2021	0382_SW001_210325	Normal	NSW_0382_PFASOMP_20	0.03	*0.65*	<0.02	1.23	0.04	0.04	0.58	<0.02	<0.1	0.09	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		7/06/2021	0382_SW001_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.13	<0.02	0.19	<0.02	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		7/09/2021	0382_SW001_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	<0.02	0.13	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		6/12/2021	0382_SW001_211206	Normal	NSW_0382_PFASOMP_20	0.05	*0.76*	0.02	1.26	0.06	0.04	0.5	<0.02	<0.1	0.12	0.22	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		6/12/2021	0382_QC101_211206	Field_D	NSW_0382_PFASOMP_20	0.04	*0.72*	0.02	1.21	0.05	0.04	0.49	<0.02	<0.1	0.11	0.22	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		26/09/2017	0382_SW009_170926	Normal	NSW_0382_PFAS	<0.01	0.03	<0.01	0.03	<0.01	<0.01	0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW009		30/09/2020	0382_SW009_200930	Normal	NSW_0382_PFASOMP_20	0.01	*0.17*	<0.02	0.42	0.04	0.04	0.25	<0.02	<0.1	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		30/09/2020	0382_QC101_200930	Field_D	NSW_0382_PFASOMP_20	0.01	*0.2*	<0.02	0.48	0.05	0.05	0.28	<0.02	<0.1	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		26/03/2021	0382_SW009_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	<0.02	0.21	0.02	<0.02	0.12	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		6/09/2021	0382_SW009_210906	Normal	NSW_0382_PFASOMP_20	0.01	0.13	<0.02	0.31	0.03	0.04	0.18	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		27/09/2017	0382_SW011_170927	Normal	NSW_0382_PFAS	<0.01	0.04	<0.01	0.04	<0.01	<0.01	0.03	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW011		30/09/2020	0382_SW011_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	<0.02	0.08	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		26/03/2021	0382_SW011_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.08	<0.02	0.16	0.04	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		8/09/2021	0382_SW011_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	<0.02	0.08	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012		27/09/2017	0382_SW012_170927	Normal	NSW_0382_PFAS	<0.01	0.02	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW012		30/09/2020	0382_SW012_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.07	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012		6/09/2021	0382_SW012_210906	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.07	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		27/09/2017	0382_SW014_170927	Normal	NSW_0382_PFAS	<0.01	0.03	<0.01	0.03	<0.01	<0.01	0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW014		30/09/2020	0382_SW014_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	<0.02	0.1	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		30/09/2020	0382_QC100_200930	Field_D	NSW_0382_PFASOMP_20	<0.01	0.04	<0.02	0.07	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		26/03/2021	0382_SW014_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	0.03	<0.02	<0.02	<0.02	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		8/09/2021	0382_SW014_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	<0.02	0.08	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		26/09/2017	0382_SW015_170926	Normal	NSW_0382_PFAS	0.01	0.07	<0.01	0.07	<0.01	<0.01	0.08	<0.01	<0.05	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW015		30/09/2020	0382_SW015_200930	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		25/03/2021	0382_QC101_210325	Field_D	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.04	<0.02	<0.02	0.02	<0.02	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		25/03/2021	0382_SW015_210325	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.04	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		8/09/2021	0382_SW015_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	<0.02	0.08	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		27/09/2017	0382_SW017_170927	Normal	NSW_0382_PFAS	<0.01	0.03	<0.01	0.03	<0.01	<0.01	0.02	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW017		30/09/2020	0382_SW017_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.11	<0.02	0.15	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		26/03/2021	0382_QC201_210326	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	0.02	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW017		26/03/2021	0382_SW017_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.05	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		8/09/2021	0382_SW017_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	<0.02	0.08	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	15/06/2016	HBK-QA01	Normal	ACTNSW_Hist_202009-2	<0.01	<0.01																	<0.05	<0.05	<0.05	<0.05							
SW025	HBK_SW001	15/06/2016	HBK-SW001	Normal	ACTNSW_Hist_202009-2	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	26/09/2017	0382_SW025_170926	Normal	NSW_0382_PFAS	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW025	HBK_SW001	30/09/2020	0382_SW025_200930	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	25/03/2021	0382_SW025_210325	Normal	NSW_0382_PFASOMP_20	0.01	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	8/09/2021	0382_SW025_210908	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW029		5/03/2018	0382_SW029_180305	Normal	NSW_0382_PFAS	<0.01	0.12	<0.01	0.2	<0.01	<0.01	0.08	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW029		30/09/2020	0382_SW029_200930	Normal	NSW_0382_PFASOMP_20	0.03	*0.75*	0.02	1.3	0.06	0.06	0.55	<0.02	<0.1	0.03	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW029		24/03/2021	0382_SW029_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	<0.02	0.24	0.03	<0.02	0.18	<0.02	<0.1	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW029		7/09/2021	0382_SW029_210907	Normal	NSW_0382_PFASOMP_20	0.07	*1.86*	0.1	**4.36**	0.28	0.36	2.5	<0.02	<0.1	0.03	0.32	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		9/03/2018	0382_SW030_180309	Normal	NSW_0382_PFAS	<0.01	0.03	<0.01	0.1	0.01	0.01	0.07	<0.01	<0.05	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW030		30/09/2020	0382_SW030_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.14	<0.02	<0.02	0.11	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		24/03/2021	0382_SW030_210324	Normal	NSW_0382_PFASOMP_20	0.04	*0.78*	0.03	1.57	0.1	0.09	0.79	<0.02	<0.1	0.08	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		7/09/2021	0382_SW030_210907	Normal	NSW_0382_PFASOMP_20	0.07	*1.52*	0.1	**4.18**	0.29	0.4	2.66	<0.02	<0.1	0.04	0.33	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		7/09/2021	0382_QC102_210907	Field_D	NSW_0382_PFASOMP_20	0.07	*1.58*	0.11	**4.3**	0.31	0.4	2.72	<0.02	<0.1	0.03	0.33	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		8/03/2018	0382_SW038_180308	Normal	NSW_0382_PFAS	0.01	*0.32*	<0.01	0.54	0.02	0.03	0.22	<0.01	<0.05	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW038		24/03/2021	0382_SW038_210324	Normal	NSW_0382_PFASOMP_20	0.03	*0.46*	0.02	0.99	0.06	0.05	0.53	<0.02	<0.1	0.12	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		6/09/2021	0382_SW038_210906	Normal	NSW_0382_PFASOMP_20	<0.01	*0.21*	<0.02	0.47	0.03	0.04	0.26	<0.02	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		6/09/2021	0382_QC100_210906	Field_D	NSW_0382_PFASOMP_20	<0.01	*0.19*	<0.02	0.44	0.03	0.04	0.25	<0.02	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		1/03/2018	0382_SW059_180301	Normal	NSW_0382_PFAS	0.02	0.07	<0.01	0.13	<0.01	<0.01	0.06	<0.01	<0.05	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW059		30/09/2020	0382_SW059_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.11	<0.02	0.18	<0.02	<0.02	0.07	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		3/12/2020	0382_SW059_201203	Normal	NSW_0382_PFASOMP_20	0.02	0.08	<0.02	0.13	<0.02	<0.02	0.05	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		25/03/2021	0382_SW059_210325	Normal	NSW_0382_PFASOMP_20	0.01	0.11	<0.02	0.18	<0.02	<0.02	0.07	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/06/2021	0382_QC201_210607	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.069	<0.01	0.069	<0.01	<0.01	0.044	<0.01	<0.05	<0.02	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW059		7/06/2021	0382_QC101_210607	Field_D	NSW_0382_PFASOMP_20	0.01	0.09	<0.02	0.14	<0.02	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/06/2021	0382_SW059_210607	Normal	NSW_0382_PFASOMP_20	0.01	0.09	<0.02	0.14	<0.02	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/09/2021	0382_QC203_210907	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.05	<0.01	0.09	<0.01	<0.01	0.04	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW059		7/09/2021	0382_SW059_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	<0.02	0.1	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		6/12/2021	0382_QC201_211206	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.07	<0.01	0.11	<0.01	<0.01	0.04	<0.02	<0.02	<0.02	0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5

Table T6: Historical Surface Water Analytical Results

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluoroheptane sulfonic acid (PFHpS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Recreational Water						**10**			**2**																									
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																											
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																													
SW059		6/12/2021	0382_SW059_211206	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062		5/03/2018	0382_SW062_180305	Normal	NSW_0382_PFAS	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW062		30/09/2020	0382_SW062_200930	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062		8/09/2021	0382_SW062_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW063		18/04/2018	0382_SW063_180418	Normal	NSW_0382_PFAS	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW063		8/09/2021	0382_SW063_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		15/06/2018	0382_SW103_180615	Normal	NSW_0382_PFAS	<0.05	*0.21*	<0.05	0.29	<0.01	<0.01	0.08	<0.01	<0.05	<0.01	0.02	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW103		15/06/2018	0382_QC102_180615	Field_D	NSW_0382_PFAS	<0.01	*0.22*	<0.01	0.29	<0.01	<0.01	0.07	<0.01	<0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW103		15/06/2018	0382_QC202_180615	Interlab_D	NSW_0382_PFAS	<0.01	*0.16*	<0.02	0.23	<0.02	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		30/09/2020	0382_QC201_200930	Interlab_D	NSW_0382_PFASOMP_20	0.019	0.1	<0.01	0.1	<0.01	<0.01	0.022	<0.01	<0.05	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	0.11	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW103		30/09/2020	0382_SW103_200930	Normal	NSW_0382_PFASOMP_20	0.02	*0.15*	<0.02	0.18	<0.02	<0.02	0.03	<0.02	<0.1	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.13	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		7/09/2021	0382_QC202_210907	Interlab_D	NSW_0382_PFASOMP_20	0.02	*0.15*	<0.01	0.21	0.02	<0.01	0.07	<0.02	<0.02	<0.02	0.03	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	0.04	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW103		24/03/2021	0382_SW103_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		7/09/2021	0382_SW103_210907	Normal	NSW_0382_PFASOMP_20	0.01	*0.15*	<0.02	0.21	0.05	<0.02	0.06	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104		15/06/2018	0382_SW104_180615	Normal	NSW_0382_PFAS	<0.05	*0.15*	<0.05	0.22	<0.01	<0.01	0.07	<0.01	<0.05	<0.01	0.01	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW104		30/09/2020	0382_SW104_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.08	<0.02	0.1	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.15	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104		24/03/2021	0382_SW104_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104		7/09/2021	0382_SW104_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.07	<0.02	0.1	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105		15/06/2018	0382_SW105_180615	Normal	NSW_0382_PFAS	<0.05	*0.51*	<0.05	0.64	0.01	<0.01	0.13	<0.01	<0.05	0.02	0.03	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW105		30/09/2020	0382_SW105_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.13	<0.02	0.16	<0.02	<0.02	0.03	<0.02	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.23	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105		24/03/2021	0382_SW105_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105		7/09/2021	0382_SW105_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.12	<0.02	0.16	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		30/09/2020	0382_SW111_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.1	<0.02	0.15	<0.02	<0.02	0.05	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		3/12/2020	0382_QC201_201203	Interlab_D	NSW_0382_PFASOMP_20	0.018	0.084	<0.01	0.084	<0.01	<0.01	0.05	<0.01	<0.05	<0.02	0.022	0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW111		3/12/2020	0382_SW111_201203	Normal	NSW_0382_PFASOMP_20	0.02	0.07	<0.02	0.12	<0.02	<0.02	0.05	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		3/12/2020	0382_QC101_201203	Field_D	NSW_0382_PFASOMP_20	0.02	0.08	<0.02	0.13	<0.02	<0.02	0.05	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		25/03/2021	0382_SW111_210325	Normal	NSW_0382_PFASOMP_20	0.06	*1.42*	0.04	**2.45**	0.09	0.08	1.03	<0.02	<0.1	0.13	0.35	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		7/06/2021	0382_SW111_210607	Normal	NSW_0382_PFASOMP_20	0.07	*1.93*	0.04	**2.83**	0.06	0.08	0.9	<0.02	<0.1	0.05	0.2	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		7/09/2021	0382_SW111_210907	Normal	NSW_0382_PFASOMP_20	0.04	*1.01*	0.03	1.74	0.05	0.06	0.73	<0.02	<0.1	0.04	0.2	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		6/12/2021	0382_SW111_211206	Normal	NSW_0382_PFASOMP_20	0.01	0.06	<0.02	0.09	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Notes:

LOR	Limit of Reporting
Normal	Primary sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
Bold	Denotes exceedence of adoped human health screening criteria
Italics	Denotes exceedence of adopted ecological screening criteria

Appendix C

Calibration Certificates

Calibration & Service Report
Interface Probe

Company:	Active Environmental Solutions Hire	**Manufacturer:**	Solinst	**Serial #:**	484113
Address:	Unit 16, 191 Parramatta Road AUBURN NSW 2144	**Instrument/Model:**	122 Interface Probe 30m	**Tape Length:**	30m
Phone:	02 9716 5966 | **Fax**: 02 9716 5988	**Client Company:**		**Client Email:**	
Email:	hire@aesoultions.com.au	**Client Name:**		**Client Phone:**	

Equipment Check

Oil/Water Interface Meter - Solinst 122 Interface Meter

Customer:		**Manufacturer:**	Solinst Interface Meter
Contact:	[redacted]	**Instrument:**	Model 122
Order:		**Serial #:**	484113
		Tape length:	30m

Item	Test	Pass	Comments
Battery	Voltage (2 x 9v battery)	✓	Voltage above 7.9v
	Fuses	✓	
	Capacity	✓	
Probe	Decontaminated	✓	
	Condition	✓	
	Operation	✓	
Connectors	Condition	✓	
Tape Check	Condition	✓	Good, no tears
	Decontaminated	✓	
Instrument Test	At surface level	✓	Tested: Petrol – Water
Speaker	Operation	✓	

Comments

New unit.

This is to certify that the above instrument has been checked and is in good working order.

Checked By: [redacted]

Check Date: 30/11/2021 Due for Check: 30/05/2022

Calibration & Service Report
Water Quality Meter

Company:	Active Environmental Solutions Hire	**Manufacturer:**	YSI	**Serial #:**	15K100321
Address:	Unit 16, 191 Parramatta Road AUBURN NSW 2144	**Instrument/Model:**	WQM Professional Plus w/ Quatro Cable	**Cable Length:**	1m
Phone:	02 9716 5966 | **Fax**: 02 9716 5988	**Client Company:**		**Client Email:**	
Email:	hire@aesoultions.com.au	**Client Name:**		**Client Phone:**	

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	Voltage reading above 2.9V
	Battery Saver	✓	Automatically turns off after 60 minutes if not used
Connections	Condition	✓	Good, clean
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	4.0.0
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	New probe fitted
pH millivolts for pH7 calibration range 0 mV ± 50 mV		✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	
pH slope		✓	55 to 60 mV/pH; ideal 59mV
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	New probe fitted
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	Variance range ± 20mV
Conductivity			
Condition		✓	Good, Clean.
Temperature		✓	°C
Conductivity cell constant 5.0 ± 1.0 in GLP file		✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	New probe fitted
DO sensor in use		✓	Polarographic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

Instrument Readings

Parameter	Standards	Reference	Calibration Point	Before	After	Units
Temperature	Center 370 Thermometer	Room Temp.	23.0	N/A	22.6	°C
pH	pH 4.00	363894	4.01	3.97	4.01	pH
pH	pH 7.00	363895	7.00	6.97	7.00	pH
Conductivity	2760 µs/cm at 25°C	362912	2760	2769	2760	µs/cm
ORP (Ref. check only)	Zobell A & B	358011 & 363903	234.9	236.0	234.9	mV
Zero Dissolved Oxygen	NaSO3 in distilled water	372164; V070819	0.0	-2.0	0.0	%
100% Dissolved Oxygen	100% Air Saturation	Fresh Air	100.0	98.8	100.0	%

Calibrated By: [redacted]

Calibration Date: 02/12/2021 **Calibration Due:** 02/06/2022

Appendix D

Analytical Data Validation

DATA VALIDATION REPORT

Project number:	60612562	Validation by:	[redacted]	Date:	20/01/2022
Client:	Department of Defence	Data verified by:	[redacted]	Date:	20/01/2022
Site:	Holsworthy Barracks				
Matrix type:	Surface Water and Groundwater				
Primary samples:	11 Groundwater samples 3 Surface water samples				
Laboratory:	Primary: ALS Secondary: Envirolab	Project Manager:	[redacted]		
Lab reference:	ES2144340 and 284721				

Key Issues:	No significant issues were identified that have the potential to impact upon the reliability of the data. AECOM considers that the field and laboratory QA/QC procedures were appropriate for the purposes of the investigation.

Field Quality Assurance and Quality Control

Field DQOs and DQIs	The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2021).
Sampling personnel	Sampling was conducted by B[redacted]on 06/12/2021. Field personnel were all suitably qualified and experienced AECOM Environmental Scientists.
Sampling Methodology	Surface water samples were collected from directly beneath the surface to limit the infiltration of sediments into samples. The majority of groundwater samples were collected from monitoring wells using no-purge methodology (HydraSleeves™), which were installed during the previous sampling event in September 2021, at depths based on screen intervals. At location MW133, the HydraSleeve™ failed to deploy due to low volume of water in the well, therefore a dedicated disposable bailer was used to collect a grab sample from this location. Once sampling was completed at each location, a new HydraSleeve™ was deployed at the screened interval depth in preparation for the next sampling round. Following sampling at each location, the water quality meter and interface probe were decontaminated using Liquinox and nitrile gloves were disposed of, with a new pair used for each sampling location.
Chain of Custody (COC)	All samples taken were reported on the Chain of Custody documents (COC) and subsequent email amendments and analysed for requested analytes.
Rinsate Blank	Rinsate blanks were collected from the final rinse of the decontaminated interface probe (IP) at a rate of one rinsate blank per day.
Frequency of field QC	Field duplicate (intra-laboratory duplicate) and triplicates (inter-laboratory duplicates) were to be collected at a frequency of one in ten primary samples. In total, two field intra-laboratory duplicates, and two inter-laboratory duplicates were analysed for surface water and groundwater (two for each matrix / duplicate type), meeting the DQI.
Handling and preservation	All samples were received at the primary laboratory in appropriate containers and within the recommended temperature range, at 0.2°C. All samples were received at the secondary laboratory in appropriate containers and within the recommended temperature range, at 4.0 °C.
Calibration of equipment	Measurements of water geochemical parameters were undertaken using the YSI WQM Professional Plus, which was calibrated by the supplier prior to use, in accordance with manufacturer's instructions and daily by the field personnel. All calibration and service certificates are presented in Appendix C.

DATA VALIDATION REPORT

Laboratory QA/QC	
Laboratory DQOs and DQIs	The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2021).
Tests requested/reported	All surface water and groundwater samples were analysed for the PFAS extended suite. Re-extraction was requested to confirm analytical results where first-time detections and/or first-time exceedances were observed. All sample requests of analysis are reported on the Chain of Custody (COC) and subsequent emails.
Holding time compliance	All samples were extracted and analysed by the laboratory within the recommended holding times.
Laboratory	The primary laboratory analysis was conducted by ALS Environmental Pty Ltd (Sydney) a National Association of Testing Authorities (NATA) accredited laboratory (Accreditation No. 825). The secondary samples were analysed at Envirolab Services, also a NATA accredited laboratory (accreditation number 2901).
Frequency of laboratory QC	Both laboratories reported a sufficient frequency of quality control samples to assess whether the results have been reported to an acceptable accuracy and precision with the exception of: Laboratory Duplicates • PFAS by LCMSMS: Actual Rate (%) 0.00, Expected Rate (%) 10.00 Matrix Spikes • PFAS by LCMSMS: Actual Rate (%) 0.00, Expected Rate (%) 5.00 The precision of the data can be assessed as acceptable based on the intra-laboratory duplicate RPDs which were reported at the required frequencies and within control limits. The accuracy of the data can be assessed as acceptable based on method blanks, laboratory control spike and surrogate spike recoveries, which were reported at the required frequencies and within control limits.
Method Blank	All method blank concentrations were reported <LOR for the analytes tested. This is presented in the Quality Control Reports for both laboratories.
Laboratory duplicate RPDs	No laboratory duplicate's Relative Percentage Differences (RPDs) were reported.
LCS recovery	Laboratory control spike (LCS) recoveries were within control limits. This is presented in the Quality Control Reports for both laboratories.
Matrix spike recovery	No matrix spike (MS) recoveries were reported.
Surrogate spike recovery	The reported surrogate spike recoveries were within laboratory control limits. This is presented in the Quality Control Reports for both laboratories.
Other	Following the reporting of PFAS concentrations which were at historical maximums or represented a first-time detection or first-time exceedance of adopted criteria, the primary laboratory was requested to repeat the analysis on the samples collected at MW130 and MW133. The repeat analysis confirmed the original results.
QA/QC Data Evaluation	
Comparison of Field Observations and Laboratory Results	No anomalies between field observations and analytical results were noted.

DATA VALIDATION REPORT	
Data transcription	A check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by AECOM.
Limits of reporting	Limit of Reporting (LORs) were sufficiently low to enable assessment against adopted screening levels.
Rinsate Blank sample results	The concentrations of PFAS in the Rinsate blank samples were below the limit of reporting (LOR), indicating decontamination procedures were adequate
Intra-laboratory duplicate RPDs	Field duplicate RPDs were reported within acceptable limits (≤30%, or ≤50% for results 10-20 x LOR, or No Limit for results <10 x LOR).
Inter-laboratory duplicate RPDs	Field triplicate RPDs were reported within acceptable limits (≤30%, or ≤50% for results 10-20 x LOR, or No Limit for results <10 x LOR) with the following exception: • SW059 / QC201: Sum of PFHxS and PFOS (167%) • SW059 / QC201: Sum of PFAS (171%) The elevated inter-laboratory duplicate RPDs, together with intra-laboratory duplicate RPDs that are within control limits, indicate a potential discrepancy between the primary and secondary laboratory procedures. Regardless, as the relevant concentrations of Sum of PFHxS and PFOS are well below the adopted guidelines and the Sum of PFAS has no applicable guidelines, the elevated RPDs are not expected to affect interpretation of the results.
Overall Assessment	
	Data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported analytical results are representative of the sample locations and that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report.

Attached:

Table D1 – Water RPDs
Table D2 - Rinsate Blank Results

Table D1 Water RPDs

AECOM

			Lab Report Number	ES2144340	ES2144340		ES2144340	ES2144340		ES2144340	284721		ES2144340	284721	
			Field ID	0382_MW113_211206	0382_QC100_211206	RPD	0382_SW001_211206	0382_QC101_211206	RPD	0382_MW131_211206	0382_QC200_211206	RPD	0382_SW059_211206	0382_QC201_211206	RPD
			Sampled Date/Time	6/12/2021 9:49	6/12/2021 9:49		6/12/2021 11:43	6/12/2021 11:43		6/12/2021 10:36	6/12/2021 10:36		6/12/2021 12:34	6/12/2021 12:34	
Chem_Group	**ChemName**	**Units**	**LOR**												
Per- and Poly-fluoroalkyl Substances	Perfluorooctanoic Acid (PFOA)	µg/L	0.01	15.2	14.6	4	0.05	0.04	22	<0.01	<0.01	nc	<0.01	<0.01	nc
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	183	182	1	0.76	0.72	5	0.03	0.02	40	<0.01	0.07	nc
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	266	262	2	0.5	0.49	2	0.01	<0.01	nc	<0.01	0.04	nc
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.01	nc	<0.05	<0.01	nc
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	1.16	1.15	1	<0.05	<0.05	nc	<0.05	<0.01	nc	<0.05	<0.01	nc
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.02	nc	<0.05	<0.02	nc
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.02	nc	<0.05	<0.02	nc
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.04	<0.04	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02 : 0.1 (Interlab)	<0.04	<0.04	nc	<0.02	<0.02	nc	<0.02	<0.1	nc	<0.02	<0.1	nc
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.5 (Interlab)	<0.1	<0.1	nc	<0.05	<0.05	nc	<0.05	<0.5	nc	<0.05	<0.5	nc
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	46.6	45.1	3	0.04	0.04	0	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02	9.43	8.74	8	0.12	0.11	9	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	0.1	0.08	22	<0.02	<0.02	nc	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	58.9	58.4	1	0.22	0.22	0	<0.02	<0.01	nc	<0.02	0.02	nc
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	20.4	20	2	0.02	0.02	0	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	7.81	7.42	5	0.03	0.03	0	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluorodecane sulfonic acid (PFDS)	µg/L	0.02	0.08	0.09	12	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.05 (Interlab)	<0.04	<0.04	nc	<0.02	<0.02	nc	<0.02	<0.05	nc	<0.02	<0.05	nc
	Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.04	<0.04	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	43	39.8	8	0.06	0.05	18	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.02 (Interlab)	4.5	4.7	4	<0.1	<0.1	nc	<0.1	<0.02	nc	<0.1	<0.02	nc
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.1	<0.1	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05 : 0.5 (Interlab)	<0.1	<0.1	nc	<0.05	<0.05	nc	<0.05	<0.5	nc	<0.05	<0.5	nc
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.1 (Interlab)	<0.1	<0.1	nc	<0.05	<0.05	nc	<0.05	<0.1	nc	<0.05	<0.1	nc
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.1	<0.1	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02	<0.04	<0.04	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.1 (Interlab)	<0.04	<0.04	nc	<0.02	<0.02	nc	<0.02	<0.1	nc	<0.02	<0.1	nc
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.04	<0.04	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Sum of PFHxS and PFOS	µg/L	0.01	449	444	1	1.26	1.21	4	0.04	0.02	67	<0.01	0.11	nc
	Sum of PFAS	µg/L	0.01	656	644	2	1.8	1.72	5	0.04	0.02	67	<0.01	0.13	nc
	Sum of PFAS (WA DER List)	µg/L	0.01	589	579	2	1.74	1.66	5						

*RPDs have only been considered where a concentration is greater than 1 times the LOR.
nc = not calculable, given that one or both of the duplicate pair are <LOR'
**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are:
200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***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

Table D2 Rinsate Blank Results

Lab Report Number	ES2144340
Field ID	0382_QC300_211206
Sampled_Date/Time	6/12/2021 12:41
Sample Type	Rinsate

Chem_Group	ChemName	Units	EQL	
Per- and Poly-fluoroalkyl Substances	Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05
	6:2 Fluorotelomer sulfonic acid (6:2 FTS) 0	µg/L	0.05	<0.05
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	<0.05
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.05
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	<0.02
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02
	Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02
	Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	<0.02
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02
	Perfluorodecane sulfonic acid (PFDS)	µg/L	0.02	<0.02
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02
	Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<0.02
	Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05
	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.02
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02
	Sum of PFHxS and PFOS	µg/L	0.01	<0.01
	Sum of PFAS	µg/L	0.01	<0.01
	Sum of PFAS (WA DER List)	µg/L	0.01	<0.01

Appendix E

Laboratory Certificates

CHAIN OF CUSTODY

(ALS) COC#: **31186** *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 06/12/21 17:00	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No (N/A)

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

Random Sample Temperature on Receipt: 0.2 °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0382_MW113_211206		06/12/2021 09:49 AM	Water	ALS: 3 Non ALS: 0	No	X		
002	0382_QC100_211206		06/12/2021 02:00 PM	Water	ALS: 3 Non ALS: 0	No	X		
003	0382_MW130_211206		06/12/2021 10:09 AM	Water	ALS: 3 Non ALS: 0	No	X		
004	0382_MW133_211206		06/12/2021 10:28 AM	Water	ALS: 3 Non ALS: 0	No	X		
005	0382_MW131_211206		06/12/2021 10:36 AM	Water	ALS: 3 Non ALS: 0	No	X		
006	0382_MW136_211206		06/12/2021 10:52 AM	Water	ALS: 3 Non ALS: 0	No	X		
007	0382_MW115_211206		06/12/2021 09:39 AM	Water	ALS: 3 Non ALS: 0	No	X		
008	0382_MW129_211206		06/12/2021 12:18 PM	Water	ALS: 3 Non ALS: 0	No	X		
009	0382_QC300_211206		06/12/2021 12:41 PM	Water	ALS: 3 Non ALS: 0	No	X		

Environmental Division
Sydney

Work Order Reference

ES2144340

Telephone : +61-2-8784 8555

CHAIN OF CUSTODY

(ALS) COC#: **31186** *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 06/12/21 17:50	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: 2 °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0382_SW059_211206		06/12/2021 12:34 PM	Water	ALS: 3 Non ALS: 0	No	X		
011	0382_MW119P_211206		06/12/2021 11:56 AM	Water	ALS: 3 Non ALS: 0	No	X		
012	0382_SW111_211206		06/12/2021 12:14 PM	Water	ALS: 3 Non ALS: 0	No	X		
013	0382_MW112P_211206		06/12/2021 11:32 AM	Water	ALS: 3 Non ALS: 0	No	X		
014	0382_QC101_211206		06/12/2021 03:28 PM	Water	ALS: 3 Non ALS: 0	No	X		
015	0382_SW001_211206		06/12/2021 11:43 AM	Water	ALS: 3 Non ALS: 0	No	X		
016	0382_MW119_211206		06/12/2021 12:04 PM	Water	ALS: 3 Non ALS: 0	No	X		
017	0382_MW112_211206		06/12/2021 11:15 AM	Water	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: **31186** *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 06/12/21 1700	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: 0.2 °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0382_MW113_211206	HDPE (no PTFE)	20 mL	00350621032019	Grey	No	
001	0382_MW113_211206	HDPE (no PTFE)	20 mL	00350621032025	Grey	No	
001	0382_MW113_211206	HDPE (no PTFE)	20 mL	00350621031997	Grey	No	
002	0382_QC100_211206	HDPE (no PTFE)	20 mL	00350621031617	Grey	No	
002	0382_QC100_211206	HDPE (no PTFE)	20 mL	00350621032017	Grey	No	
002	0382_QC100_211206	HDPE (no PTFE)	20 mL	00350621032018	Grey	No	
003	0382_MW130_211206	HDPE (no PTFE)	20 mL	00350621031731	Grey	No	
003	0382_MW130_211206	HDPE (no PTFE)	20 mL	00350621031679	Grey	No	
003	0382_MW130_211206	HDPE (no PTFE)	20 mL	00350621031559	Grey	No	
004	0382_MW133_211206	HDPE (no PTFE)	20 mL	00350621031843	Grey	No	
004	0382_MW133_211206	HDPE (no PTFE)	20 mL	00350621031838	Grey	No	
004	0382_MW133_211206	HDPE (no PTFE)	20 mL	00350621032022	Grey	No	
005	0382_MW131_211206	HDPE (no PTFE)	20 mL	00350621031609	Grey	No	
005	0382_MW131_211206	HDPE (no PTFE)	20 mL	00350621031676	Grey	No	
005	0382_MW131_211206	HDPE (no PTFE)	20 mL	00350621031545	Grey	No	
006	0382_MW136_211206	HDPE (no PTFE)	20 mL	00350621031833	Grey	No	
006	0382_MW136_211206	HDPE (no PTFE)	20 mL	00350621031638	Grey	No	
006	0382_MW136_211206	HDPE (no PTFE)	20 mL	00350621031901	Grey	No	
007	0382_MW115_211206	HDPE (no PTFE)	20 mL	00350621031911	Grey	No	
007	0382_MW115_211206	HDPE (no PTFE)	20 mL	00350621031721	Grey	No	
007	0382_MW115_211206	HDPE (no PTFE)	20 mL	00350621031912	Grey	No	
008	0382_MW129_211206	HDPE (no PTFE)	20 mL	00352101053847	Grey	No	
008	0382_MW129_211206	HDPE (no PTFE)	20 mL	00352101080572	Grey	No	
008	0382_MW129_211206	HDPE (no PTFE)	20 mL	00352101054017	Grey	No	
009	0382_QC300_211206	HDPE (no PTFE)	20 mL	00352101080359	Grey	No	
009	0382_QC300_211206	HDPE (no PTFE)	20 mL	00352101080634	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: 31186 *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 06/12/21 1700	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: 0-2 °C

Other comments:

009	0382_QC300_211206	HDPE (no PTFE)	20 mL	00352101054009	Grey	No	
010	0382_SW059_211206	HDPE (no PTFE)	20 mL	00352101054339	Grey	No	
010	0382_SW059_211206	HDPE (no PTFE)	20 mL	00352101054387	Grey	No	
010	0382_SW059_211206	HDPE (no PTFE)	20 mL	00352101053880	Grey	No	
011	0382_MW119P_211206	HDPE (no PTFE)	20 mL	00350621031841	Grey	No	
011	0382_MW119P_211206	HDPE (no PTFE)	20 mL	00350621031909	Grey	No	
011	0382_MW119P_211206	HDPE (no PTFE)	20 mL	00350621031998	Grey	No	
012	0382_SW111_211206	HDPE (no PTFE)	20 mL	00352101054258	Grey	No	
012	0382_SW111_211206	HDPE (no PTFE)	20 mL	00352101054185	Grey	No	
012	0382_SW111_211206	HDPE (no PTFE)	20 mL	00352101054246	Grey	No	
013	0382_MW112P_211206	HDPE (no PTFE)	20 mL	00350621031980	Grey	No	
013	0382_MW112P_211206	HDPE (no PTFE)	20 mL	00350621031716	Grey	No	
013	0382_MW112P_211206	HDPE (no PTFE)	20 mL	00350621031583	Grey	No	
014	0382_QC101_211206	HDPE (no PTFE)	20 mL	00350621032093	Grey	No	
014	0382_QC101_211206	HDPE (no PTFE)	20 mL	00350621031916	Grey	No	
014	0382_QC101_211206	HDPE (no PTFE)	20 mL	00350621031869	Grey	No	
015	0382_SW001_211206	HDPE (no PTFE)	20 mL	00350621031868	Grey	No	
015	0382_SW001_211206	HDPE (no PTFE)	20 mL	00350621032021	Grey	No	
015	0382_SW001_211206	HDPE (no PTFE)	20 mL	00350621032011	Grey	No	
016	0382_MW119_211206	HDPE (no PTFE)	20 mL	00350621032086	Grey	No	
016	0382_MW119_211206	HDPE (no PTFE)	20 mL	00350621031966	Grey	No	
016	0382_MW119_211206	HDPE (no PTFE)	20 mL	00350621032020	Grey	No	
017	0382_MW112_211206	HDPE (no PTFE)	20 mL	00350621031844	Grey	No	
017	0382_MW112_211206	HDPE (no PTFE)	20 mL	00350621032016	Grey	No	
017	0382_MW112_211206	HDPE (no PTFE)	20 mL	00350621031910	Grey	No	

Total Bottle Count: ALS: 51, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2144340**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: NSW_0382_PFASOMP_20	Page	: 1 of 3
Order number	: 60612562_6.1	Quote number	: ES2021AECOMAU0028 (SY/139/19 v4 60612562_6.1)
C-O-C number	: 31186	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Holsworthy		
Sampler	: [redacted]		

Dates

Date Samples Received	: 06-Dec-2021 17:00	Issue Date	: 08-Dec-2021
Client Requested Due Date	: 13-Dec-2021	Scheduled Reporting Date	: **13-Dec-2021**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 0.2'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 17 / 17

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2144340-001	06-Dec-2021 09:49	0382_MW113_211206	✓
ES2144340-002	06-Dec-2021 09:49	0382_QC100_211206	✓
ES2144340-003	06-Dec-2021 10:09	0382_MW130_211206	✓
ES2144340-004	06-Dec-2021 10:28	0382_MW133_211206	✓
ES2144340-005	06-Dec-2021 10:36	0382_MW131_211206	✓
ES2144340-006	06-Dec-2021 10:52	0382_MW136_211206	✓
ES2144340-007	06-Dec-2021 09:39	0382_MW115_211206	✓
ES2144340-008	06-Dec-2021 12:18	0382_MW129_211206	✓
ES2144340-009	06-Dec-2021 12:41	0382_QC300_211206	✓
ES2144340-010	06-Dec-2021 12:34	0382_SW059_211206	✓
ES2144340-011	06-Dec-2021 11:56	0382_MW119P_211206	✓
ES2144340-012	06-Dec-2021 12:14	0382_SW111_211206	✓
ES2144340-013	06-Dec-2021 11:32	0382_MW112P_211206	✓
ES2144340-014	06-Dec-2021 11:43	0382_QC101_211206	✓
ES2144340-015	06-Dec-2021 11:43	0382_SW001_211206	✓
ES2144340-016	06-Dec-2021 12:04	0382_MW119_211206	✓
ES2144340-017	06-Dec-2021 11:15	0382_MW112_211206	✓

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT)	Email	derp.labreports@esdat.com.au

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- EDI Format - XTab (XTAB)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2144340**	Page	: 1 of 13
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Contact	: Christopher Redford
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 06-Dec-2021 17:00
Order number	: 60612562_6.1	Date Analysis Commenced	: 07-Dec-2021
C-O-C number	: 31186	Issue Date	: 14-Dec-2021 10:13
Sampler	[redacted]		
Site	: Holsworthy		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 17		
No. of samples analysed	: 17		

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*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 Contact 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 - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: PFAS results for sample #3, #5, #8 confirmed by re-extraction and re-analysis.
- EP231X: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW113_211206	0382_QC100_211206	0382_MW130_211206	0382_MW133_211206	0382_MW131_211206
				Sampling date / time	06-Dec-2021 09:49	06-Dec-2021 09:49	06-Dec-2021 10:09	06-Dec-2021 10:28	06-Dec-2021 10:36
					ES2144340-001	ES2144340-002	ES2144340-003	ES2144340-004	ES2144340-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**43.0**	**39.8**	<0.02	**1.15**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**46.6**	**45.1**	<0.02	**0.97**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**266**	**262**	**0.07**	**22.0**	**0.01**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**20.4**	**20.0**	<0.02	**6.37**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**183**	**182**	**0.11**	**168**	**0.03**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		**0.08**	**0.09**	<0.02	<0.04	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**4.5**	**4.7**	<0.1	**1.0**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**9.43**	**8.74**	<0.02	**0.92**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**58.9**	**58.4**	<0.02	**4.82**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**7.81**	**7.42**	<0.02	**0.36**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**15.2**	**14.6**	<0.01	**2.88**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.10**	**0.08**	<0.02	<0.04	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.04	<0.04	<0.02	<0.04	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.04	<0.04	<0.02	<0.04	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.04	<0.04	<0.02	<0.04	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.04	<0.04	<0.02	<0.04	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.10	<0.10	<0.05	<0.10	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.04	<0.04	<0.02	<0.04	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.10	<0.10	<0.05	<0.10	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.10	<0.10	<0.05	<0.10	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW113_211206	0382_QC100_211206	0382_MW130_211206	0382_MW133_211206	0382_MW131_211206
				Sampling date / time	06-Dec-2021 09:49	06-Dec-2021 09:49	06-Dec-2021 10:09	06-Dec-2021 10:28	06-Dec-2021 10:36
Compound	CAS Number	LOR	Unit		ES2144340-001	ES2144340-002	ES2144340-003	ES2144340-004	ES2144340-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.10	<0.10	<0.05	<0.10	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.10	<0.10	<0.05	<0.10	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.04	<0.04	<0.02	<0.04	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.04	<0.04	<0.02	<0.04	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**1.16**	**1.15**	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**656**	**644**	**0.18**	**208**	**0.04**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**449**	**444**	**0.18**	**190**	**0.04**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**589**	**579**	**0.18**	**201**	**0.04**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**87.0**	**97.0**	**89.7**	**86.0**	**89.7**
13C8-PFOA	----	0.02	%		**90.0**	**94.0**	**88.4**	**88.0**	**89.1**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW136_211206	0382_MW115_211206	0382_MW129_211206	0382_MW119P_211206	0382_MW112P_211206
				Sampling date / time	06-Dec-2021 10:52	06-Dec-2021 09:39	06-Dec-2021 12:18	06-Dec-2021 11:56	06-Dec-2021 11:32
					ES2144340-006	ES2144340-007	ES2144340-008	ES2144340-011	ES2144340-013
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.06**	**15.9**	<0.02	**9.30**	**0.18**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.03**	**18.2**	<0.02	**15.4**	**0.24**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.08**	**133**	**0.01**	**130**	**3.90**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	**10.8**	<0.02	**7.23**	**0.23**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.05**	**210**	**0.02**	**52.5**	**20.8**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.04	<0.02	<0.04	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	**3.2**	<0.1	**1.0**	**0.2**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**5.08**	<0.02	**2.60**	**0.20**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.02**	**32.8**	<0.02	**22.6**	**1.17**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**4.61**	<0.02	**3.18**	**0.08**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**10.4**	<0.01	**6.06**	**0.19**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	**0.12**	<0.02	<0.04	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.04	<0.02	<0.04	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.04	<0.02	<0.04	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.04	<0.02	<0.04	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.04	<0.02	<0.04	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.10	<0.05	<0.10	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.04	<0.02	<0.04	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.10	<0.05	<0.10	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.10	<0.05	<0.10	<0.05

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW136_211206	0382_MW115_211206	0382_MW129_211206	0382_MW119P_211206	0382_MW112P_211206
				Sampling date / time	06-Dec-2021 10:52	06-Dec-2021 09:39	06-Dec-2021 12:18	06-Dec-2021 11:56	06-Dec-2021 11:32
					ES2144340-006	ES2144340-007	ES2144340-008	ES2144340-011	ES2144340-013
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.10	<0.05	<0.10	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.10	<0.05	<0.10	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.04	<0.02	<0.04	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.04	<0.02	<0.04	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	**0.60**	<0.05	**0.44**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.24**	**445**	**0.03**	**250**	**27.2**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.13**	**343**	**0.03**	**182**	**24.7**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.21**	**416**	**0.03**	**228**	**26.7**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**85.9**	**97.0**	**86.8**	**95.0**	**89.1**
13C8-PFOA	----	0.02	%		**85.1**	**84.0**	**87.3**	**82.0**	**89.9**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_SW001_211206	0382_MW119_211206	0382_MW112_211206	----	----
				Sampling date / time	06-Dec-2021 11:43	06-Dec-2021 12:04	06-Dec-2021 11:15	----	----
Compound	CAS Number	LOR	Unit		ES2144340-015	ES2144340-016	ES2144340-017	--------	--------
					Result	Result	Result	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.06**	**1.07**	**5.31**	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.04**	**0.89**	**5.51**	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.50**	**5.36**	**46.8**	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.02**	**0.25**	**3.65**	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.76**	**7.43**	**34.9**	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	**0.4**	**0.9**	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.12**	**0.46**	**1.26**	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.22**	**2.40**	**9.28**	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.03**	**0.21**	**1.32**	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.05**	**0.39**	**2.43**	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_SW001_211206	0382_MW119_211206	0382_MW112_211206	----	----
				Sampling date / time	06-Dec-2021 11:43	06-Dec-2021 12:04	06-Dec-2021 11:15	----	----
Compound	CAS Number	LOR	Unit		ES2144340-015	ES2144340-016	ES2144340-017	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.80**	**18.9**	**111**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.26**	**12.8**	**81.7**	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.74**	**17.7**	**102**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.6**	**92.4**	**80.3**	----	----
13C8-PFOA	----	0.02	%		**84.8**	**88.7**	**85.3**	----	----

Analytical Results

Sub-Matrix: **RINSATE** (Matrix: **WATER**)				Sample ID	0382_QC300_211206	----	----	----	----
				Sampling date / time	06-Dec-2021 12:41	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2144340-009	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0382_QC300_211206	----	----	----	----
				Sampling date / time	06-Dec-2021 12:41	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2144340-009	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**93.1**	----	----	----	----
13C8-PFOA	----	0.02	%		**88.5**	----	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW059_211206	0382_SW111_211206	0382_QC101_211206	----	----
				Sampling date / time	06-Dec-2021 12:34	06-Dec-2021 12:14	06-Dec-2021 11:43	----	----
Compound	CAS Number	LOR	Unit		ES2144340-010	ES2144340-012	ES2144340-014	--------	--------
					Result	Result	Result	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.05**	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.04**	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**0.03**	**0.49**	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.02**	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**0.06**	**0.72**	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	**0.11**	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	**0.02**	**0.22**	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.03**	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.01**	**0.04**	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW059_211206	0382_SW111_211206	0382_QC101_211206	----	----
				Sampling date / time	06-Dec-2021 12:34	06-Dec-2021 12:14	06-Dec-2021 11:43	----	----
Compound	CAS Number	LOR	Unit		ES2144340-010	ES2144340-012	ES2144340-014	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	**0.12**	**1.72**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.09**	**1.21**	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.12**	**1.66**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.6**	**90.9**	**91.4**	----	----
13C8-PFOA	----	0.02	%		**89.4**	**90.3**	**86.9**	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **RINSATE**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **SURFACE WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2144340**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 06-Dec-2021
Order number	: 60612562_6.1	Date Analysis Commenced	: 07-Dec-2021
C-O-C number	: 31186	Issue Date	: 14-Dec-2021
Sampler	: [redacted]		
Site	: Holsworthy		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 17		
No. of samples analysed	: 17		

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*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4065831)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	98.8	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	96.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	96.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	80.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4065831)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	109	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	106	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	111	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	110	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	106	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	90.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	112	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4065831)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	102	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	115	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	102	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	106	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	116	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	111	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4065831)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	105	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	109	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	102	67.0	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4065831) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	92.8	71.4	144

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2144340**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 06-Dec-2021
Site	: Holsworthy	Issue Date	: 14-Dec-2021
Sampler	: [redacted]	No. of samples received	: 17
Order number	: 60612562_6.1	No. of samples analysed	: 17

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	20	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	20	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0382_MW113_211206, 0382_QC100_211206, 0382_MW130_211206, 0382_MW133_211206, 0382_MW131_211206, 0382_MW136_211206, 0382_MW115_211206, 0382_MW129_211206, 0382_QC300_211206, 0382_SW059_211206, 0382_MW119P_211206, 0382_SW111_211206, 0382_MW112P_211206, 0382_QC101_211206, 0382_SW001_211206, 0382_MW119_211206, 0382_MW112_211206	**06-Dec-2021**	**09-Dec-2021**	04-Jun-2022	✓	**10-Dec-2021**	04-Jun-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0382_MW113_211206, 0382_QC100_211206, 0382_MW130_211206, 0382_MW133_211206, 0382_MW131_211206, 0382_MW136_211206, 0382_MW115_211206, 0382_MW129_211206, 0382_QC300_211206, 0382_SW059_211206, 0382_MW119P_211206, 0382_SW111_211206, 0382_MW112P_211206, 0382_QC101_211206, 0382_SW001_211206, 0382_MW119_211206, 0382_MW112_211206	**06-Dec-2021**	**09-Dec-2021**	04-Jun-2022	✓	**10-Dec-2021**	04-Jun-2022	✓

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
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0382_MW113_211206, 0382_MW130_211206, 0382_MW131_211206, 0382_MW115_211206, 0382_QC300_211206, 0382_MW119P_211206, 0382_MW112P_211206, 0382_SW001_211206, 0382_MW112_211206, 0382_QC100_211206, 0382_MW133_211206, 0382_MW136_211206, 0382_MW129_211206, 0382_SW059_211206, 0382_SW111_211206, 0382_QC101_211206, 0382_MW119_211206,	**06-Dec-2021**	**09-Dec-2021**	04-Jun-2022	✓	**10-Dec-2021**	04-Jun-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0382_MW113_211206, 0382_MW130_211206, 0382_MW131_211206, 0382_MW115_211206, 0382_QC300_211206, 0382_MW119P_211206, 0382_MW112P_211206, 0382_SW001_211206, 0382_MW112_211206, 0382_QC100_211206, 0382_MW133_211206, 0382_MW136_211206, 0382_MW129_211206, 0382_SW059_211206, 0382_SW111_211206, 0382_QC101_211206, 0382_MW119_211206,	**06-Dec-2021**	**09-Dec-2021**	04-Jun-2022	✓	**10-Dec-2021**	04-Jun-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0382_MW113_211206, 0382_MW130_211206, 0382_MW131_211206, 0382_MW115_211206, 0382_QC300_211206, 0382_MW119P_211206, 0382_MW112P_211206, 0382_SW001_211206, 0382_MW112_211206, 0382_QC100_211206, 0382_MW133_211206, 0382_MW136_211206, 0382_MW129_211206, 0382_SW059_211206, 0382_SW111_211206, 0382_QC101_211206, 0382_MW119_211206,	**06-Dec-2021**	**09-Dec-2021**	04-Jun-2022	✓	**10-Dec-2021**	04-Jun-2022	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	20	**0.00**	**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	0	20	**0.00**	**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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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 combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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.

AECOM

Chain of Custody

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney, NSW, 2000
PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 1000
F +61 2 8934 0001
[redacted]

Laboratory Details
Lab. Name: Envirolab
Lab. Address: 12 Ashley St, Chatswood
Contact Name:
Lab. Ref:
Tel: ~~8784 8555~~
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: ~~SY119419v2~~

Sampled By: [redacted]
Project Name: NSW_0382_PFASOMP
AECOM Project #: 60612562 - 6.1
Purchase Order No:

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr (5 days))	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

6. Report Format: ESdat
7. Project Manager:

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: sed	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: PFAS extended Suite	Analysis Request: HOLD	Notes
1	0382_QC200_211206	6/12/21		X				X		2 × bottles	X		
2	0382_QC201_211206	6/12/21		X				X		2 × bottles	X		

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 285721
Date Received: 7-12-21
Time Received: 11-00
Received By: [redacted]
Temp: Cool/Ambient
Cooling: Cellapack
Security: Broken/None

Comments: Please send ESdat files to DERP.labreports@esdat.com.au and ensure that the files use the PROJECT NAME
Temp. received: °C
Report & invoice: [redacted]
Lab Report No: Esky ID

Relinquished by: [redacted]	Signed:	Date: 6/12/21	Relinquished by:	Signed:	Date:
Received by:	Signed:	Date:	Received by: ELS	Signed: 7-12-21	Date: 11-00

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	[redacted]

Sample Login Details

Your reference	60612562-6.1, NSW_0382_PFASOMP
Envirolab Reference	284721
Date Sample Received	07/12/2021
Date Instructions Received	07/12/2021
Date Results Expected to be Reported	14/12/2021

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	2 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	4
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

[redacted]

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	PFAS in Waters Extended
0382_QC200_211206	✓
0382_QC201_211206	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 284721

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	[redacted]
Address	PO Box Q410, QVB Post Office, Sydney, NSW, 1230

Sample Details

Your Reference	**60612562-6.1, NSW_0382_PFASOMP**
Number of Samples	2 Water
Date samples received	07/12/2021
Date completed instructions received	07/12/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	14/12/2021
Date of Issue	08/12/2021

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
[redacted]

Authorised By
[redacted]

PFAS in Waters Extended			
Our Reference		284721-1	284721-2
Your Reference	UNITS	0382_QC200_211206	0382_QC201_211206
Date Sampled		6/12/2021	6/12/2021
Type of sample		Water	Water
Date prepared	-	07/12/2021	07/12/2021
Date analysed	-	07/12/2021	07/12/2021
Perfluorobutanesulfonic acid	µg/L	<0.01	<0.01
Perfluoropentanesulfonic acid	µg/L	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	0.04
Perfluoroheptanesulfonic acid	µg/L	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.02	0.07
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02
Perfluorobutanoic acid	µg/L	<0.02	<0.02
Perfluoropentanoic acid	µg/L	<0.02	<0.02
Perfluorohexanoic acid	µg/L	<0.01	0.02
Perfluoroheptanoic acid	µg/L	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01
Perfluorononanoic acid	µg/L	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02
10:2 FTS	µg/L	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	98	100
Surrogate $^{13}C_2$ *PFOA*	%	99	96
Extracted ISTD $^{13}C_3$ *PFBS*	%	101	107
Extracted ISTD $^{18}O_2$ *PFHxS*	%	100	102
Extracted ISTD $^{13}C_4$ *PFOS*	%	102	104

PFAS in Waters Extended			
Our Reference		284721-1	284721-2
Your Reference	UNITS	0382_QC200_211206	0382_QC201_211206
Date Sampled		6/12/2021	6/12/2021
Type of sample		Water	Water
Extracted ISTD $^{13}C_4$ *PFBA*	%	97	99
Extracted ISTD $^{13}C_3$ *PFPeA*	%	95	99
Extracted ISTD $^{13}C_2$ *PFHxA*	%	94	93
Extracted ISTD $^{13}C_4$ *PFHpA*	%	93	97
Extracted ISTD $^{13}C_4$ *PFOA*	%	103	110
Extracted ISTD $^{13}C_5$ *PFNA*	%	100	101
Extracted ISTD $^{13}C_2$ *PFDA*	%	102	103
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	106	105
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	77	78
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	91	87
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	83	93
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	109	116
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	105	103
Extracted ISTD $^{13}C_8$ *FOSA*	%	104	104
Extracted ISTD d_3 *N MeFOSA*	%	100	104
Extracted ISTD d_5 *N EtFOSA*	%	101	102
Extracted ISTD d_7 *N MeFOSE*	%	103	104
Extracted ISTD d_9 *N EtFOSE*	%	101	104
Extracted ISTD d_3 *N MeFOSAA*	%	106	109
Extracted ISTD d_5 *N EtFOSAA*	%	98	100
Total Positive PFHxS & PFOS	µg/L	0.02	0.11
Total Positive PFOA & PFOS	µg/L	0.02	0.07
Total Positive PFAS	µg/L	0.02	0.13

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.3 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			07/12/2021	[NT]	[NT]	[NT]	[NT]	07/12/2021	[NT]
Date analysed	-			07/12/2021	[NT]	[NT]	[NT]	[NT]	07/12/2021	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	116	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	66	[NT]
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	90	[NT]
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	109	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	111	[NT]
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	87	[NT]
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	121	[NT]
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	84	[NT]
4:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	118	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	95	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	105	[NT]
10:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	111	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	114	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	110	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	99	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	105	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	92	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	112	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	92	[NT]	[NT]	[NT]	[NT]	96	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	93	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	115	[NT]	[NT]	[NT]	[NT]	107	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	106	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	108	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	54	[NT]	[NT]	[NT]	[NT]	79	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	88	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	88	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	111	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	109	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	105	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	96	[NT]	[NT]	[NT]	[NT]	96	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Prepared for
Department of Defence
ABN: 68706814312

AECOM

Sampling Event Factual Report, March 2022

PFAS OMP - Holsworthy Barracks

24-Jun-2022

aecom.com

Delivering a better world

Sampling Event Factual Report, March 2022

PFAS OMP - Holsworthy Barracks

Client: Department of Defence

ABN: 68706814312

Prepared by

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Table of Contents

List of Tables (in Text)

List of Acronyms

Acronyms	Term
ADWG	Australian Drinking Water Guidelines
AECOM	AECOM Australia Pty Ltd
ASC NEPM	Assessment of Site Contamination National Environment Protection
CSM	Conceptual Site Model
DCMM	Defence Contamination Management Manual
Defence	Department of Defence
DO	Dissolved Oxygen
DoH	Department of Health
DQI	Data Quality Indicator
DQO	Data Quality Objective
DSI	Detailed Site Investigation
EC	Electrical conductivity
HEPA	Heads of Environment Protection Authority
LOR	Limit of Reporting
MW	Monitoring Well
NATA	National Analytical Testing Authority
NEMP	National Environmental Management Plan
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NSW	New South Wales
OMP	Ongoing Monitoring Plan
ORP	Oxidation Reduction Potential
PFAS	Per- and poly-fluoroalkyl substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PMAP	PFAS Management Area Plan
QA/QC	Quality Assurance and Quality Control
RPD	Relative Percentage Difference
SAQP	Sample and Analysis Quality Plan
SW	Surface Water
TDI	Tolerable Daily Intake
WQM	Water Quality Meter

Units	Term
mAHD	Metres Australian Height Datum

Units	Term
mbTOC	Metres below Top of Casing
µg/L	Micrograms per Litre
mg/L	Milligrams per Litre

1.0 Introduction

1.1 General

AECOM Australia Pty Ltd (AECOM) has been engaged by the Department of Defence (Defence) to implement the per- and poly-fluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP) at the Holsworthy Barracks (the 'Site') in the NSW and Jervis Bay Region. The location of the Site is shown in **Figure F1** (in **Appendix A**).

The OMP (Defence, 2020a) for the Site outlines the requirement to complete groundwater and/or surface water sampling at pre-determined intervals during the initial 3-year implementation period.

Following each sampling event, a sampling event factual report will be prepared. Annual interpretative reports will be prepared following the completion of each 12-month sampling period.

This Sampling Event Factual Report has been prepared to report the results of the OMP sampling event completed in March 2022, specifically highlighting first time detections and/or first-time exceedances of human health or ecological screening criteria for PFOS+PFHxS, PFOS and/or PFOA.

This report has been prepared in accordance with the Defence *PFAS OMP Factual Report Guidance (Version 0.2)* issued in May 2021 (Defence, 2021).

1.2 Objectives

The objectives of the OMP (Defence, 2020a) are to:

- implement the OMP (Defence, 2020a) prepared as part of the Detailed Site Investigation (DSI)
- collect data that will enable Defence to maintain an up to date understanding of the changes in distribution, concentration, transport and transformation of PFAS and assess the data against appropriate guideline values in order to provide:
    - an evidence base for targeted and effective risk management of PFAS contamination to protect human health and environmental receptors
    - an early warning that additional management of PFAS contamination may be warranted in areas not currently affected by PFAS.

The data will assist in the timely identification of risks and inform Defence's approach to the management of PFAS, including updates and revisions to the PFAS Management Area Plan (PMAP) (Defence, 2020b).

The objective of this phase of works is to implement the scope of works for the OMP sampling event completed in March 2022, in accordance with the Sampling and Analysis Quality Plan (SAQP) (AECOM, 2022).

2.0 Scope of Work

The scope of works was completed generally in accordance with the SAQP (AECOM, 2022), as follows:

- obtain permission (where required) to conduct works at the Site, off-site publicly accessible areas and commercial properties
- gauging of groundwater level in monitoring wells prior to the collection of samples
- groundwater sampling and collection of water quality parameters at 24 groundwater wells (refer to **Table 1** below and **Figure F2** in **Appendix A** for specific locations), noting that samples from 2 monitoring well locations could not be collected during this sampling event (refer to **Table 8** for further details)
- surface water sampling and collection of water quality parameters at 17 surface water locations (refer to **Table 2** below and **Figure F3** in **Appendix A** for specific locations)
- collection of field duplicate samples at a rate of 1 in 10 primary samples
- analysis of samples for the PFAS suite
- data management of the OMP field and laboratory data in the Defence ESdat database
- preparation of this Sampling Event Factual Report.

2.1 Planned Monitoring Locations

The monitoring locations outlined within the SAQP (AECOM, 2022) for the planned groundwater and surface water sampling event are provided in **Table 1** and **Table 2** below.

Table 1 Groundwater Sampling Locations

Area	Description	Sampling Locations	Number of Locations	Total
On-site	Cantonment and Driver Training Area	MW120, MW121, MW122*, MW123, MW124, MW323, MW349	7	12 Locations
	Former 85 Transport Area	MW330, MW117	2	
	Former STP Area	MW301, MW002, MW005	3	
Off-site Road Reserve	Off-site road verges associated with Liverpool Fire Station	MW112, MW112P, MW119, MW119P, MW129, MW130, MW131, MW133, MW134*, MW136	10	12 Locations
Off-site Private Property	Liverpool Fire Station	MW113, MW115	2	

*Location not sampled.

Table 2 Surface Water Sampling Locations

Area	Description	Sampling Locations	Number of Locations	Total
On-site	Former 85 Transport Area	SW103, SW104, SW105	3	11 Locations
	Luscombe Airfield	SW009, SW015, SW030, SW038	4	
	Former STP Area	SW011, SW012, SW014, SW017	4	
Off-site	Georges River	SW025, SW062, SW063	3	6 Locations
	Liverpool Fire Station	SW001, SW059, SW111	3	

3.0 Deviations from the SAQP

The March 2022 OMP sampling event was completed in general accordance with the SAQP (AECOM, 2022) with the exception of the deviations outlined in **Table 3** below.

Table 3 Deviations from SAQP (AECOM, 2022)

SAQP	March 2022 Sampling Event
24 groundwater locations are identified to be sampled as part of the bi-annual sampling event	Groundwater monitoring well MW134 was observed to be dry during this event and therefore no samples were collected. Given the purpose of gauging and sampling of MW134 was to assess the presence of perched water and/or PFAS impacts at this location, the absence of water during this sampling event still provides meaningful data to assist in refining the conceptual site model (CSM). Groundwater monitoring well MW122 could not be accessed during this event and therefore could not be sampled. The purpose of gauging and sampling MW122 was to monitor PFAS concentrations in groundwater along the northern boundary of the Site. The lack of sampling data at this location does not allow for the evaluation of potential changes in PFAS concentrations since the March 2021 sampling event (the location was inaccessible also during the September 2021 event). Although MW122 was not sampled during this event, this location was sampled previously during the DSI (CH2M Hill, 2018) in March 2018, and under the OMP in October 2020 and in March 2021 (refer to **Table T5** in **Appendix B**). Concentrations of PFAS were below the laboratory LOR during each of the previous sampling events at MW122. Refer to **Table 8** for more detail.

4.0 Methodology

4.1 Sampling Methodology

The methodology adopted for the March 2022 OMP sampling event was in general accordance with the SAQP (AECOM, 2022) and is summarised below:

Table 4 Sampling Methodology

Item	Details
Groundwater gauging	The depth to groundwater was measured in each monitoring well immediately prior to collection of groundwater samples using an interface probe. Groundwater wells MW002, MW005 and MW301 were gauged on an outgoing tide, in accordance with the SAQP (AECOM, 2022).
Field parameters	Temperature, electrical conductivity (EC), dissolved oxygen (DO), oxidation-reduction potential (ORP), pH and observations of water quality were recorded for all groundwater samples and surface water samples. Field parameters were collected using a calibrated water quality meter (WQM). The equipment supplier and field calibration records are provided in **Appendix C**.
Sampling methodology-	Groundwater samples were collected from each monitoring well using no-purge methodology HydraSleeves™, which were installed within the screened interval of the wells for a minimum of 24 hours prior to the sampling round based on a review of the well construction logs. For this event, all HydraSleeves™ were installed during previous sampling rounds in September 2021 and December 2021, with the exception of MW330 which was installed on 21 March 2022 (the first day of the March 2022 sampling round). Once sampling was completed, new HydraSleeves™ were deployed in each of the monitoring wells, within the screened interval in preparation for the next sampling round. Surface water samples were collected by placing the laboratory sample bottle immediately below the water surface with the cap immediately applied once the container was full. Groundwater wells MW002, MW005 and MW301, and surface water locations SW011, SW012, SW014 and SW017 were sampled on an outgoing tide, in accordance with the SAQP (AECOM, 2022).
QA/QC Samples	A QA/QC program was implemented for the sampling and analysis program in order to obtain representative data and assess the reliability of the data obtained. To facilitate the QA/QC program the following sample types were obtained during the sampling program: • *Field duplicates* collected at a rate of 1 per 10 primary samples. The relative percentage difference (RPD) should be less than 30%, or less than 50% if results are less than 20 times the limit of reporting (LOR). Higher RPDs may also be acceptable if results are less than 10 times the LOR. • *Inter-laboratory duplicates* collected at a rate of 1 per 10 primary samples. The RPD should be less than 30%, or less than 50% if results are less than 20 times the LOR. Higher RPDs may also be acceptable if results are less than 10 times the LOR. • *Rinsate blanks* collected at a frequency of one per set of sampling equipment per day. Analytical results should be below the LOR. For this biannual sampling event, the QA/QC samples included:

Item	Details
	• 4 x intra-laboratory duplicates, which met the target frequency • 4 x inter-laboratory duplicates, which met the target frequency • 3 x rinsates, which met the target frequency. The data validation assessment is presented in **Appendix D.**
Sample analysis	Samples were submitted to the primary and secondary laboratories for PFAS suite at the standard limit of reporting (LOR). ALS Environmental (ALS) Sydney, NSW was used as the primary laboratory. Envirolab Services (Envirolab) Sydney, NSW was used as the secondary laboratory. ALS and Envirolab methods for analyses were certified by the National Association of Testing Authorities (NATA). A summary of the laboratory results is presented in **Section 5.2** and the laboratory certificates are presented in **Appendix E**.

4.2 Adopted Screening Criteria

Adopted screening criteria references the PFAS National Environmental Management Plan, Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance. Guidance documents used to assess the dataset includes the following:

- PFAS National Environmental Management Plan 2.0 (NEMP), (HEPA 2020), https://environment.gov.au/protection/publications/pfas-nemp-2.
- Department of Health (DoH), 2017. Health Based Guidance Values for PFAS for use in site investigations in Australia. April 2017 (FSANZ 2017).
- National Health and Medical Research Council (NHMRC), 2019. Guidance on PFAS in Recreational Water. August 2019 (NHMRC 2019).
- National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, as amended in 2013 (ASC NEPM).

The adopted PFAS screening criteria to assess the data generated as part of the OMP are presented in **Table 5** and **Table 6** below.

Table 5 Summary of Adopted Screening Criteria: Human Health

Pathway	Compound	Criteria	Comment/Reference
Drinking water - groundwater	PFOS + PFHxS	0.07 µg/L	The values presented in the PFAS NEMP (HEPA, 2020) are from DoH 2017, which published final health-based guidance values for PFAS for use in site investigations in Australia. DoH utilised the TDI for PFOS and PFOA from FSANZ, 2017 and the methodology described in Chapter 6.3.3 of the National Health and Medical Research Council's (NHMRC) Australian Drinking Water Guidelines (ADWG), 2022 to determine drinking water values. For PFHxS, DoH 2017 noted that '*FSANZ concluded that there was not enough toxicological and epidemiological information to justify establishing a tolerable daily intake. However, as a precaution, and for the purposes of site investigations, the PFOS tolerable daily intake should apply to PFHxS. In practice, this means that the level of PFHxS exposure should be added to the level of PFOS exposure; and this combined level be compared to the tolerable daily intake for PFOS*'. *All groundwater results were compared to these criteria.*
	PFOA	0.56 µg/L	
Recreational use – surface water	PFOS + PFHxS	2 µg/L	In August 2019, NHMRC released guidance on the assessment of PFAS in surface water. Rather than adopting an ingestion rate of 0.2 L of water per day (as per the ADWG formula), NHMRC adjusted this rate with consideration of an event frequency (150 events/year) to calculate an annual ingestion rate of 30 L per year. *All surface water results were compared to these criteria.*
	PFOA	10 µg/L	

Table 6 Summary of Adopted Screening Criteria: Ecological

Pathway	Chemical	Criteria	Comment/Reference
Freshwater	PFOS	0.13 µg/L	PFAS NEMP (HEPA, 2020) 95% species protection *All groundwater and surface water results were compared to these criteria.*
	PFOA	220 µg/L	

4.3 Data Quality Objectives and Data Validation

The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2022). Data validation assessment is provided in **Appendix D**.

Data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported analytical results are representative of the sample locations and that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report.

Following the reporting of PFAS concentrations which were at historical maximums, with significant increases from previous maximums, at MW113, MW119P, MW330 and SW011, the primary laboratory was requested to repeat the analysis to confirm the reported concentrations. Although there were large differences in concentrations for MW113 and MW119P, overall, the concentrations are relatively in the same order of magnitude, confirming the original elevated concentrations. As a conservative measure, the higher, original results have been reported in the results tables (**Tables T3**, **T4**, **T5** and **T6** in **Appendix B**).

All data collected during this event has been reviewed and uploaded to the Defence ESdat database in accordance with the Defence Contamination Management Manual (DCMM) requirements.

5.0 Field Observations and Results

5.1 General Field Observations

The field observations recorded during the sampling event are presented in **Table 7** below.

Table 7 General Field Observations

Items	Observations
Weather Conditions	During the March 2022 sampling event, the weather was observed to be mostly dry and warm, with maximum daily temperatures between 23.7 and 30.4˚C, recorded on 21 to 23 March 2022. No rainfall was recorded between 21 and 23 March 2022 at Holsworthy Army Barracks (Holsworthy Defence AWS, 068263) (Bureau of Meteorology, 2021). However, a cumulative 14.4 mm of rainfall was recorded in the 72 hours prior to the event (from 18 to 20 March 2022).
Estate Management Works or Training Activities	Defence Training activities were observed at various times during the March 2022 sampling event at the Luscombe Airfield Runway. Daily check-ins at the Range Control office were arranged prior to commencing sampling, to ensure sampling was not conducted in areas with active training exercises for the day. Civil infrastructure works were also being conducted on the estate at the time of sampling. The road to access groundwater well MW122 was closed and fenced off as a result of the civil works (while the other access point for the location was flooded).

5.2 Groundwater and Surface Water Observations, Field Measurements and Analytical Results

The groundwater and surface water observations and field measurements recorded during the sampling event are presented in **Table 8** below.

5.2.1 Groundwater and Surface Water Observations and Field Measurements

Table 8 Groundwater and Surface Water Observations and Field Measurements

Items	Observations
Fieldwork Dates	The sampling event was completed between 21 and 23 March 2022.
Access and Sample Collection	All sampling locations were accessible or able to be sampled with the exception of the following: • Monitoring well MW122 could not be sampled as one access road was closed and fenced off due to civil infrastructure works, and the other access path was flooded. • Monitoring well MW134 could not be sampled as the well was dry. It is noted that locations MW002, MW005, MW301, SW011, SW012, SW014 and SW017 were sampled on an outgoing tide, as per the requirements of the SAQP (AECOM, 2022).

Items	Observations
Monitoring Well Network Condition	All wells sampled were observed to be in good condition. It is noted that monitoring well MW005 has no monument and that the PVC casing above ground is exposed to the weather. However, the casing was appropriately capped and showed no signs of deterioration.
Contamination Observations	No obvious visible signs of contamination in groundwater or surface water were observed at the locations sampled. However, foaming of unknown nature was observed in surface water around sampling point SW030. The observed foaming is considered to be unrelated to historical AFFF (containing PFAS) use at the Site, given that concentrations of PFAS were within the historical range at this location during the March 2022 sampling event.
Depth to Groundwater and Flow Direction	Depth to groundwater ranged from 0.411 metres below top of casing (mbTOC) (MW123) and 14.431 mbTOC (MW117). Groundwater elevation ranged between 1.327 metres Australian Height Datum (mAHD) (MW005) and 27.733 mAHD (MW323). Groundwater gauging data is presented in **Table T1** in **Appendix B**. Inferred groundwater contours and groundwater flow direction based on the current data are shown on **Figure F4** in **Appendix A**. The inferred local groundwater flow direction was predominantly to the northeast across the majority of the Site with flow to the northwest (towards Georges River) at the western boundary in the vicinity of the Former 85 Transport Area. Groundwater in the vicinity of the Liverpool Fire Station was generally flat with a slight trend down towards the east and north-east, which was generally consistent with findings of the Detailed Site Investigation (CH2M Hill, 2018).
Geochemical Parameters	Groundwater and surface water geochemical parameters were measured during the collection of samples. The readings are presented in **Table T1** and **Table T2** in **Appendix B** and are summarised below: **Groundwater Geochemical Parameters** • Dissolved oxygen ranged from 0.04 mg/L (MW117) to 4.56 mg/L (MW115), indicating poorly to well oxygenated conditions. • Electrical conductivity ranged from 133.2 µS/cm (MW112P) to 9,147 µS/cm (MW323) indicating fresh to brackish conditions. • pH ranged from 4.12 (MW330) to 6.89 (MW131) indicating moderately acidic to near neutral conditions. • Corrected Redox ranged from -28.3 mV (MW136P) to 488.8 mV (MW330) indicating reducing to moderately oxidised conditions. **Surface Water Geochemical Parameters** • Dissolved oxygen ranged from 1.02 mg/L (SW001) to 7.40 mg/L (SW063) indicating poorly to well oxygenated conditions. • Electrical conductivity ranged from 58.5 µS/cm (SW104) to 1,304 µS/cm (SW011) indicating fresh to marginally brackish conditions. • pH ranged from 5.88 (SW015) to 7.05 (SW038) indicating slightly acidic to neutral conditions. • Corrected Redox ranged from 59.9 mV (SW011) to 316.7 mV (SW025) indicating reducing conditions.

5.2.2 Groundwater Analytical Results - PFAS

The PFAS groundwater analytical results from this sampling event are presented in **Table T3** in **Appendix B**. In summary, 22 primary groundwater samples were analysed for PFAS compounds, with concentrations of:

- PFOS+PFHxS and/or PFOA reported above laboratory LOR in 16 primary samples analysed.
- PFOS+PFHxS and/or PFOA exceeded the adopted human health screening criteria in 15 primary samples analysed.
- PFOS and/or PFOA exceeded the adopted ecological screening criteria in 9 primary samples analysed.

Deviations from the historical dataset are provided in **Table 9** below.

Table 9 Deviations from Historical Dataset: Groundwater

Deviation Type	Groundwater sampling location	Sum of PFOS+PFHxS (µg/L)		PFOA (µg/L)		PFOS (µg/L)	
		Mar 2022	Previous maximum	Mar 2022	Previous maximum	Mar 2022	Previous maximum
First time detections of PFOS+PFHxS, PFOS and/or PFOA in monitoring wells	MW136	There were no first-time detections in the dataset.		0.02	<0.01	There were no first-time detections in the dataset.	
First time exceedance of the NEMP (HEPA, 2020) drinking water guidelines in monitoring wells	There were no first-time exceedances of the NEMP Human Health Screening Criteria in the dataset.						
First time exceedance of the NEMP (HEPA, 2020) Ecological Screening Criteria in monitoring wells	MW117	There are no applicable NEMP Ecological Screening Criteria.		There were no first-time exceedances of the NEMP Ecological Screening Criteria in the dataset.		*0.14*	0.06
	MW330	There are no applicable NEMP Ecological Screening Criteria.		There were no first-time exceedances of the NEMP Ecological Screening Criteria in the dataset.		*4.2**	0.05

Legend	
*	PFOS result of 4.2 µg/L belongs to the duplicate sample. The primary sample result for PFOS was 3.78 µg/L, which also exceeded the guideline for the first time.
Blue Shading	Blue shading indicates sampling location with first time detection of PFOS+PFHxS and/or PFOA
Yellow Shading	Yellow shading indicates sampling location with first time exceedance of NEMP Human Health Screening criteria
Purple Shading	Purple shading indicates sampling location with first time exceedance of NEMP Ecological Screening criteria

5.2.3 Surface Water Analytical Results – PFAS

The PFAS analytical results for surface water samples from this event are presented in **Table T4** in **Appendix B**. In summary, 17 primary surface water samples were analysed for PFAS compounds, with concentrations of:

- PFOS+PFHxS and/or PFOA reported above the laboratory LOR in 14 samples analysed
- PFOS+PFHxS and/or PFOA exceeded the adopted human health screening criteria in 1 primary sample analysed.
- PFOS and/or PFOA exceeded the adopted ecological screening criteria in 5 primary samples analysed.

Deviations from the historical dataset are provided in **Table 10** below.

Table 10 Deviations from Historical Dataset - Surface Water

Deviation Type	Surface water sampling location	Sum of PFOS+PFHxS (µg/L)		PFOA (µg/L)		PFOS (µg/L)	
		Mar 2022	Previous maximum	Mar 2022	Previous maximum	Mar 2022	Previous maximum
First time detections of PFOS+PFHxS, PFOS and/or PFOA in surface water	SW011	There were no first-time detections in the dataset.		0.16	<0.01	There were no first-time detections in the dataset.	
First time exceedance of the NEMP (HEPA, 2020) recreational use guidelines in surface water	SW011	**3.52**	0.16	There were no first-time exceedances of the NEMP Human Health Screening Criteria in the dataset.		There are no applicable NEMP Human Health Screening Criteria.	
First time exceedance of the NEMP (HEPA, 2020) Ecological Screening Criteria in surface water	SW011	There are no applicable NEMP Ecological Screening Criteria.		There were no first-time exceedances of the NEMP Ecological Screening Criteria in the dataset.		*0.24*	0.08
	SW059	There are no applicable NEMP Ecological Screening Criteria.		There were no first-time exceedances of the NEMP Ecological Screening Criteria in the dataset.		*0.15*	0.11

Legend	
Blue Shading	Blue shading indicates sampling location with first time detection of PFOS+PFHxS and/or PFOA
Yellow Shading	Yellow shading indicates sampling location with first time exceedance of NEMP Human Health Screening criteria
Purple Shading	Purple shading indicates sampling location with first time exceedance of NEMP Ecological Screening criteria

5.3 Historical Sampling Data

Historical groundwater and surface water sampling data are presented in **Tables T5** and **T6** (respectively) in **Appendix B**.

6.0 Summary and Next Sampling Events

6.1 Summary of Monitoring Event

The biannual surface water and groundwater monitoring event was completed at the Site, and targeted off-site areas between 21 and 23 March 2022. The program included sampling of:

- groundwater from 22 monitoring wells
- surface water at 17 locations.

The **Table 11** below summarises the findings of the March 2022 sampling event and the recommended actions.

Table 11 Summary of Sampling Event

Item	Comment	Recommended Actions
Access to sampling locations	The following were accessed and able to be sampled: • 22 monitoring wells • 17 surface water sampling locations.	Nil.
Inaccessible or dry locations	Samples from the following two monitoring wells were unable to be collected: • Monitoring well MW134 was not able to be sampled as the location was dry. • Monitoring well MW122 was not able to be sampled as the locations could not be accessed.	AECOM will attempt to collect samples from groundwater wells MW122 and MW134 during the next scheduled event.
Monitoring well network condition	All monitoring wells that were able to be accessed were noted to be in good condition. Monitoring well MW005 has no monument and that the PVC casing above ground is exposed to the weather. However, the casing was appropriately capped and showed no signs of deterioration.	Nil.
Analytical Results	22 primary groundwater and 17 primary surface water samples were analysed.	Locations will be sampled again during the next scheduled sampling event to continue to monitor concentrations over time.
First time detections of PFOS+PFHxS, PFOS and/or PFOA	1 groundwater well (MW136) out of the 22 wells sampled reported a first-time detection of PFOA. 1 surface water location out of the 17 locations sampled reported a first-time detection of PFOA. No groundwater wells or surface water locations reported a first-	Locations will be sampled again during the next scheduled sampling event to continue to monitor concentrations over time.

Item	Comment	Recommended Actions
	time detection of PFOS+PFHxS or PFOS.	
First time exceedance of adopted human health screening criteria	No groundwater wells reported a first-time exceedance of the adopted human health screening criteria for PFOS+PFHxS. 1 surface water locations (SW011) out of the 17 locations sampled reported a first-time exceedance of the adopted human health screening criteria for PFOS+PFHxS. No groundwater wells or surface water locations reported a first-time exceedance of the adopted human health screening criteria for PFOA.	Locations will be sampled again during the next scheduled sampling event to continue to monitor concentrations over time.
First time exceedance of adopted ecological screening criteria	2 groundwater wells (MW117 and MW330) out of the 22 wells sampled reported first time exceedances of the adopted ecological screening criteria for PFOS. 2 surface water location (SW011 and SW059) out of the 17 locations sampled reported a first-time exceedance of the adopted ecological screening criteria for PFOS. No groundwater wells or surface water locations reported a first-time exceedance of the adopted ecological screening criteria for PFOA.	Locations will be sampled again during the next scheduled sampling event to continue to monitor concentrations over time.

6.2 Upcoming Sampling Events

The next scheduled sampling event is scheduled to be undertaken in June 2022.

6.3 Upcoming Annual Interpretive Report

The next annual interpretative report is scheduled to be delivered in Q4 2022.

7.0 References

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Appendix A

Figures

Appendix A Figures

AECOM

N

0 450 900 m

Legend

- Site Boundary
- Primary Source Area
- Study Area

FIGURE F1:
STUDY AREA

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
March 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 230 460 m

Legend

- Site Boundary
- Primary Source Area
- Groundwater Location (sampled)
- Groundwater Location (not sampled)

Due to privacy considerations, locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136 cannot be shown

FIGURE F2: GROUNDWATER SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
March 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 380 760 m

Legend

- Site Boundary
- Primary Source Area
- Surface Water Location

FIGURE F3: SURFACE WATER SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
March 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 230 460 m

Legend

- Site Boundary
- Primary Source Area
- 10m Contour
- Groundwater Contour (March 2022)
- Inferred Groundwater Flow Direction
- Groundwater Monitoring Well
- 15.415 Groundwater Elevation (mAHD)

Due to privacy considerations, locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136 cannot be shown

(*) Groundwater elevation data excluded from contouring

FIGURE F4:
GROUNDWATER ELEVATION

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
March 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 240 480 m

Legend

- Site Boundary
- Primary Source Area
- First time exceedance of ecological screening criteria for PFOS and/or PFOA
- Sampled, no first time detection or exceedance
- Location not sampled

Due to privacy considerations locations MW119, MW119P MW129, MW130, MW131 MW133, MW134, MW136 cannot be shown

FIGURE F5: GROUNDWATER ANALYTICAL RESULTS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
March 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 380 760 m

Legend

- Site Boundary
- Primary Source Area
- First time exceedance of ecological screening criteria for PFOS and/or PFOA
- First time exceedance of human health for PFOS+PFHxS and/or PFOA
- Sampled, no first time detection or exceedance

FIGURE F6: SURFACE WATER ANALYTICAL RESULTS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
March 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

Appendix B

Tables

Appendix B Tables

Table T1
Gauging Data and Groundwater Geochemical Parameters

AECOM

														Field Measurements					
														DO (Field)	Temp (Field)	EC (field)	pH (Field)	Redox Er (Field)	Redox Eh (Corrected)
														mg/L	°C	µS/cm	pH Units	mV	mV
Location Code	**Alternative Name**	**Easting**	**Northing**	**Top of Casing (mAHD)**	**Top Screen (mbTOC)**	**Bottom Screen (mbTOC)**	**HydraSleeve Collar Depth (mbTOC)**	**Water Depth (mbTOC)**	**Water Elevation (mAHD)**	**Depth to Base of Well (mbTOC)**	**Visit / Gauging / Sampled Date**	**Visit / Gauging Comments**	**Sampling Comments**						
MW002	MW02	311989.588	6240689.883	3.530	Unknown	Unknown	3.20	1.091	2.439	3.74	21/03/2022	Good condition.	Light yellow / brown, low turbidity, organic odour, no sheen. Sampling conducted at 16:58, during outgoing tide.	0.80	20.8	295.9	6.23	-115.1	90.7
MW005	MW05	311709.959	6240985.121	3.157	Unknown	Unknown	3.00	1.830	1.327	3.995	21/03/2022	Stick up with no monument.	Light yellow / brown, low turbidity, organic odour, no sheen. Sampling conducted at 15:50, during outgoing tide.	1.39	21.0	3,813.0	6.13	-98.6	107.2
MW112	BH112	308827.830	6242011.630	13.420	10.3	13.3	12.30	4.834	8.586	13.19	23/03/2022	Good condition. Gatic flooded above TOC.	Clear, no turbidity, no odour, no sheen.	1.52	21.7	1,551.0	5.85	20.9	226.7
MW112P	BH112_P	308826.490	6242011.910	13.430	2	5	4.50	1.752	11.678	5.10	23/03/2022	Good condition.	Clear, no turbidity, no odour, no sheen.	4.11	22.9	133.2	6.26	-47.9	157.9
MW113	BH113	308876.090	6242099.520	13.460	10.9	14.9	14.00	4.806	8.654	14.765	23/03/2022	Good condition. Silt noted on IP.	Clear, no turbidity, no odour, no sheen.	2.88	21.0	280.3	6.17	120.5	326.3
MW115	BH115	308832.110	6242106.070	14.080	10.1	13.1	12.20	5.140	8.940	13.215	23/03/2022	Good condition.	Clear, no turbidity, no odour, no sheen.	4.56	21.7	323.1	5.07	137.5	343.3
MW117	BH117	307299.790	6239293.450	18.130	13	17.5	16.80	14.431	3.699	17.92	21/03/2022	Good condition.	Clear, low turbidity, no odour, no sheen.	0.04	18.6	1,116.0	5.35	93.2	299.0
MW119	BH119	**	**	11.010	8	11	10.30	2.611	8.399	11.20	23/03/2022	Good condition.	Light brown, no turbidity, no odour, no sheen.	2.88	22.5	633.0	6.65	52.6	258.4
MW119P	BH119_P, MW119S	**	**	11.120	2	5	4.15	2.402	8.718	4.65	23/03/2022	Good condition. Rootlets on Hydrasleeve.	Light brown, low turbidity, no odour, no sheen.	3.34	23.4	991.0	4.93	120.2	326.0
MW120	BH120	307980.150	6239724.500	17.270	11.5	14.5	14.00	2.842	14.428	15.09	21/03/2022	Good condition.	Orange / brown, medium turbidity, no odour, no sheen.	1.80	21.2	7,234.0	6.21	27.2	233.0
MW121	BH121	308518.290	6239747.260	16.470	15.3	18.3	16.10	4.342	12.128	17.11	21/03/2022	Good condition. Silt noted on IP.	Clear, no turbidity, no odour, no sheen.	1.19	20.5	740.0	5.92	69.0	274.8
MW122	BH122	310079.650	6239896.920	18.540	11.5	14.5	13.00	n/a	n/a	n/a	21/03/2022	No access, (direct access flooded and alternative access blocked due to construction works). Visited on multiple occasions during field works.	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MW123	BH123	310934.050	6239938.200	7.070	2	6	5.50	0.411	6.659	6.80	22/03/2022	Good condition.	Light brown, low turbidity, no odour, no sheen.	0.75	23.8	8,516.0	6.23	1.0	206.8
MW124	BH124	312243.910	6239806.730	6.390	2	5	4.30	3.122	3.268	5.82	22/03/2022	Good condition.	Clear, no turbidity, no odour, no sheen.	2.59	22.7	6,172.0	5.65	97.1	302.9
MW129		**	**	9.526	5	8	6.70	1.242	8.284	7.66	23/03/2022	Good condition.	Clear, no turbidity, no odour, no sheen.	1.34	22.6	2,586.0	5.84	-41.9	163.9
MW130		**	**	12.986	6	9	7.70	4.752	8.234	8.68	23/03/2022	Good condition.	Light brown, low turbidity, no odour, no sheen.	1.40	21.9	416.7	5.98	-159.1	46.7
MW131		**	**	12.179	7	10	9.10	4.410	7.769	9.92	23/03/2022	Good condition.	Light brown, no turbidity, no odour, no sheen.	1.13	21.5	1,198.0	6.89	-143.6	62.2
MW133	MW133P	**	**	13.350	2	4	3.50	3.400	9.950	3.92	23/03/2022	Good condition.	Clear, no turbidity, no odour, no sheen. Water parameters taken from bailer.	2.77	23.4	740.0	6.48	-42.3	163.5
MW134		**	**	13.210	1.9	3.9	3.40	Dry	n/a	4.67	23/03/2022	Good condition. Well dry.	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MW136	MW136P	**	**	11.860	2.25	4.25	3.75	2.548	9.312	4.95	23/03/2022	Good condition.	Dark grey, high turbidity, sulfuric odour, no sheen.	1.49	22.7	777.0	6.54	-234.1	-28.3
MW301	MW1	311957.110	6240475.972	3.383	Unknown	Unknown	4.00	0.871	2.512	4.55	21/03/2022	Good condition.	Light yellow / brown, medium turbidity, no odour, no sheen. Sampling conducted at 15:16, during outgoing tide.	1.54	21.9	1,514.0	6.24	11.7	217.5
MW323	BH345	310790.680	6238833.630	36.380	Unknown	Unknown	14.00	8.647	27.733		22/03/2022	Good condition.	Clear, no turbidity, no odour, no sheen.	1.18	20.5	9,147.0	6.45	-5.5	200.3
MW330	BH365	307817.340	6238845.610	29.530	Unknown	Unknown	8.50	5.905	23.625	9.88	22/03/2022	Good condition. No Hydrasleeve present on first visit (21/03/2022 10:10am). Installed Hydrasleeve for sampling on 22/3/22.	Light brown, medium turbidity, no odour, no sheen.	2.39	24.5	4,549.0	4.12	283.0	488.8
MW349	BH612	311605.910	6238811.030	18.420	3.9	8.2	6.70	3.005	15.415	7.635	22/03/2022	Good condition.	Light brown, low turbidity, no odour, no sheen.	1.52	21.4	1,125.0	5.96	-89.3	116.5

Notes

**	Co-ordinates removed due to privacy considerations
mV	milliVolts
mg/L	milligrams per Litre
°C	degrees Celsius
µS/cm	microSiemens per centimetre
mbTOC	metres below top of casing
-	Not measured
n/a	Not applicable
IP	Interface probe

Corrected field Redox measurement Eh = Er + 205.8

Table T2
Surface Water Geochemical Parameters

							Field Measurements					
							DO (Field)	Temp (Field)	EC (field)	pH (Field)	Redox Er (Field)	Redox Eh (Corrected)
							mg/L	°C	µS/cm	pH_Units	mV	mV
Location Code	**Easting**	**Northing**	**Visit / Sampled Date**	**Location Comments**	**Sample Depth From (m)**	**Sample Depth To (m)**	**Sample Comment**					
SW001	308867.480	6242016.780	23/03/2022	Drainage channel. Shrubs and grasses within channel. Waterbody width (approx.): 0.5m, Waterbody depth (approx.): 0.1m. No flow observed.	0.10	0.10	Light brown, low turbidity, no odour, no sheen.	1.02	21.7	405.9	7.01	-3.4	202.4
SW009	312310.870	6239846.890	22/03/2022	Creek. Reeds in creek, bush along banks. Waterbody width (approx.): 15m, Waterbody depth (approx.): >2m. No flow observed. Sample collected on the other side of the train line.	0.10	0.10	Brown, low turbidity, no odour, no sheen.	4.40	26.5	260.9	5.90	109.6	315.4
SW011	312089.255	6240650.658	21/03/2022	Creek. Waterbody width (approx.): 2m, Waterbody depth (approx.): 0.1m. No flow observed.	0.04	0.05	Brown, medium turbidity, organic odour, no sheen. Algal growth on water surface and suspended in water column. Sampling conducted at 17:30, during outgoing tide.	1.17	21.3	1,304.0	6.82	-146.5	59.3
SW012	311975.148	6240955.779	21/03/2022	Creek. Bush along banks. Waterbody width (approx.): 5m, Waterbody depth (approx.): >2m. Flow observed.	0.10	0.20	Light brown, low turbidity, no odour, no sheen. Sampling conducted at 16:45, during outgoing tide.	3.70	22.8	303.0	6.46	69.3	275.1
SW014	312519.056	6241208.513	22/03/2022	Creek, near intersection with river. Mangroves surrounding. Waterbody width (approx.): 20m, Waterbody depth (approx.): >2m. No flow observed.	0.10	0.10	Light brown, low turbidity, no odour, no sheen. Sampling conducted at 16:30, during outgoing tide.	2.25	25.4	462.4	6.55	110.3	316.1
SW015	310991.971	6240044.828	22/03/2022	Creek. Grasses and dense bush along banks. Waterbody width (approx.): 2m, Waterbody depth (approx.): 0.3m. Flow observed.	0.10	0.10	Light brown, low turbidity, organic odour, no sheen.	5.75	22.8	140.1	5.88	101.3	307.1
SW017	311626.230	6241030.249	21/03/2022	Creek. Sandy banks with dense vegetation. Waterbody width (approx.): 5m, Waterbody depth (approx.): 0.5m. Flow observed.	0.10	0.20	Brown, low turbidity, no odour, no sheen. Sampling conducted at 16:17, during outgoing tide.	5.80	22.1	249.9	6.35	56.9	262.7
SW025	307092.405	6239136.649	22/03/2022	River. Reeds and dense bush along banks. Waterbody width (approx.): 15-20m, Waterbody depth (approx.): 3m. Flow observed.	0.10	0.10	Light brown, no turbidity, no odour, no sheen.	5.59	24.1	177.1	6.46	110.9	316.7
SW030	311021.365	6235897.542	22/03/2022	Creek, on bedrock. Grasses in creek and bush along banks. Waterbody width (approx.): 2m, Waterbody depth (approx.): 0.3m. Flow observed.	0.10	0.10	Yellow / brown, low turbidity, no odour, no sheen. Foaming observed.	6.30	19.3	68.4	6.60	76.3	282.1
SW038	311304.190	6237089.320	22/03/2022	Creek / drainage channel, on bedrock. Grasses and shrubs surrounding. Waterbody width (approx.): 1m, Waterbody depth (approx.): 0.15-0.2m. Flow observed.	0.04	0.05	Clear, no turbidity, no odour, no sheen.	6.33	19.2	202.3	7.05	49.1	254.9
SW059	309636.439	6242152.009	23/03/2022	Creek. Small trees and grasses along banks. Waterbody width (approx.): 2m, Waterbody depth (approx.):0.3m. No flow observed.	0.10	0.10	Light brown, low turbidity, no odour, no sheen.	2.36	22.5	233.5	6.81	-13.7	192.1
SW062	307064.108	6238548.817	22/03/2022	River. Sandy banks with dense vegetation surrounding. Waterbody width (approx.): 10-15m, Waterbody depth (approx.): 2m plus. Flow observed.	0.10	0.10	Light brown, low turbidity, no odour, biosheen.	4.90	25.6	146.7	6.83	94.5	300.3
SW063	307171.973	6239690.639	21/03/2022	River. Dense bush along banks. Waterbody width (approx.): 40m, Waterbody depth (approx.): >2m. No flow observed.	0.10	0.10	Light brown, low turbidity, no odour, no sheen.	7.40	21.2	192.2	6.79	99.3	305.1
SW103	307799.850	6238850.840	21/03/2022	Wash bay pits (open eastern pit). Waterbody depth (approx.): 0.5m. No flow observed.	0.10	0.10	Clear, low turbidity, no odour, biosheen. Organic debris (leaves and sticks) in water column.	1.42	21.2	68.1	6.46	82.7	288.5
SW104	307797.620	6238850.750	21/03/2022	Wash bay pits (middle pit). Waterbody depth (approx.): 0.5m. No flow observed.	0.10	0.10	Clear, no turbidity, no odour, biosheen.	1.70	21.9	58.5	6.50	82.3	288.1
SW105	307796.080	6238852.690	21/03/2022	Wash bay pits (western pit). Waterbody depth (approx.): 0.5m. No flow observed.	0.10	0.10	Clear, no turbidity, no odour, no sheen.	2.05	22.0	75.2	6.61	95.2	301.0
SW111	309356.120	6241898.415	23/03/2022	Creek. Vegetation along banks. Waterbody width (approx.): 3m, Waterbody depth (approx.): 0.5m. No flow observed.	0.10	0.10	Light brown, low turbidity, no odour, no sheen.	2.85	22.5	192.4	6.60	87.1	292.9

Notes

mV	milliVolts
mg/L	milligrams per Litre
°C	degrees Celsius
µS/cm	microSiemens per centimetre
mbTOC	metres below top of casing
-	Not measured
n/a	Not applicable

Corrected field Redox measurement Eh = Er + 205.8

Table T3
Groundwater Analytical Results

AECOM

						Per- and Poly-fluoroalkyl Substances																															
						Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluoroundecanoic acid (PFUnDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecane sulfonic acid (PFDS)	Perfluorododecanoic acid (PFDoDA)	Perfluorodecanoic acid (PFDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorooctane sulfonamide (FOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	Sum of PFAS	Sum of PFAS (WA DER List)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.1	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.01	0.01
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																											
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																													
Location Code	**Alternative Name**	**Sampled Date**	**Field ID**	**Sample Type**	**Lab Report #**																															
MW002	MW02	21/03/2022	0382_MW002_220321	Normal	ES2210369	0.21	0.12	0.04	**0.16**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	0.05	<0.02	0.06	<0.02	0.04	<0.02	<0.02	<0.02	0.04	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.56	0.56
MW005		21/03/2022	0382_MW005_220321	Normal	ES2210369	0.01	0.04	0.03	0.07	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.2	0.2
MW112	BH112	23/03/2022	0382_MW112_220323	Normal	ES2210369	**3.25**	*31.8*	48.8	**80.6**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	6	1.14	<0.02	8.13	3.21	1.26	<0.02	<0.02	<0.02	5.01	0.6	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	109	100
MW112P	BH112_P, MW112_P	23/03/2022	0382_MW112P_220323	Normal	ES2210369	0.05	*7.08*	1.67	**8.75**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.08	0.02	<0.02	0.15	0.09	<0.02	<0.02	<0.02	<0.02	0.04	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	9.18	9.01
MW113	BH113	23/03/2022	0382_MW113_220323	Normal	ES2210369	**10.6**	*1240*	140	**1380**	<0.05	17.8	0.09	<0.05	<0.04$^{\#1}$	<0.04$^{\#1}$	<0.1$^{\#1}$	14.4	16.5	1.13	30	10.3	4.34	0.24	<0.04$^{\#1}$	0.12	11.2	4.6	<0.1$^{\#1}$	<0.1$^{\#1}$	<0.1$^{\#1}$	<0.1$^{\#1}$	<0.04$^{\#1}$	0.05	<0.04$^{\#1}$	1500	1480
MW115	BH115	23/03/2022	0382_MW115_220323	Normal	ES2210369	**11.2**	*281*	160	**441**	<0.05	0.87	<0.05	<0.05	<0.04$^{\#1}$	<0.04$^{\#1}$	<0.1$^{\#1}$	21.9	5.98	0.16	38.2	14.8	5.36	<0.04$^{\#1}$	<0.04$^{\#1}$	<0.04$^{\#1}$	19.4	3.4	<0.1$^{\#1}$	<0.1$^{\#1}$	<0.1$^{\#1}$	<0.1$^{\#1}$	<0.04$^{\#1}$	<0.04$^{\#1}$	<0.04$^{\#1}$	562	525
MW117	BH117	21/03/2022	0382_MW117_220321	Normal	ES2210369	<0.01	*0.14*	0.05	**0.19**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.19	0.19
MW119	BH119	23/03/2022	0382_MW119_220323	Normal	ES2210369	0.55	*32.8*	4.6	**37.4**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.53	1.63	<0.02	3	0.35	0.22	<0.02	<0.02	<0.02	0.84	2.2	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	46.7	45.8
MW119P	BH119_P, MW119_P, MW119S	23/03/2022	0382_MW119P_220323	Normal	ES2210369	**9.02**	*156*	176	**332**	<0.05	0.4	<0.05	<0.05	<0.04$^{\#1}$	<0.04$^{\#1}$	<0.1$^{\#1}$	18.3	2.48	0.05	23.9	14.3	3.58	<0.04$^{\#1}$	<0.04$^{\#1}$	<0.04$^{\#1}$	13.2	1	<0.1$^{\#1}$	<0.1$^{\#1}$	<0.1$^{\#1}$	<0.1$^{\#1}$	<0.04$^{\#1}$	<0.04$^{\#1}$	<0.04$^{\#1}$	418	386
MW120	BH120	21/03/2022	0382_MW120_220321	Normal	ES2210369	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
MW121	BH121	21/03/2022	0382_MW121_220321	Normal	ES2210369	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
MW123	BH123	22/03/2022	0382_MW123_220322	Normal	ES2210369	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
MW123	BH123	22/03/2022	0382_QC102_220322	Field_D	ES2210369	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
MW124	BH124	22/03/2022	0382_MW124_220322	Normal	ES2210369	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
MW129		23/03/2022	0382_MW129_220323	Normal	ES2210369	<0.01	0.02	0.01	0.03	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.03	0.03
MW130		23/03/2022	0382_MW130_220323	Normal	ES2210369	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
MW131		23/03/2022	0382_MW131_220323	Normal	ES2210369	<0.01	0.06	0.02	**0.08**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.08	0.08
MW133	MW133P	23/03/2022	0382_MW133_220323	Normal	ES2210369	0.03	*2.59*	1.84	**4.43**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.26	0.29	<0.02	0.53	0.03	0.03	<0.02	<0.02	<0.02	0.22	0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	5.92	5.63
MW136	MW136P	23/03/2022	0382_MW136_220323	Normal	ES2210369	0.02	0.03	0.3	**0.33**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.06	0.03	<0.02	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.74	0.68
MW301	MW1	21/03/2022	0382_MW301_220321	Normal	ES2210369	<0.01	0.04	0.12	**0.16**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.16	0.16
MW323	BH345	22/03/2022	0382_MW323_220322	Normal	ES2210369	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
MW323	BH345	22/03/2022	0382_QC101_220322	Field_D	ES2210369	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
MW330	BH365	22/03/2022	0382_MW330_220322	Normal	ES2210369	**3.9**	*3.78*	57.9	**61.7**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	6.27	3	<0.02	20.4	2.2	1.56	<0.02	<0.02	<0.02	2.62	1.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	103	94.3
MW330	BH365	22/03/2022	0382_QC202_220322	Interlab_D	291768	**3.9**	*4.2*	63	**67**	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<0.5	6.4	2.6	<0.01	17	2.9	1.6	<0.02	<0.05	<0.02	2.1	1.5	<0.05	<0.5	<0.1	<0.05	<0.02	<0.1	<0.02	110	-
MW349	BH612	22/03/2022	0382_MW349_220322	Normal	ES2210369	<0.01	0.02	0.06	**0.08**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.08	0.08
MW349	BH612	22/03/2022	0382_QC201_220322	Interlab_D	291768	<0.01	0.03	0.06	**0.09**	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<0.5	0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.05	<0.02	0.01	<0.02	<0.05	<0.5	<0.1	<0.05	<0.02	<0.1	<0.02	0.12	-

Notes:

LOR	Limit of Reporting
Normal	Primary Sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
	Denotes first time detection above LOR
	Denotes first time exceedance of human health screening criteria
	Denotes first time exceedance of ecological screening criteria
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

#1 : Reported Analyte LOR is higher than Requested Analyte LOR. LOR values have been adjusted for samples that required dilution due to the presence of high level contamination.

Table T4
Surface Water Analytical Results

AECOM

						Per- and Poly-fluoroalkyl Substances																																					
						Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluoroundecanoic acid (PFUnDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecane sulfonic acid (PFDS)	Perfluorododecanoic acid (PFDoDA)	Perfluorodecanoic acid (PFDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorooctane sulfonamide (FOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	Sum of PFAS	Sum of PFAS (WA DER List)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.1	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.01	0.01
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																																		
PFAS NEMP 2020 Recreational Water						**10**			**2**																																		
Location Code	**Sampled Date**	**Field ID**	**Sample Type**	**Lab Report #**																																					
SW001	23/03/2022	0382_SW001_220323	Normal	ES2210369		0.02	*0.27*	0.15	0.42	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.49	0.49
SW009	22/03/2022	0382_SW009_220322	Normal	ES2210369		<0.01	0.09	0.07	0.16	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.16	0.16
SW009	22/03/2022	0382_QC103_220322	Field_D	ES2210369		<0.01	0.09	0.07	0.16	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.18	0.18
SW011	21/03/2022	0382_SW011_220321	Normal	ES2210369		0.16	*0.24*	3.28	**3.52**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.18	0.1	<0.02	0.6	0.03	0.07	<0.02	<0.02	<0.02	0.11	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	4.77	4.56
SW012	21/03/2022	0382_SW012_220321	Normal	ES2210369		<0.01	0.06	0.06	0.12	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.12	0.12
SW014	22/03/2022	0382_SW014_220322	Normal	ES2210369		<0.01	0.04	0.04	0.08	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.08	0.08
SW015	22/03/2022	0382_SW015_220322	Normal	ES2210369		<0.01	0.02	0.02	0.04	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.04	0.04
SW015	22/03/2022	0382_QC203_220322	Interlab_D	291768		<0.01	0.03	0.04	0.08	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<0.5	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.05	<0.02	<0.01	<0.02	<0.05	<0.5	<0.1	<0.05	<0.02	<0.02	<0.1	<0.02	0.08	-
SW017	21/03/2022	0382_SW017_220321	Normal	ES2210369		<0.01	0.02	0.02	0.04	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.04	0.04
SW025	22/03/2022	0382_SW025_220322	Normal	ES2210369		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
SW030	22/03/2022	0382_SW030_220322	Normal	ES2210369		0.04	*0.74*	0.47	1.21	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.06	0.08	<0.02	0.2	0.02	0.02	<0.02	<0.02	<0.02	0.07	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	1.7	1.62
SW030	22/03/2022	0382_QC200_220322	Interlab_D	291768		0.03	*0.83*	0.58	1.4	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<0.5	0.07	0.06	<0.01	0.2	0.03	0.02	<0.02	<0.05	<0.02	0.06	0.05	<0.05	<0.5	<0.1	<0.05	<0.02	<0.1	<0.02	1.9	-
SW038	22/03/2022	0382_SW038_220322	Normal	ES2210369		0.01	*0.25*	0.16	0.41	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.02	0.03	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.53	0.51
SW038	22/03/2022	0382_QC100_220322	Field_D	ES2210369		0.01	*0.2*	0.17	0.37	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.45	0.45
SW059	23/03/2022	0382_SW059_220323	Normal	ES2210369		0.01	*0.15*	0.06	0.21	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.24	0.24
SW062	22/03/2022	0382_SW062_220322	Normal	ES2210369		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
SW063	21/03/2022	0382_SW063_220321	Normal	ES2210369		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
SW103	21/03/2022	0382_SW103_220321	Normal	ES2210369		<0.01	0.04	0.02	0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.06	0.06
SW104	21/03/2022	0382_SW104_220321	Normal	ES2210369		<0.01	0.03	0.02	0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.05	0.05
SW105	21/03/2022	0382_SW105_220321	Normal	ES2210369		<0.01	0.05	0.02	0.07	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.07	0.07
SW111	23/03/2022	0382_SW111_220323	Normal	ES2210369		0.01	0.05	0.03	0.08	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.09	0.09

Notes:

LOR	Limit of Reporting
Normal	Primary Sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
	Denotes first time detection above LOR
	Denotes first time exceedance of human health screening criteria
	Denotes first time exceedance of ecological screening criteria
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

Table T5: Historical Groundwater Analytical Results

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																								
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																										
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																												
MW002	MW02	20/02/2018	0382_MW02_180220	Normal	NSW_0382_PFAS	0.35	*0.16*	0.08	**0.24**	0.02	<0.01	<0.01	<0.01	0.05	0.1	0.14	0.1	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05
MW002	MW02	1/10/2020	0382_MW002_201001	Normal	NSW_0382_PFASOMP_20	0.2	0.04	0.05	**0.09**	0.28	<0.02	<0.02	<0.02	<0.1	0.08	0.16	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	MW02	1/10/2020	0382_QC102_201001	Field_D	NSW_0382_PFASOMP_20	0.17	0.03	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	0.08	0.07	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	MW02	26/03/2021	0382_MW002_210326	Normal	NSW_0382_PFASOMP_20	0.05	0.03	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.03	<0.05	<0.05	0.03	<0.05
MW002	MW02	6/09/2021	0382_MW002_210906	Normal	NSW_0382_PFASOMP_20	0.14	0.04	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	MW02	21/03/2022	0382_MW002_220321	Normal	NSW_0382_PFASOMP_20	0.21	0.12	0.04	**0.16**	0.04	<0.02	<0.02	<0.02	<0.1	0.05	0.06	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW005	MW05	21/02/2018	0382_MW05_180221	Normal	NSW_0382_PFAS	0.03	0.11	0.11	**0.22**	0.01	0.01	<0.01	<0.01	<0.05	0.02	0.04	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW005	MW05	21/03/2022	0382_MW005_220321	Normal	NSW_0382_PFASOMP_20	0.01	0.04	0.03	0.07	0.12	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	28/03/2018	0382_MW112_180328	Normal	NSW_0382_PFAS	**4.3**	*64*	58	**122**	6.7	12	3.3	<0.01	0.99	1.5	9.7	1.7	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW112	BH112	1/10/2020	0382_MW112_201001	Normal	NSW_0382_PFASOMP_20	**4.75**	*52.8*	70.4	**123**	6.32	10.3	6.01	<0.02	1	1.87	11.6	1.97	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	3/12/2020	0382_MW112_201203	Normal	NSW_0382_PFASOMP_20	**3.03**	*30*	42.4	**72.4**	3.86	6.31	2.92	<0.02	0.9	1.29	8.16	1.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	25/03/2021	0382_MW112_210325	Normal	NSW_0382_PFASOMP_20	**3.76**	*25.7*	47.4	**73.1**	5.13	6.3	2.92	<0.02	0.9	1.46	8.38	1.58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	7/06/2021	0382_MW112_210607	Normal	NSW_0382_PFASOMP_20	**4.14**	*37.9*	49.5	**87.4**	5.33	8.27	4.27	<0.02	0.9	1.53	9.4	1.58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	7/09/2021	0382_MW112_210907	Normal	NSW_0382_PFASOMP_20	**3.12**	*21.2*	44	**65.2**	4.61	6.47	3.01	<0.02	0.8	1.33	7.88	1.29	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	6/12/2021	0382_MW112_211206	Normal	NSW_0382_PFASOMP_20	**2.43**	*34.9*	46.8	**81.7**	5.31	5.51	3.65	<0.02	0.9	1.26	9.28	1.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	23/03/2022	0382_MW112_220323	Normal	NSW_0382_PFASOMP_20	**3.25**	*31.8*	48.8	**80.6**	5.01	6	3.21	<0.02	0.6	1.14	8.13	1.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	28/03/2018	0382_MW112_P_180328	Normal	NSW_0382_PFAS	0.33	*50*	6	**56**	0.33	1.2	0.34	<0.01	0.16	0.3	1.4	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW112P	BH112_P, MW112_P	1/10/2020	0382_MW112_P_201001	Normal	NSW_0382_PFASOMP_20	0.4	*37.3*	8.1	**45.4**	0.33	0.64	0.52	<0.02	0.2	0.35	1.78	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	3/12/2020	0382_MW112_P_201203	Normal	NSW_0382_PFASOMP_20	0.22	*23.2*	4.43	**27.6**	0.2	0.38	0.29	<0.02	0.1	0.22	1.09	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	25/03/2021	0382_MW112_P_210325	Normal	NSW_0382_PFASOMP_20	0.25	*20.1*	4.75	**24.8**	0.19	0.28	0.24	<0.02	0.2	0.24	1.35	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	25/03/2021	0382_QC100_210325	Field_D	NSW_0382_PFASOMP_20	0.25	*22.5*	5.06	**27.6**	0.21	0.31	0.27	<0.02	0.2	0.26	1.45	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	7/06/2021	0382_MW112P_210607	Normal	NSW_0382_PFASOMP_20	0.33	*28.2*	5.56	**33.8**	0.24	0.4	0.36	<0.02	0.2	0.28	1.32	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	7/09/2021	0382_MW112P_210907	Normal	NSW_0382_PFASOMP_20	0.24	*19.1*	4.68	**23.8**	0.2	0.32	0.29	<0.02	0.2	0.23	1.26	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	6/12/2021	0382_MW112P_211206	Normal	NSW_0382_PFASOMP_20	0.19	*20.8*	3.9	**24.7**	0.18	0.24	0.23	<0.02	0.2	0.2	1.17	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	23/03/2022	0382_MW112P_220323	Normal	NSW_0382_PFASOMP_20	0.05	*7.08*	1.67	**8.75**	0.04	0.08	0.09	<0.02	<0.1	0.02	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	28/03/2018	0382_MW113_180328	Normal	NSW_0382_PFAS	**3.7**	*46*	74	**120**	11	13	3	<0.01	1.2	2.1	13	1.9	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.24	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW113	BH113	1/10/2020	0382_MW113_201001	Normal	NSW_0382_PFASOMP_20	**15.7**	*194*	284	**478**	36.2	46.6	29.6	0.17	4.4	8.81	53	7.59	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	3/12/2020	0382_MW113_201203	Normal	NSW_0382_PFASOMP_20	**11.8**	*108*	162	**270**	27.3	38.9	9.7	0.05	4.2	6.48	38	6.05	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	3/12/2020	0382_QC100_201203	Field_D	NSW_0382_PFASOMP_20	**12.4**	*122*	165	**287**	29	40.5	10.6	0.05	4.2	6.4	39.8	6.11	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.64	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	3/12/2020	0382_QC200_201203	Interlab_D	NSW_0382_PFASOMP_20	**8.2**	*97*	180	-	22	21	6.2	<0.01	3.4	6.1	31	4.2	0.024	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	0.54	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW113	BH113	25/03/2021	0382_MW113_210325	Normal	NSW_0382_PFASOMP_20	**7.56**	*247*	89	**336**	10.4	12.5	5.91	0.54	3.7	9.56	20.8	3.77	0.56	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	5.68	0.1	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	7/06/2021	0382_MW113_210607	Normal	NSW_0382_PFASOMP_20	**17.8**	*219*	269	**488**	38.4	51.1	26.6	0.16	4.8	10	63	9.13	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	1.7	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	7/09/2021	0382_MW113_210907	Normal	NSW_0382_PFASOMP_20	**10**	*205*	252	**457**	36	56.4	22.7	0.07	4.9	8.76	46.4	7.12	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.83	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	6/12/2021	0382_MW113_211206	Normal	NSW_0382_PFASOMP_20	**15.2**	*183*	266	**449**	43	46.6	20.4	0.08	4.5	9.43	58.9	7.81	0.1	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	1.16	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW113	BH113	6/12/2021	0382_QC100_211206	Field_D	NSW_0382_PFASOMP_20	**14.6**	*182*	262	**444**	39.8	45.1	20	0.09	4.7	8.74	58.4	7.42	0.08	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	1.15	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW113	BH113	23/03/2022	0382_MW113_220323	Normal	NSW_0382_PFASOMP_20	**10.6**	*1,240*	140	**1,380**	11.2	14.4	10.3	0.24	4.6	16.5	30	4.34	1.13	0.12	<0.04	<0.04	<0.04	<0.10	<0.05	17.8	0.09	<0.05	0.05	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW115	BH115	28/03/2018	0382_MW115_180328	Normal	NSW_0382_PFAS	**13**	*360*	180	**540**	21	30	14	<0.2	3.2	5.7	31	5.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
MW115	BH115	1/10/2020	0382_MW115_201001	Normal	NSW_0382_PFASOMP_20	**16.1**	*469*	218	**687**	20.1	38.4	28.2	<0.02	3.9	7.38	41.7	6.53	0.15	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.7	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	3/12/2020	0382_MW115_201203	Normal	NSW_0382_PFASOMP_20	**12**	*267*	133	**400**	16	20.9	13.4	<0.02	3.5	4.92	28.4	4.92	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.57	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	25/03/2021	0382_MW115_210325	Normal	NSW_0382_PFASOMP_20	**9.06**	*160*	113	**273**	13	16.2	8.63	<0.02	3.6	4.3	23.8	3.98	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.68	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	7/06/2021	0382_MW115_210607	Normal	NSW_0382_PFASOMP_20	**14.4**	*306*	178	**484**	17	28.1	17.5	<0.02	3.6	6.53	32.6	6.07	0.14	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.74	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	7/09/2021	0382_MW115_210907	Normal	NSW_0382_PFASOMP_20	**8.78**	*262*	162	**424**	17.5	27.6	14.9	<0.02	3.5	5.66	31.6	3.94	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.67	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	6/12/2021	0382_MW115_211206	Normal	NSW_0382_PFASOMP_20	**10.4**	*210*	133	**343**	15.9	18.2	10.8	<0.04	3.2	5.08	32.8	4.61	0.12	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.6	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW115	BH115	23/03/2022	0382_MW115_220323	Normal	NSW_0382_PFASOMP_20	**11.2**	*281*	160	**441**	19.4	21.9	14.8	<0.04	3.4	5.98	38.2	5.36	0.16	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.87	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW117	BH117	1/05/2018	0382_MW117_180501	Normal	NSW_0382_PFAS	<0.01	0.06	0.02	**0.08**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW117	BH117	1/05/2018	0382_QC101_180501	Field_D	NSW_0382_PFAS	<0.01	0.06	0.02	**0.08**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW117	BH117	1/05/2018	0382_QC201_180501	Interlab_D	NSW_0382_PFAS	<0.01	0.04	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T5: Historical Groundwater Analytical Results

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																								
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																										
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																												
MW117	BH117	26/03/2021	0382_MW117_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	BH117	7/09/2021	0382_MW117_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	BH117	21/03/2022	0382_MW117_220321	Normal	NSW_0382_PFASOMP_20	<0.01	*0.14*	0.05	**0.19**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	28/03/2018	0382_MW119_180328	Normal	NSW_0382_PFAS	0.08	*0.62*	1.9	**2.52**	0.42	0.58	0.03	<0.01	0.05	0.07	0.44	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119	BH119	28/03/2018	0382_QC102_180328	Field_D	NSW_0382_PFAS	0.08	*0.62*	2.2	**2.82**	0.43	0.49	0.04	<0.01	0.05	0.07	0.46	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119	BH119	1/10/2020	0382_MW119_201001	Normal	NSW_0382_PFASOMP_20	0.36	*18.6*	5.17	**23.8**	0.62	0.62	0.37	<0.02	<0.1	0.16	0.8	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	3/12/2020	0382_MW119_201203	Normal	NSW_0382_PFASOMP_20	0.1	*2.03*	1.04	**3.07**	0.19	0.19	0.06	<0.02	<0.1	0.06	0.27	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	25/03/2021	0382_MW119_210325	Normal	NSW_0382_PFASOMP_20	0.39	*24*	5.78	**29.8**	0.78	0.56	0.32	<0.02	0.4	0.43	1.53	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	7/06/2021	0382_MW119_210607	Normal	NSW_0382_PFASOMP_20	0.4	*8.8*	3.59	**12.4**	0.81	0.55	0.15	<0.02	0.4	0.47	1.53	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	7/06/2021	0382_QC100_210607	Field_D	NSW_0382_PFASOMP_20	0.4	*7.53*	3.41	**10.9**	0.78	0.53	0.14	<0.02	0.4	0.49	1.47	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	7/09/2021	0382_MW119_210907	Normal	NSW_0382_PFASOMP_20	0.55	*8.84*	6.17	**15**	1.12	1.08	0.31	<0.02	0.46	0.59	2.28	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	6/12/2021	0382_MW119_211206	Normal	NSW_0382_PFASOMP_20	0.39	*7.43*	5.36	**12.8**	1.07	0.89	0.25	<0.02	0.4	0.46	2.4	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	23/03/2022	0382_MW119_220323	Normal	NSW_0382_PFASOMP_20	0.55	*32.8*	4.6	**37.4**	0.84	0.53	0.35	<0.02	2.2	1.63	3	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	28/03/2018	0382_MW119_P_180328	Normal	NSW_0382_PFAS	**1.6**	*30*	16	**46**	2.2	3.9	2	<0.01	0.33	0.48	3.3	0.44	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119P	BH119_P, MW119_P	1/10/2020	0382_MW119_P_201001	Normal	NSW_0382_PFASOMP_20	**1.22**	*4.32*	34.8	**39.1**	4	5.55	1.26	<0.02	0.7	1.73	10.4	1.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	3/12/2020	0382_MW119_P_201203	Normal	NSW_0382_PFASOMP_20	0.4	*2.65*	10.3	**13**	1.53	2.76	0.3	<0.02	0.4	0.59	3.16	0.43	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	25/03/2021	0382_MW119_P_210325	Normal	NSW_0382_PFASOMP_20	0.4	*1.89*	10.3	**12.2**	1.61	1.93	0.27	<0.02	0.3	0.51	2.95	0.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	7/06/2021	0382_MW119P_210607	Normal	NSW_0382_PFASOMP_20	**5.4**	*51.6*	114	**166**	16.3	26	6.42	<0.02	1.8	6.24	44.4	4.09	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.38	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	7/09/2021	0382_MW119P_210907	Normal	NSW_0382_PFASOMP_20	**6.4**	*69.5*	156	**226**	13.4	23.8	6.64	<0.02	1.35	4.32	29.5	4.64	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.42	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P	6/12/2021	0382_MW119P_211206	Normal	NSW_0382_PFASOMP_20	**6.06**	*52.5*	130	**182**	9.3	15.4	7.23	<0.04	1	2.6	22.6	3.18	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.44	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW119P	BH119_P, MW119_P	23/03/2022	0382_MW119P_220323	Normal	NSW_0382_PFASOMP_20	**9.02**	*156*	176	**332**	13.2	18.3	14.3	<0.04	1	2.48	23.9	3.58	0.05	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.4	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW120	BH120	14/03/2018	0382_MW120_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW120	BH120	1/10/2020	0382_MW120_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	BH120	25/03/2021	0382_MW120_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	BH120	6/09/2021	0382_MW120_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	BH120	21/03/2022	0382_MW120_220321	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	14/03/2018	0382_MW121_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW121	BH121	14/03/2018	0382_QC101_180314	Field_D	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW121	BH121	14/03/2018	0382_QC201_180314	Interlab_D	NSW_0382_PFAS	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	1/10/2020	0382_MW121_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	1/10/2020	0382_QC202_201001	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.02	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW121	BH121	25/03/2021	0382_MW121_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	6/09/2021	0382_MW121_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	21/03/2022	0382_MW121_220321	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW122	BH122	14/03/2018	0382_MW122_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW122	BH122	1/10/2020	0382_MW122_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW122	BH122	26/03/2021	0382_MW122_210326	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	15/03/2018	0382_MW123_180315	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW123	BH123	1/10/2020	0382_MW123_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	24/03/2021	0382_MW123_210324	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	6/09/2021	0382_MW123_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	6/09/2021	0382_QC201_210906	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW123	BH123	22/03/2022	0382_MW123_220322	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	22/03/2022	0382_QC102_220322	Field_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	15/03/2018	0382_MW124_180315	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	0.02	<0.01	0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW124	BH124	1/10/2020	0382_MW124_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	24/03/2021	0382_MW124_210324	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	6/09/2021	0382_MW124_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T5: Historical Groundwater Analytical Results

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																								
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																										
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																												
MW124	BH124	6/09/2021	0382_QC200_210906	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.01	0.01	0.03	<0.01	<0.01	<0.02	<0.02	<0.02	0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW124	BH124	22/03/2022	0382_MW124_220322	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		17/07/2018	0382_MW129_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW129		1/10/2020	0382_MW129_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		3/12/2020	0382_MW129_201203	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		25/03/2021	0382_MW129_210325	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		7/06/2021	0382_MW129_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		7/09/2021	0382_MW129_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		6/12/2021	0382_MW129_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.01	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		23/03/2022	0382_MW129_220323	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.01	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		17/07/2018	0382_MW130_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	0.02	0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW130		1/10/2020	0382_MW130_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		3/12/2020	0382_MW130_201203	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		25/03/2021	0382_MW130_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		7/06/2021	0382_MW130_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		7/09/2021	0382_MW130_210907	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		7/09/2021	0382_QC103_210907	Field_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		6/12/2021	0382_MW130_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.11	0.07	**0.18**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		23/03/2022	0382_MW130_220323	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		17/07/2018	0382_MW131_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW131		1/10/2020	0382_MW131_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.08	0.03	**0.11**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		3/12/2020	0382_MW131_201203	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		25/03/2021	0382_MW131_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		7/06/2021	0382_MW131_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		7/06/2021	0382_QC200_210607	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.078	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW131		7/09/2021	0382_MW131_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		6/12/2021	0382_MW131_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.01	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		6/12/2021	0382_QC200_211206	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW131		23/03/2022	0382_MW131_220323	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.02	**0.08**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW133		7/09/2021	0382_MW133_210907	Normal	NSW_0382_PFASOMP_20	0.05	*4.06*	1.58	**5.64**	0.41	0.12	0.07	<0.02	0.6	0.45	1.81	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW133		6/12/2021	0382_MW133_211206	Normal	NSW_0382_PFASOMP_20	**2.88**	*168*	22	**190**	1.15	0.97	6.37	<0.04	1	0.92	4.82	0.36	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	<0.05	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW133		23/03/2022	0382_MW133_220323	Normal	NSW_0382_PFASOMP_20	0.03	*2.59*	1.84	**4.43**	0.22	0.26	0.03	<0.02	0.1	0.29	0.53	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW134		25/03/2021	0382_MW134P_210325	Normal	NSW_0382_PFASOMP_20	0.02	*0.41*	0.48	**0.89**	0.1	0.07	<0.02	0.07	0.2	0.16	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW134		25/03/2021	0382_QC200_210325	Interlab_D	NSW_0382_PFASOMP_20	0.018	*0.35*	0.38	-	0.085	0.062	<0.01	<0.01	0.17	0.13	0.17	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW134		7/06/2021	0382_MW134_210607	Normal	NSW_0382_PFASOMP_20	0.03	*0.44*	1.16	**1.6**	0.23	0.26	0.02	<0.02	0.1	0.16	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136		18/12/2020	0382_MW136_201218	Normal	NSW_0382_PFAS	<0.002	0.016	0.016	0.032	0.008	0.004	<0.002	<0.002	<0.01	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	0.082	<0.005	<0.005	<0.002	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005
MW136		7/06/2021	0382_MW136_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.11	0.04	**0.15**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136		7/09/2021	0382_MW136_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.11	**0.15**	0.06	0.03	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136		6/12/2021	0382_MW136_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.05	0.08	**0.13**	0.06	0.03	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136		23/03/2022	0382_MW136_220323	Normal	NSW_0382_PFASOMP_20	0.02	0.03	0.3	**0.33**	0.08	0.06	<0.02	<0.02	0.1	0.03	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	19/02/2018	0382_MW1_180219	Normal	NSW_0382_PFAS	0.02	0.1	0.72	**0.82**	0.03	0.04	<0.01	<0.01	<0.05	0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW301	MW1	1/10/2020	0382_MW301_201001	Normal	NSW_0382_PFASOMP_20	0.01	*0.16*	0.09	**0.25**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	26/03/2021	0382_MW301_210326	Normal	NSW_0382_PFASOMP_20	0.01	0.08	0.06	**0.14**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	6/09/2021	0382_MW301_210906	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.04	**0.1**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	6/09/2021	0382_QC101_210906	Field_D	NSW_0382_PFASOMP_20	<0.01	0.07	0.05	**0.12**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	21/03/2022	0382_MW301_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.12	**0.16**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	9/05/2012	BH345	Normal	ACTNSW_Hist_202009-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW323	BH345	16/02/2018	0382_BH345_180216	Normal	NSW_0382_PFAS	<0.01	0.09	<0.01	**0.09**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW323	BH345	16/02/2018	0382_QC101_180216	Field_D	NSW_0382_PFAS	<0.01	0.09	<0.01	**0.09**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW323	BH345	16/02/2018	0382_QC201_180216	Interlab_D	NSW_0382_PFAS	<0.01	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	1/10/2020	0382_MW323_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	24/03/2021	0382_MW323_210324	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	6/09/2021	0382_MW323_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	22/03/2022	0382_MW323_220322	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T5: Historical Groundwater Analytical Results

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids								PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																								
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																										
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																												
MW323	BH345	22/03/2022	0382_QC101_220322	Field_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW330	BH365	8/05/2012	BH365	Normal	ACTNSW_Hist_202009-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW330	BH365	7/02/2018	0382_BH365_180207	Normal	NSW_0382_PFAS	**0.98**	0.05	44	**44.05**	3.4	7.7	0.49	<0.01	1.6	3.2	19	1.8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	BH365	27/02/2018	0382_BH365_180227	Normal	NSW_0382_PFAS	**1.3**	0.03	40	**40.03**	1.7	5.1	0.48	<0.01	1.1	1.9	11	1.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	BH365	27/02/2018	0382_QC101_180227	Field_D	NSW_0382_PFAS	**1.3**	0.03	39	**39.03**	1.7	4.6	0.47	<0.01	1	1.9	11	1.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	BH365	27/02/2018	0382_QC201_180227	Interlab_D	NSW_0382_PFAS	**1.45**	0.04	25.8	**25.8**	1.11	3.13	0.4	<0.02	<0.1	1.23	10	1.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW330	BH365	22/03/2022	0382_MW330_220322	Normal	NSW_0382_PFASOMP_20	**3.9**	*3.78*	57.9	**61.7**	2.62	6.27	2.2	<0.02	1.1	3	20.4	1.56	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW330	BH365	22/03/2022	0382_QC202_220322	Interlab_D	NSW_0382_PFASOMP_20	**3.9**	*4.2*	63	**67**	2.1	6.4	2.9	<0.02	1.5	2.6	17	1.6	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW349	BH612	3/05/2012	BH612	Normal	ACTNSW_Hist_202009-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW349	BH612	12/02/2018	0382_BH612_180212	Normal	NSW_0382_PFAS	0.01	0.1	0.2	**0.3**	0.02	0.03	0.02	<0.01	<0.05	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW349	BH612	1/10/2020	0382_MW349_201001	Normal	NSW_0382_PFASOMP_20	0.01	0.12	0.28	**0.4**	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	24/03/2021	0382_MW349_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.16	**0.22**	0.03	0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	6/09/2021	0382_MW349_210906	Normal	NSW_0382_PFASOMP_20	<0.01	0.1	0.23	**0.33**	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	22/03/2022	0382_MW349_220322	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.06	**0.08**	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	22/03/2022	0382_QC201_220322	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.03	0.06	**0.09**	0.01	0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW361	HMW7	21/02/2018	0382_HMW7_180221	Normal	NSW_0382_PFAS	0.03	0.07	0.11	**0.18**	0.02	0.02	<0.01	<0.01	<0.05	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW361	HMW7	1/10/2020	0382_MW361_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.03	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Notes:

LOR	Limit of Reporting
Normal	Primary sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

Table T6
Historical Surface Water Analytical Results

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																											
PFAS NEMP 2020 Recreational Water						**10**			**2**																									
Location Code	**Location Alt. Nam**	**Date**	**Field ID**	**Sample Type**	**Project ID**																													
SW001		15/03/2018	0382_SW001_180315	Normal	NSW_0382_PFAS	0.86	*3.9*	6.9	**10.8**	0.36	1	0.36	0.04	0.41	0.92	2.7	0.45	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW001		25/03/2021	0382_SW001_210325	Normal	NSW_0382_PFASOMP_20	0.03	*0.65*	0.58	1.23	0.04	0.04	<0.02	<0.02	<0.1	0.09	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		7/06/2021	0382_SW001_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.13	0.06	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		7/09/2021	0382_SW001_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	0.04	0.13	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		6/12/2021	0382_SW001_211206	Normal	NSW_0382_PFASOMP_20	0.05	*0.76*	0.5	1.26	0.06	0.04	0.02	<0.02	<0.1	0.12	0.22	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		6/12/2021	0382_QC101_211206	Field_D	NSW_0382_PFASOMP_20	0.04	*0.72*	0.49	1.21	0.05	0.04	0.02	<0.02	<0.1	0.11	0.22	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		23/03/2022	0382_SW001_220323	Normal	NSW_0382_PFASOMP_20	0.02	*0.27*	0.15	0.42	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		26/09/2017	0382_SW009_170926	Normal	NSW_0382_PFAS	<0.01	0.03	0.02	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW009		30/09/2020	0382_SW009_200930	Normal	NSW_0382_PFASOMP_20	0.01	*0.17*	0.25	0.42	0.04	0.04	<0.02	<0.02	<0.1	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		30/09/2020	0382_QC101_200930	Field_D	NSW_0382_PFASOMP_20	0.01	*0.2*	0.28	0.48	0.05	0.05	<0.02	<0.02	<0.1	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		26/03/2021	0382_SW009_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	0.12	0.21	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		6/09/2021	0382_SW009_210906	Normal	NSW_0382_PFASOMP_20	0.01	0.13	0.18	0.31	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		22/03/2022	0382_SW009_220322	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	0.07	0.16	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		22/03/2022	0382_QC103_220322	Field_D	NSW_0382_PFASOMP_20	<0.01	0.09	0.07	0.16	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		27/09/2017	0382_SW011_170927	Normal	NSW_0382_PFAS	<0.01	0.04	0.03	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW011		30/09/2020	0382_SW011_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		26/03/2021	0382_SW011_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.08	0.08	0.16	0.04	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		8/09/2021	0382_SW011_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		21/03/2022	0382_SW011_220321	Normal	NSW_0382_PFASOMP_20	0.16	*0.24*	3.28	**3.52**	0.11	0.18	0.03	<0.02	<0.1	0.1	0.6	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012		27/09/2017	0382_SW012_170927	Normal	NSW_0382_PFAS	<0.01	0.02	0.02	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW012		30/09/2020	0382_SW012_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012		6/09/2021	0382_SW012_210906	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012		21/03/2022	0382_SW012_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.06	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		27/09/2017	0382_SW014_170927	Normal	NSW_0382_PFAS	<0.01	0.03	0.02	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW014		30/09/2020	0382_SW014_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.04	0.1	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		30/09/2020	0382_QC100_200930	Field_D	NSW_0382_PFASOMP_20	<0.01	0.04	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		26/03/2021	0382_SW014_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	0.03	<0.02	<0.02	<0.02	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		8/09/2021	0382_SW014_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		22/03/2022	0382_SW014_220322	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		26/09/2017	0382_SW015_170926	Normal	NSW_0382_PFAS	0.01	0.07	0.08	-	<0.01	<0.01	<0.01	<0.01	<0.05	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW015		30/09/2020	0382_SW015_200930	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		25/03/2021	0382_SW015_210325	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		25/03/2021	0382_QC101_210325	Field_D	NSW_0382_PFASOMP_20	<0.01	0.02	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		8/09/2021	0382_SW015_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		22/03/2022	0382_SW015_220322	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		22/03/2022	0382_QC203_220322	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.03	0.04	0.08	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW017		27/09/2017	0382_SW017_170927	Normal	NSW_0382_PFAS	<0.01	0.03	0.02	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW017		30/09/2020	0382_SW017_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.11	0.04	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		26/03/2021	0382_SW017_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.02	0.05	0.03	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		26/03/2021	0382_QC201_210326	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.02	0.02	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW017		8/09/2021	0382_SW017_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		21/03/2022	0382_SW017_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	15/06/2016	HBK-QA01	Normal	ACTNSW_Hist_202009-2	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-
SW025	HBK_SW001	15/06/2016	HBK-SW001	Normal	ACTNSW_Hist_202009-2	<0.01	<0.01	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	26/09/2017	0382_SW025_170926	Normal	NSW_0382_PFAS	<0.01	0.02	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW025	HBK_SW001	30/09/2020	0382_SW025_200930	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	25/03/2021	0382_SW025_210325	Normal	NSW_0382_PFASOMP_20	0.01	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	8/09/2021	0382_SW025_210908	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	22/03/2022	0382_SW025_220322	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW029		5/03/2018	0382_SW029_180305	Normal	NSW_0382_PFAS	<0.01	0.12	0.08	0.2	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW030		9/03/2018	0382_SW030_180309	Normal	NSW_0382_PFAS	<0.01	0.03	0.07	0.1	0.01	0.01	<0.01	<0.01	<0.05	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW030		30/09/2020	0382_SW030_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.11	0.14	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		24/03/2021	0382_SW030_210324	Normal	NSW_0382_PFASOMP_20	0.04	*0.78*	0.79	1.57	0.1	0.09	0.03	<0.02	<0.1	0.08	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		7/09/2021	0382_SW030_210907	Normal	NSW_0382_PFASOMP_20	0.07	*1.52*	2.66	**4.18**	0.29	0.4	0.1	<0.02	<0.1	0.04	0.33	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		7/09/2021	0382_QC102_210907	Field_D	NSW_0382_PFASOMP_20	0.07	*1.58*	2.72	**4.3**	0.31	0.4	0.11	<0.02	<0.1	0.03	0.33	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		22/03/2022	0382_SW030_220322	Normal	NSW_0382_PFASOMP_20	0.04	*0.74*	0.47	1.21	0.07	0.06	0.02	<0.02	<0.1	0.08	0.2	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		22/03/2022	0382_QC200_220322	Interlab_D	NSW_0382_PFASOMP_20	0.03	*0.83*	0.58	1.4	0.06	0.07	0.03	<0.02	0.05	0.06	0.2	0.02	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW038		8/03/2018	0382_SW038_180308	Normal	NSW_0382_PFAS	0.01	*0.32*	0.22	0.54	0.02	0.03	<0.01	<0.01	<0.05	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW038		24/03/2021	0382_SW038_210324	Normal	NSW_0382_PFASOMP_20	0.03	*0.46*	0.53	0.99	0.06	0.05	0.02	<0.02	<0.1	0.12	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		6/09/2021	0382_SW038_210906	Normal	NSW_0382_PFASOMP_20	<0.01	*0.21*	0.26	0.47	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		6/09/2021	0382_QC100_210906	Field_D	NSW_0382_PFASOMP_20	<0.01	*0.19*	0.25	0.44	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		22/03/2022	0382_SW038_220322	Normal	NSW_0382_PFASOMP_20	0.01	*0.25*	0.16	0.41	0.02	0.02	<0.02	<0.02	<0.1	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		22/03/2022	0382_QC100_220322	Field_D	NSW_0382_PFASOMP_20	0.01	*0.2*	0.17	0.37	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		1/03/2018	0382_SW059_180301	Normal	NSW_0382_PFAS	0.02	0.07	0.06	0.13	<0.01	<0.01	<0.01	<0.01	<0.05	0.

Table T6
Historical Surface Water Analytical Results

						PFAS				PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids									PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																											
PFAS NEMP 2020 Recreational Water						**10**			**2**																									
Location Code	**Location Alt. Nam**	**Date**	**Field ID**	**Sample Type**	**Project ID**																													
SW059		25/03/2021	0382_SW059_210325	Normal	NSW_0382_PFASOMP_20	0.01	0.11	0.07	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/06/2021	0382_SW059_210607	Normal	NSW_0382_PFASOMP_20	0.01	0.09	0.05	0.14	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/06/2021	0382_QC101_210607	Field_D	NSW_0382_PFASOMP_20	0.01	0.09	0.05	0.14	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/06/2021	0382_QC201_210607	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.069	0.044	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW059		7/09/2021	0382_SW059_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.04	0.1	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/09/2021	0382_QC203_210907	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.05	0.04	0.09	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW059		6/12/2021	0382_SW059_211206	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		6/12/2021	0382_QC201_211206	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.07	0.04	0.11	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW059		23/03/2022	0382_SW059_220323	Normal	NSW_0382_PFASOMP_20	0.01	*0.15*	0.06	0.21	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062		5/03/2018	0382_SW062_180305	Normal	NSW_0382_PFAS	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW062		30/09/2020	0382_SW062_200930	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062		8/09/2021	0382_SW062_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062		22/03/2022	0382_SW062_220322	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW063		18/04/2018	0382_SW063_180418	Normal	NSW_0382_PFAS	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW063		8/09/2021	0382_SW063_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW063		21/03/2022	0382_SW063_220321	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		15/06/2018	0382_SW103_180615	Normal	NSW_0382_PFAS	<0.05	*0.21*	0.08	0.29	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	0.02	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
SW103		15/06/2018	0382_QC102_180615	Field_D	NSW_0382_PFAS	<0.01	*0.22*	0.07	0.29	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
SW103		15/06/2018	0382_QC202_180615	Interlab_D	NSW_0382_PFAS	<0.01	*0.16*	0.07	0.23	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		30/09/2020	0382_SW103_200930	Normal	NSW_0382_PFASOMP_20	0.02	*0.15*	0.03	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.13	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		30/09/2020	0382_QC201_200930	Interlab_D	NSW_0382_PFASOMP_20	0.019	0.1	0.022	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	0.11	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW103		24/03/2021	0382_SW103_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		7/09/2021	0382_SW103_210907	Normal	NSW_0382_PFASOMP_20	0.01	*0.15*	0.06	0.21	0.05	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		7/09/2021	0382_QC202_210907	Interlab_D	NSW_0382_PFASOMP_20	0.02	*0.15*	0.07	0.21	0.02	<0.01	<0.01	<0.02	<0.02	<0.02	0.03	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	0.04	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW103		21/03/2022	0382_SW103_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104		15/06/2018	0382_SW104_180615	Normal	NSW_0382_PFAS	<0.05	*0.15*	0.07	0.22	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	0.01	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
SW104		30/09/2020	0382_SW104_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.08	0.02	0.1	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.15	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104		24/03/2021	0382_SW104_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104		7/09/2021	0382_SW104_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.07	0.03	0.1	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104		21/03/2022	0382_SW104_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105		15/06/2018	0382_SW105_180615	Normal	NSW_0382_PFAS	<0.05	*0.51*	0.13	0.64	0.01	<0.01	<0.05	<0.01	<0.05	0.02	0.03	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW105		30/09/2020	0382_SW105_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.13	0.03	0.16	<0.02	<0.02	<0.02	<0.02	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.23	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105		24/03/2021	0382_SW105_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105		7/09/2021	0382_SW105_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.12	0.04	0.16	0.04	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW105		21/03/2022	0382_SW105_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.05	0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		30/09/2020	0382_SW111_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.1	0.05	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		3/12/2020	0382_SW111_201203	Normal	NSW_0382_PFASOMP_20	0.02	0.07	0.05	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		3/12/2020	0382_QC101_201203	Field_D	NSW_0382_PFASOMP_20	0.02	0.08	0.05	0.13	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		3/12/2020	0382_QC201_201203	Interlab_D	NSW_0382_PFASOMP_20	0.018	0.084	0.05	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	0.022	0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW111		25/03/2021	0382_SW111_210325	Normal	NSW_0382_PFASOMP_20	0.06	*1.42*	1.03	**2.45**	0.09	0.08	0.04	<0.02	<0.1	0.13	0.35	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		7/06/2021	0382_SW111_210607	Normal	NSW_0382_PFASOMP_20	0.07	*1.93*	0.9	**2.83**	0.06	0.08	0.04	<0.02	<0.1	0.05	0.2	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		7/09/2021	0382_SW111_210907	Normal	NSW_0382_PFASOMP_20	0.04	*1.01*	0.73	1.74	0.05	0.06	0.03	<0.02	<0.1	0.04	0.2	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		6/12/2021	0382_SW111_211206	Normal	NSW_0382_PFASOMP_20	0.01	0.06	0.03	0.09	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW111		23/03/2022	0382_SW111_220323	Normal	NSW_0382_PFASOMP_20	0.01	0.05	0.03	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Notes:

LOR	Limit of Reporting
Normal	Primary Sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

Appendix C

Calibration Certificates

Appendix C Calibration Certificates

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration
Interface Meter
Heron H.Oil

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	[redacted]
Instrument	Heron H.Oil Interface Meter (30m)
Serial Number	01-8640
Client Name	[redacted] (AECOM Australia Pty Ltd)
Project Number	60612562_6.1

Instrument Check			
Item	Test	Test Passed	Comments
9V Battery	Klein Tools MM300 Multimeter	✓	Battery voltage reading above 7.9V
Battery Box	Check	✓	No damage
Face and Back Plates	Check	✓	No damage
Thumb Screws	Check	✓	Rubber ends intact
Tape Hangar/Protector	Check	✓	No damage
On/Off Button	Operation	✓	Button is functional
Buzzer	Operation	✓	Intermittent tone in H_2O, solid tone in product
LED Signal Light	Operation	✓	LED light functional – green and red
Probe	Operation/Check	✓	Decontaminated, cleaned and tested
Tape	Condition/Check	✓	Decontaminated and cleaned, no damage
Connection	Check	✓	Probe and link connected correctly and tightly
PCB	Operation	✓	Unit is fully functional
Electronics Panel	Orientation	✓	Correctly aligned

Instrument Readings		
Product	Buzzer	LED Light
H_2O	Intermittent	Blinking – Red
Petroleum	Solid	Steady – Red

Declaration
WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The interface meter was decontaminated, cleaned and tested with a mixture of tap water and petrol, shielded from ambient light.

Checked By	[redacted]
Calibration Date	17/03/2022
Calibration Due	17/09/2022

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WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration
Water Quality Meter
YSI Professional Plus

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	[redacted]
Instrument	YSI Professional Plus Water Quality Meter w/ 1m Quatro Cable
Serial Number	20G100643
Client Name	[redacted] (AECOM Australia Pty Ltd)
Project Number	60612562_6.1
Comments	-

Instrument Check

Item	Test	Test Passed	Comments
2 x Alkaline C-size Batteries	Klein Tools MM300 Multimeter	✓	Both batteries reading above 2.9V
Battery Saver Function	Operation	✓	Automatically turns off after 60 minutes if idle
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Connection Port and Cable	Condition/Check	✓	Clean, no damage
Monitor Housing	Condition/Check	✓	No damage
Firmware	Version	✓	4.0.0
pH Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
pH millivolts for pH 7.00	Calibration	✓	pH 7.00 calibration range between 0 mV ± 50 mV
pH millivolts for pH 4.00	Calibration	✓	pH 4 mV range +165 to +180 from 7 buffer mV value
pH slope	Calibration	✓	Range between 55 to 60 mV/pH (ideal value 59 mV)
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
ORP Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
ORP Reading	Calibration	✓	Within ± 80 mV of reference Zobell Reading
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
Conductivity/Temp Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
Conductivity Cell	Calibration	✓	Conductivity cell constant 5.0 ± 1.0 in GLP file
Clean Sensor Readings	Calibration	✓	Clean sensor reads less than 3 uS/cm in dry air
Dissolved Oxygen Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
DO Cap	Condition/Calibration	✓	1.25 mil PE membrane (yellow membrane)
DO Sensor in Use	Condition	✓	Polarographic DO sensor
DO Sensor Value	Calibration	✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA

Instrument Readings

Parameter	Standard Used	Reference No.	Calibration Value	Observed	Actual	Units
Temperature	Centre 370 Thermometer	Room Temp.	21.0	21.0	21.0	°C
pH	pH 4.00	351750	4.01	4.04	4.01	pH
pH	pH 7.00	351621	7.00	6.96	7.00	pH
Conductivity	2760 µs/cm at 25°C	362912	2760	2668	2760	µs/cm
ORP (Ref. check only)	Zobell A & B	364644/363903	237.1	230.0	237.1	mV
Zero Dissolved O_2	$NaSO_3$ in Distilled H_2O	362832	0.0	-0.5	0.0	%
100% Dissolved O_2	100% Air Saturated H_2O	Fresh Air	100.0	119.8	100.0	%

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using solutions of known values.

Calibrated By	[redacted]
Calibration Date	17/03/2022
Calibration Due	17/09/2022

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AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612562-6.2
Project Location:	HOLSWORTHY	**Client:**	DEPARTMENT OF DEFENCE
PM Name:	[redacted]	**Fieldwork Staff Name:**	[redacted]

This calibration record is intended to prompt fieldwork staff to calibrate water quality meter (WQM) daily before the start of fieldworks.

INSTRUMENT DETAILS

Supplier:	WAM SCIENTIFIC
Make and Model:	YSI PRO PLUS
Serial Number:	20G100643

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	21/03/22 9:15 AM				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	4	7	2549	0	
Calibration Reading:	4.07	6.95	2617	0.04	
Calibration Temperature:	20.9	20.9	20.9	21.0	

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	22/03/22 8:55 AM				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	4	7	2496	0.0	
Bump Test Reading:	4.05	6.9	2851	0.04	
Bump Test Temperature:	20.3	20.7	20.0	19.9	

COMMENTS

Detail any equipment faults, minor maintenance performed, change of batteries or technical support provided.

23/3/22 7:40 AM	pH 4	pH 7	Cond. 2655	D.O. 0.0	
test reading	4.06	7.00	2662	0.04	
temp	22.6	22.6	22.6	22.6	

Approval and Distribution

☑ Each individual instrument has been inspected and calibrated daily and bump tested as required by fieldwork staff.

[redacted] — Fieldwork Staff Signature

23/3/22 — Date

Distribution: Project Central File

Appendix D

Analytical Data Validation

Appendix D Analytical Data Validation

DATA VALIDATION REPORT

Project number:	60612562	Validation by: [redacted]	Date:	28/04/2022
Client:	Department of Defence	Data verified by: [redacted]	Date:	28/4/2022
Site:	Holsworthy Barracks			
Matrix type:	Surface Water and Groundwater			
Primary samples:	22 Groundwater samples 17 Surface water samples			
Laboratory:	Primary: ALS Secondary: Envirolab	Project Manager: [redacted]		
Lab reference:	ES2210369 (ALS) and 291768 (Envirolab)			

Key Issues:	No QA/QC issues were identified in the field or laboratory datasets that could have a material implication to decision-making on the project.

Field Quality Assurance and Quality Control

Field DQOs and DQIs	The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2022).
Sampling personnel	Sampling was conducted by J[redacted]between 21/03/2022 and 23/03/2022. Field personnel were all suitably qualified and experienced AECOM Environmental Scientists.
Sampling Methodology	Surface water samples were collected from directly beneath the surface to limit the infiltration of sediments into samples. Groundwater samples were collected from monitoring wells using no-purge methodology (HydraSleeves™), which were installed during the previous sampling events in September and December 2021 for all groundwater monitoring locations with the exception of MW330, which was installed on the first day of the March 2022 sampling round. The HydraSleeves™ were installed at depths based on screen intervals. Once sampling was completed at each location, a new HydraSleeve™ was deployed at the screened interval depth in preparation for the next sampling round. Following sampling at each location, the water quality meter and interface probe were decontaminated using Liquinox and nitrile gloves disposed of, with a new pair used for each sampling location.
Chain of Custody (COC)	All samples taken were reported on the Chain of Custody documents (COC) and subsequent email amendments and analysed for requested analytes.
Rinsate Blank	Rinsate blanks were collected from the final rinse of the decontaminated interface probe (IP) at a rate of one rinsate blank per day (three rinsate blank samples were collected)
Frequency of field QC	Field duplicates (intra-laboratory duplicates) and triplicates (inter-laboratory duplicates) were collected at a frequency of one in ten primary samples. In total, four field intra-laboratory duplicates, and four inter-laboratory duplicates were analysed for water samples (two for surface water and two for groundwater), meeting the DQI.
Handling and preservation	All samples were received at the primary laboratory in appropriate containers and with ice. Due to a laboratory error, the temperature was not recorded on arrival at the primary laboratory, however ice was present and used the temperature recorded by the secondary laboratory (which was 6.0°C).

	All samples were received at the secondary laboratory in appropriate containers and at temperature of 6.0 °C (with ice present).
Calibration of equipment	Measurements of water geochemical parameters were undertaken using the YSI WQM Professional Plus, which was calibrated by the supplier prior to use, in accordance with the manufacturer's instructions and daily by the field personnel. All calibration and service certificates are presented in Appendix C.
Laboratory QA/QC	
Laboratory DQOs and DQIs	The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2022).
Tests requested/reported	All surface water and groundwater samples were analysed for the PFAS extended suite. All sample requests for analysis are reported on the Chain of Custody (COC).
Holding time compliance	All samples were extracted and analysed by the laboratory within the recommended holding times.
Laboratory	The primary laboratory analysis was conducted by ALS Environmental Pty Ltd (Sydney) a National Association of Testing Authorities (NATA) accredited laboratory (Accreditation No. 825). The secondary samples were analysed at Envirolab Services, also a NATA accredited laboratory (accreditation number 2901).
Frequency of laboratory QC	The primary laboratory ALS reported a sufficient frequency of quality control samples to assess whether the results have been reported with acceptable accuracy and precision.
Method Blank	All method blank concentrations were reported <LOR for the analytes tested. This is presented in the Quality Control Reports for both laboratories.
Laboratory duplicate RPDs	The reported laboratory duplicate's Relative Percentage Differences (RPDs) were within the laboratories control limits. The laboratory duplicate RPDs are presented in the primary laboratory's Quality Control Report.
LCS recovery	Laboratory control spike (LCS) recoveries were within control limits. This is presented in the Quality Control Reports for both laboratories.
Matrix spike recovery	Matrix spike (MS) recoveries were within control limits with the exception of: Non-determined MS recoveries • Perfluorooctane sulfonic acid (PFOS), 0382_MW112P_220323 • Perfluorohexane sulfonic acid (PFHxS), 0382_MW112P_220323 These non-determinations, due to background levels being greater than or equal to four times spike levels, do not reflect method bias or affect data interpretation.
Surrogate spike recovery	The reported surrogate spike recoveries were within laboratory control limits. This is presented in the Quality Control Reports for both laboratories.
Other	Following the reporting of new historical maximums PFAS concentrations in selected samples (with significant increases from previously reported maximums), the primary laboratory was requested to repeat the analysis on samples MW113, MW119P, MW330 and SW011 to confirm the initial reported concentrations. The repeat analysis for MW113 and MW119P is presented in ES2212564, while MW330 and SW011 are reported in ES2213322. These re-batches are presented in Appendix E, with the rest of the laboratory reports.

Although there were large differences in concentrations for MW113 and MW119P (see following comparison table), overall, the concentrations are relatively in the same order of magnitude, confirming that elevated concentrations of PFAS were present at these locations. As a conservative measure, the higher (initial reported) results have been presented in the tables in Appendix B.

Location	Lab Report	Comment	PFOA	PFOS	PFHxS	PFHxS+PFOS
MW113	ES2210369	Original lab report	10.6	1240	140	1380
MW113	ES2212564	Re-analysis	11.4	753	126	879
		difference	**-0.8**	**487**	**14**	**501**
MW119P	ES2210369	Original lab report	9.02	156	176	332
MW119P	ES2212564	Re-analysis	10	129	161	290
		difference	**-0.98**	**27**	**15**	**42**
MW330	ES2210369	Original lab report	3.9	3.78	57.9	61.7
MW330	ES2213322	Re-analysis	3.8	3.45	53.3	56.8
		difference	**0.10**	**0.33**	**4.60**	**4.90**
SW011	ES2210369	Original lab report	0.16	0.24	3.28	3.52
SW011	ES2213322	Re-analysis	0.17	0.24	3.17	3.41
		difference	**-0.01**	**0.00**	**0.11**	**0.11**

QA/QC Data Evaluation

Comparison of Field Observations and Laboratory Results	No anomalies between field observations and analytical results were noted.
Data transcription	A check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by AECOM.
Limits of reporting	Limit of Reporting (LORs) were sufficiently low to enable assessment against adopted screening levels.
Rinsate Blank sample results	The concentrations of PFAS in the Rinsate Blank samples (Table D2) were below the limit of reporting (LOR), indicating decontamination procedures were adequate.
Intra-laboratory duplicate RPDs	Field duplicate RPDs were reported within acceptable limits (≤30%, or ≤50% for results 10-20 x LOR, or No Limit for results <10 x LOR).
Inter-laboratory duplicate RPDs	Field triplicate RPDs were reported within acceptable limits (≤30%, or ≤50% for results 10-20 x LOR, or No Limit for results <10 x LOR). It is noted that although there were some RPDs greater than 30%, given the concentrations were <10 x LOR, these were within DQIs.

Overall Assessment

Data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported analytical results are representative of the sample locations and that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report.

Attached:

Table D1 – Water RPDs
Table D2 – Rinsate Blank Results

Table D1 Water RPDs

AECOM

			Lab Report Number	ES2210369	ES2210369		ES2210369	ES2210369		ES2210369	ES2210369		ES2210369	ES2210369	
			Field ID	0382_SW038_220322	0382_QC100_220322	**RPD**	0382_MW323_220322	0382_QC101_220322	**RPD**	0382_MW123_220322	0382_QC102_220322	**RPD**	0382_SW009_220322	0382_QC103_220322	**RPD**
			Sampled Date/Time	22/03/2022 9:23	22/03/2022 9:23		22/03/2022 10:48	22/03/2022 10:48		22/03/2022 12:26	22/03/2022 12:26		22/03/2022 14:09	22/03/2022 14:09	
Chem_Group	**ChemName**	**Units**	**LOR**												
Per- and Poly-fluoroalkyl Substances	Sum of PFAS (WA DER List)	µg/L	0.01	0.51	0.45	13	<0.01	<0.01	nc	<0.01	<0.01	nc	0.16	0.18	12
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.1 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05 : 0.5 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	0.02	0.02	0	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.02 (Interlab)	<0.1	<0.1	nc	<0.1	<0.1	nc	<0.1	<0.1	nc	<0.1	<0.1	nc
	Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.05 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	0.04	0.05	22	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	0.02	nc
	Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.1 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02	**0.03**	**<0.02**	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.5 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02 : 0.1 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Sum of PFAS	µg/L	0.01	0.53	0.45	16	<0.01	<0.01	nc	<0.01	<0.01	nc	0.16	0.18	12
	Sum of PFHxS and PFOS	µg/L	0.01	0.41	0.37	10	<0.01	<0.01	nc	<0.01	<0.01	nc	0.16	0.16	0
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.25	0.2	22	<0.01	<0.01	nc	<0.01	<0.01	nc	0.09	0.09	0
	Perfluorooctanoic Acid (PFOA)	µg/L	0.01	0.01	0.01	0	<0.01	<0.01	nc	<0.01	<0.01	nc	<0.01	<0.01	nc
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.16	0.17	6	<0.01	<0.01	nc	<0.01	<0.01	nc	0.07	0.07	0

*RPDs have only been considered where a concentration is greater than 1 times the LOR.
nc = not caluclated
**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are:
200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***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

Table D1 Water RPDs

AECOM

	Lab Report Number	ES2210369	291768		ES2210369	291768		ES2210369	291768		ES2210369	291768	
	Field ID	0382_SW030_220322	0382_QC200_220322	RPD	0382_MW349_220322	0382_QC201_220322	RPD	0382_MW330_220322	0382_QC202_220322	RPD	0382_SW015_220322	0382_QC203_220322	RPD
	Sampled Date/Time	22/03/2022 10:10	22/03/2022 10:10		22/03/2022 11:33	22/03/2022 11:33		22/03/2022 12:50	22/03/2022 12:50		22/03/2022 14:36	22/03/2022 14:36	
Chem_Group	**ChemName**	**Units**	**LOR**										
Per- and Poly-fluoroalkyl Substances	Sum of PFAS (WA DER List)	µg/L	0.01										
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	nc	<0.05	<0.02	nc	<0.05	<0.02	nc	<0.05	<0.02	nc
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	nc	<0.05	<0.01	nc	<0.05	<0.01	nc	<0.05	<0.01	nc
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	nc	<0.05	<0.01	nc	<0.05	<0.01	nc	<0.05	<0.01	nc
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	nc	<0.05	<0.02	nc	<0.05	<0.02	nc	<0.05	<0.02	nc
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.1 (Interlab)	<0.05	<0.1	nc	<0.05	<0.1	nc	<0.05	<0.1	nc	<0.05	<0.1	nc
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05 : 0.5 (Interlab)	<0.05	<0.5	nc	<0.05	<0.5	nc	<0.05	<0.5	nc	<0.05	<0.5	nc
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	0.07	0.06	15	<0.02	0.01	nc	2.62	2.1	22	<0.02	<0.01	nc
	Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.02 (Interlab)	<0.1	0.05	nc	<0.1	<0.02	nc	**1.1**	**1.5**	**31**	<0.1	<0.02	nc
	Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.05 (Interlab)	<0.02	<0.05	nc	<0.02	<0.05	nc	<0.02	<0.05	nc	<0.02	<0.05	nc
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	**0.02**	**0.03**	**40**	<0.02	<0.01	nc	2.2	2.9	27	<0.02	<0.01	nc
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	0.02	0.02	0	<0.02	<0.01	nc	1.56	1.6	3	<0.02	<0.01	nc
	Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	0.2	0.2	0	<0.02	<0.01	nc	20.4	17	18	<0.02	<0.01	nc
	Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	nc	<0.02	<0.01	nc	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.1 (Interlab)	<0.02	<0.1	nc	<0.02	<0.1	nc	<0.02	<0.1	nc	<0.02	<0.1	nc
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	0.06	0.07	15	<0.02	0.01	nc	6.27	6.4	2	<0.02	<0.01	nc
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02	0.08	0.06	29	<0.02	<0.02	nc	3	2.6	14	<0.02	<0.02	nc
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.5 (Interlab)	<0.05	<0.5	nc	<0.05	<0.5	nc	<0.05	<0.5	nc	<0.05	<0.5	nc
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02 : 0.1 (Interlab)	<0.02	<0.1	nc	<0.02	<0.1	nc	<0.02	<0.1	nc	<0.02	<0.1	nc
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Sum of PFAS	µg/L	0.01	1.7	1.9	11	**0.08**	**0.12**	**40**	103	110	7	**0.04**	**0.08**	**67**
	Sum of PFHxS and PFOS	µg/L	0.01	1.21	1.4	15	0.08	0.09	12	61.7	67	8	**0.04**	**0.08**	**67**
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.74	0.83	11	**0.02**	**0.03**	**40**	3.78	4.2	11	**0.02**	**0.03**	**40**
	Perfluorooctanoic Acid (PFOA)	µg/L	0.01	0.04	0.03	29	<0.01	<0.01	nc	3.9	3.9	0	<0.01	<0.01	nc
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.47	0.58	21	0.06	0.06	0	57.9	63	8	**0.02**	**0.04**	**67**

*RPDs have only been considered where a concentration is greater than 1 times the LOR.
nc = not caluclated
**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are:
200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***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

Table D2 Rinsate Blank Results

Lab Report Number	ES2210369	ES2210369	ES2210369
Field ID	0382_QC300_220321	0382_QC301_220322	0382_QC302_220323
Sampled_Date/Time	21/03/2022	22/03/2022	23/03/2022
Sample Type	Rinsate	Rinsate	Rinsate

Chem_Group	ChemName	Units	LOR			
Per- and Poly-fluoroalkyl Substances	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	<0.05
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05	<0.05
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05	<0.05	<0.05	<0.05
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	<0.05	<0.05	<0.05
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	<0.05
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	<0.02
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	<0.05
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	<0.05
	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.02	<0.02	<0.02
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	<0.05
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1	<0.1	<0.1
	Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.05	<0.05	<0.05
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	<0.02
	Sum of PFAS	µg/L	0.01	-	<0.01	<0.01
	Sum of PFHxS and PFOS	µg/L	0.01	-	<0.01	<0.01
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	<0.01
	Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	<0.01
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	<0.01

Appendix E

Laboratory Certificates

Appendix E Laboratory Certificates

CHAIN OF CUSTODY

(ALS) COC#: 34542 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:
QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU002 8

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: ASO
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0382_MW002_220321		21/03/2022 04:58 PM	Water	ALS: 3 Non ALS: 0	No	X		
002	0382_MW005_220321		21/03/2022 03:49 PM	Water	ALS: 3 Non ALS: 0	No	X		
003	0382_MW112_220323		23/03/2022 09:50 AM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
004	0382_MW112P_220323		23/03/2022 09:52 AM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
005	0382_MW113_220323		23/03/2022 10:51 AM	Water	ALS: 3 Non ALS: 0	No	X		
006	0382_MW115_220323		23/03/2022 10:42 AM	Water	ALS: 3 Non ALS: 0	No	X		
007	0382_MW117_220321		21/03/2022 09:28 AM	Water	ALS: 3 Non ALS: 0	No	X		
008	0382_MW119_220323		23/03/2022 09:32 AM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
009	0382_MW120_220321		21/03/2022 02:14 PM	Water	ALS: 3 Non ALS: 0	No	X		

Environmental Division
Sydney
Work Order Reference
ES2210369

Telephone : + 61-2-8784 8555

CHAIN OF CUSTODY

(ALS) COC#: 34542 ALS Laboratory: ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: ASD
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0382_MW121_220321		21/03/2022 01:21 PM	Water	ALS: 3 Non ALS: 0	No	X		
011	0382_MW119P_220323		23/03/2022 10:19 AM	Water	ALS: 5 Non ALS: 0	No	X		extra volume
012	0382_MW123_220322		22/03/2022 12:26 PM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
013	0382_MW124_220322		22/03/2022 11:58 AM	Water	ALS: 3 Non ALS: 0	No	X		
014	0382_MW129_220323		23/03/2022 11:10 AM	Water	ALS: 3 Non ALS: 0	No	X		
015	0382_MW130_220323		23/03/2022 08:35 AM	Water	ALS: 3 Non ALS: 0	No	X		
016	0382_MW131_220323		23/03/2022 07:59 AM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
017	0382_MW133_220323		23/03/2022 08:48 AM	Water	ALS: 3 Non ALS: 0	No	X		extra volume bottle (ending in 916 code) to not use for analysis unless more water needed
018	0382_MW136_220323		21/03/2022 10:15 AM	Water	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 34542 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: ASD
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
019	0382_MW301_220321		21/03/2022 03:15 PM	Water	ALS: 3 Non ALS: 0	No	X		
020	0382_MW323_220322		22/03/2022 10:48 AM	Water	ALS: 3 Non ALS: 0	No	X		
021	0382_MW330_220322		22/03/2022 12:50 PM	Water	ALS: 5 Non ALS: 0	No	X		extra volume
022	0382_MW349_220322		22/03/2022 11:33 AM	Water	ALS: 3 Non ALS: 0	No	X		
023	0382_SW001_220323		23/03/2022 09:41 AM	Water	ALS: 3 Non ALS: 0	No	X		
024	0382_SW009_220322		22/03/2022 02:09 PM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
025	0382_SW011_220321		21/03/2022 05:22 PM	Water	ALS: 3 Non ALS: 0	No	X		
026	0382_SW012_220321		21/03/2022 04:40 PM	Water	ALS: 3 Non ALS: 0	No	X		
027	0382_SW014_220322		22/03/2022 04:29 PM	Water	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 34542 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: ASD
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
028	0382_SW015_220322		22/03/2022 02:36 PM	Water	ALS: 5 Non ALS: 0	No	X		
029	0382_SW017_220321		21/03/2022 04:18 PM	Water	ALS: 3 Non ALS: 0	No	X		
030	0382_SW025_220322		22/03/2022 03:09 PM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
031	0382_SW030_220322		22/03/2022 10:10 AM	Water	ALS: 3 Non ALS: 0	No	X		
032	0382_SW038_220322		22/03/2022 09:23 AM	Water	ALS: 3 Non ALS: 0	No	X		
033	0382_SW059_220323		23/03/2022 11:21 AM	Water	ALS: 3 Non ALS: 0	No	X		
034	0382_SW062_220322		22/03/2022 03:26 PM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
035	0382_SW063_220321		21/03/2022 09:38 AM	Water	ALS: 3 Non ALS: 0	No	X		
036	0382_SW103_220321		21/03/2022 10:29 AM	Water	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 34542 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
037	0382_SW104_220321		21/03/2022 10:24 AM	Water	ALS: 3 Non ALS: 0	No	X		
038	0382_SW105_220321		21/03/2022 10:16 AM	Water	ALS: 3 Non ALS: 0	No	X		
039	0382_SW111_220323		23/03/2022 10:29 AM	Water	ALS: 3 Non ALS: 0	No	X		
040	0382_QC100_220322		22/03/2022 09:22 AM	Water	ALS: 3 Non ALS: 0	No	X		
041	0382_QC101_220322		22/03/2022 10:47 AM	Water	ALS: 3 Non ALS: 0	No	X		
042	0382_QC102_220322		22/03/2022 12:26 PM	Water	ALS: 3 Non ALS: 0	No	X		
043	0382_QC103_220322		22/03/2022 02:09 PM	Water	ALS: 3 Non ALS: 0	No	X		
044	0382_QC104_220323		23/03/2022 08:00 AM	Water	ALS: 3 Non ALS: 0	Yes	-		
045	0382_QC300_220321		22/03/2022 10:35 AM	Water	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 34542 *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: ASO
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

LABORATORY USE ONLY (Circle)

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

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
046	0382_QC301_220322		22/03/2022 10:46 AM	Water	ALS: 3 Non ALS: 0	No	X		
047	0382_QC302_220323		23/03/2022 11:10 AM	Water	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 34542 *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: ASD
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0382_MW002_220321	HDPE (no PTFE)	20 mL	00350621022266	Grey	No	
001	0382_MW002_220321	HDPE (no PTFE)	20 mL	00350621022092	Grey	No	
001	0382_MW002_220321	HDPE (no PTFE)	20 mL	00350621022317	Grey	No	
002	0382_MW005_220321	HDPE (no PTFE)	20 mL	00350621022178	Grey	No	
002	0382_MW005_220321	HDPE (no PTFE)	20 mL	00350621022207	Grey	No	
002	0382_MW005_220321	HDPE (no PTFE)	20 mL	00350621021865	Grey	No	
003	0382_MW112_220323	HDPE (no PTFE)	20 mL	00350621021884	Grey	No	
003	0382_MW112_220323	HDPE (no PTFE)	20 mL	00350621022236	Grey	No	
003	0382_MW112_220323	HDPE (no PTFE)	20 mL	00350621022012	Grey	No	
003	0382_MW112_220323	HDPE (no PTFE)	20 mL	00350621022065	Grey	No	
003	0382_MW112_220323	HDPE (no PTFE)	20 mL	00350621022128	Grey	No	
004	0382_MW112P_220323	HDPE (no PTFE)	20 mL	00350621021837	Grey	No	
004	0382_MW112P_220323	HDPE (no PTFE)	20 mL	00350621021833	Grey	No	
004	0382_MW112P_220323	HDPE (no PTFE)	20 mL	00350621022298	Grey	No	
004	0382_MW112P_220323	HDPE (no PTFE)	20 mL	00350621021993	Grey	No	
004	0382_MW112P_220323	HDPE (no PTFE)	20 mL	00350621022222	Grey	No	
005	0382_MW113_220323	HDPE (no PTFE)	20 mL	00350621022110	Grey	No	
005	0382_MW113_220323	HDPE (no PTFE)	20 mL	00350621021780	Grey	No	
005	0382_MW113_220323	HDPE (no PTFE)	20 mL	00350621021838	Grey	No	
006	0382_MW115_220323	HDPE (no PTFE)	20 mL	00350621021759	Grey	No	
006	0382_MW115_220323	HDPE (no PTFE)	20 mL	00350621022310	Grey	No	
006	0382_MW115_220323	HDPE (no PTFE)	20 mL	00350621021760	Grey	No	
007	0382_MW117_220321	HDPE (no PTFE)	20 mL	00350621022335	Grey	No	
007	0382_MW117_220321	HDPE (no PTFE)	20 mL	00350621022022	Grey	No	
007	0382_MW117_220321	HDPE (no PTFE)	20 mL	00350621022267	Grey	No	
008	0382_MW119_220323	HDPE (no PTFE)	20 mL	00350621022300	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: 34542 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: AED
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

008	0382_MW119_220323	HDPE (no PTFE)	20 mL	00350621021941	Grey	No	
008	0382_MW119_220323	HDPE (no PTFE)	20 mL	00350621021834	Grey	No	
008	0382_MW119_220323	HDPE (no PTFE)	20 mL	00350621022133	Grey	No	
008	0382_MW119_220323	HDPE (no PTFE)	20 mL	00350621021743	Grey	No	
009	0382_MW120_220321	HDPE (no PTFE)	20 mL	00350621022145	Grey	No	
009	0382_MW120_220321	HDPE (no PTFE)	20 mL	00350621022158	Grey	No	
009	0382_MW120_220321	HDPE (no PTFE)	20 mL	00350621022073	Grey	No	
010	0382_MW121_220321	HDPE (no PTFE)	20 mL	00350621022237	Grey	No	
010	0382_MW121_220321	HDPE (no PTFE)	20 mL	00350621022169	Grey	No	
010	0382_MW121_220321	HDPE (no PTFE)	20 mL	00350621022088	Grey	No	
011	0382_MW119P_220323	HDPE (no PTFE)	20 mL	00350621021873	Grey	No	
011	0382_MW119P_220323	HDPE (no PTFE)	20 mL	00350621021758	Grey	No	
011	0382_MW119P_220323	HDPE (no PTFE)	20 mL	00350621022025	Grey	No	
011	0382_MW119P_220323	HDPE (no PTFE)	20 mL	00350621022028	Grey	No	
011	0382_MW119P_220323	HDPE (no PTFE)	20 mL	00350621022076	Grey	No	
012	0382_MW123_220322	HDPE (no PTFE)	20 mL	00350621022048	Grey	No	
012	0382_MW123_220322	HDPE (no PTFE)	20 mL	00350621022041	Grey	No	
012	0382_MW123_220322	HDPE (no PTFE)	20 mL	00350621021817	Grey	No	
012	0382_MW123_220322	HDPE (no PTFE)	20 mL	00350621022026	Grey	No	
012	0382_MW123_220322	HDPE (no PTFE)	20 mL	00350621022273	Grey	No	
013	0382_MW124_220322	HDPE (no PTFE)	20 mL	00350621021797	Grey	No	
013	0382_MW124_220322	HDPE (no PTFE)	20 mL	00350621021984	Grey	No	
013	0382_MW124_220322	HDPE (no PTFE)	20 mL	00350621021781	Grey	No	
014	0382_MW129_220323	HDPE (no PTFE)	20 mL	00350621022328	Grey	No	
014	0382_MW129_220323	HDPE (no PTFE)	20 mL	00350621021849	Grey	No	
014	0382_MW129_220323	HDPE (no PTFE)	20 mL	00350621022330	Grey	No	
015	0382_MW130_220323	HDPE (no PTFE)	20 mL	00350621022291	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: 34542 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: ASD
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

CONTACT PH: SAMPLER MOBILE:
QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

LABORATORY USE ONLY (Circle)

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

015	0382_MW130_220323	HDPE (no PTFE)	20 mL	00350621022156	Grey	No	
015	0382_MW130_220323	HDPE (no PTFE)	20 mL	00350621022205	Grey	No	
016	0382_MW131_220323	HDPE (no PTFE)	20 mL	00350621022148	Grey	No	
016	0382_MW131_220323	HDPE (no PTFE)	20 mL	00350621022184	Grey	No	
016	0382_MW131_220323	HDPE (no PTFE)	20 mL	00350621022007	Grey	No	
016	0382_MW131_220323	HDPE (no PTFE)	20 mL	00350621021839	Grey	No	
016	0382_MW131_220323	HDPE (no PTFE)	20 mL	00350621021980	Grey	No	
017	0382_MW133_220323	HDPE (no PTFE)	20 mL	00350621021857	Grey	No	
017	0382_MW133_220323	HDPE (no PTFE)	20 mL	00350621022011	Grey	No	
017	0382_MW133_220323	HDPE (no PTFE)	20 mL	00350621021916	Grey	No	
018	0382_MW136_220323	HDPE (no PTFE)	20 mL	00350621022117	Grey	No	
018	0382_MW136_220323	HDPE (no PTFE)	20 mL	00350621021965	Grey	No	
018	0382_MW136_220323	HDPE (no PTFE)	20 mL	00350621022240	Grey	No	
019	0382_MW301_220321	HDPE (no PTFE)	20 mL	00350621022327	Grey	No	
019	0382_MW301_220321	HDPE (no PTFE)	20 mL	00350621021986	Grey	No	
019	0382_MW301_220321	HDPE (no PTFE)	20 mL	00350621022119	Grey	No	
020	0382_MW323_220322	HDPE (no PTFE)	20 mL	00350621021850	Grey	No	
020	0382_MW323_220322	HDPE (no PTFE)	20 mL	00350621022159	Grey	No	
020	0382_MW323_220322	HDPE (no PTFE)	20 mL	00350621022332	Grey	No	
021	0382_MW330_220322	HDPE (no PTFE)	20 mL	00350621022247	Grey	No	
021	0382_MW330_220322	HDPE (no PTFE)	20 mL	00350621022125	Grey	No	
021	0382_MW330_220322	HDPE (no PTFE)	20 mL	00350621022325	Grey	No	
021	0382_MW330_220322	HDPE (no PTFE)	20 mL	00350621022271	Grey	No	
021	0382_MW330_220322	HDPE (no PTFE)	20 mL	00350621021835	Grey	No	
022	0382_MW349_220322	HDPE (no PTFE)	20 mL	00350621022337	Grey	No	
022	0382_MW349_220322	HDPE (no PTFE)	20 mL	00350621022244	Grey	No	
022	0382_MW349_220322	HDPE (no PTFE)	20 mL	00350621022339	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: 34542 *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: RSD
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:
QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU002 8

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

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

023	0382_SW001_220323	HDPE (no PTFE)	20 mL	00350621022241	Grey	No	
023	0382_SW001_220323	HDPE (no PTFE)	20 mL	00350621021830	Grey	No	
023	0382_SW001_220323	HDPE (no PTFE)	20 mL	00350621022089	Grey	No	
024	0382_SW009_220322	HDPE (no PTFE)	20 mL	00350621021871	Grey	No	
024	0382_SW009_220322	HDPE (no PTFE)	20 mL	00350621022243	Grey	No	
024	0382_SW009_220322	HDPE (no PTFE)	20 mL	00350621022220	Grey	No	
024	0382_SW009_220322	HDPE (no PTFE)	20 mL	00350621022150	Grey	No	
024	0382_SW009_220322	HDPE (no PTFE)	20 mL	00350621021920	Grey	No	
025	0382_SW011_220321	HDPE (no PTFE)	20 mL	00350621021938	Grey	No	
025	0382_SW011_220321	HDPE (no PTFE)	20 mL	00350621022228	Grey	No	
025	0382_SW011_220321	HDPE (no PTFE)	20 mL	00350621021917	Grey	No	
026	0382_SW012_220321	HDPE (no PTFE)	20 mL	00350621021847	Grey	No	
026	0382_SW012_220321	HDPE (no PTFE)	20 mL	00350621022131	Grey	No	
026	0382_SW012_220321	HDPE (no PTFE)	20 mL	00350621022295	Grey	No	
027	0382_SW014_220322	HDPE (no PTFE)	20 mL	00350621022074	Grey	No	
027	0382_SW014_220322	HDPE (no PTFE)	20 mL	00350621022124	Grey	No	
027	0382_SW014_220322	HDPE (no PTFE)	20 mL	00350621021947	Grey	No	
028	0382_SW015_220322	HDPE (no PTFE)	20 mL	00350621022080	Grey	No	
028	0382_SW015_220322	HDPE (no PTFE)	20 mL	00350621022264	Grey	No	
028	0382_SW015_220322	HDPE (no PTFE)	20 mL	00350621021811	Grey	No	
028	0382_SW015_220322	HDPE (no PTFE)	20 mL	00350621022286	Grey	No	
028	0382_SW015_220322	HDPE (no PTFE)	20 mL	00350621021878	Grey	No	
029	0382_SW017_220321	HDPE (no PTFE)	20 mL	00350621022090	Grey	No	
029	0382_SW017_220321	HDPE (no PTFE)	20 mL	00350621022179	Grey	No	
029	0382_SW017_220321	HDPE (no PTFE)	20 mL	00350621021937	Grey	No	
030	0382_SW025_220322	HDPE (no PTFE)	20 mL	00350621022151	Grey	No	
030	0382_SW025_220322	HDPE (no PTFE)	20 mL	00350621022031	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: 34542 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:
QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: ASD
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

030	0382_SW025_220322	HDPE (no PTFE)	20 mL	00350621022029	Grey	No	
030	0382_SW025_220322	HDPE (no PTFE)	20 mL	00350621022081	Grey	No	
030	0382_SW025_220322	HDPE (no PTFE)	20 mL	00350621022242	Grey	No	
031	0382_SW030_220322	HDPE (no PTFE)	20 mL	00350621022282	Grey	No	
031	0382_SW030_220322	HDPE (no PTFE)	20 mL	00350621021832	Grey	No	
031	0382_SW030_220322	HDPE (no PTFE)	20 mL	00350621021919	Grey	No	
032	0382_SW038_220322	HDPE (no PTFE)	20 mL	00350621022229	Grey	No	
032	0382_SW038_220322	HDPE (no PTFE)	20 mL	00350621021974	Grey	No	
032	0382_SW038_220322	HDPE (no PTFE)	20 mL	00350621021796	Grey	No	
033	0382_SW059_220323	HDPE (no PTFE)	20 mL	00350621022311	Grey	No	
033	0382_SW059_220323	HDPE (no PTFE)	20 mL	00350621022075	Grey	No	
033	0382_SW059_220323	HDPE (no PTFE)	20 mL	00350621022201	Grey	No	
034	0382_SW062_220322	HDPE (no PTFE)	20 mL	00350621021964	Grey	No	
034	0382_SW062_220322	HDPE (no PTFE)	20 mL	00350621022316	Grey	No	
034	0382_SW062_220322	HDPE (no PTFE)	20 mL	00350621021801	Grey	No	
034	0382_SW062_220322	HDPE (no PTFE)	20 mL	00350621022127	Grey	No	
034	0382_SW062_220322	HDPE (no PTFE)	20 mL	00350621022250	Grey	No	
035	0382_SW063_220321	HDPE (no PTFE)	20 mL	00350621021961	Grey	No	
035	0382_SW063_220321	HDPE (no PTFE)	20 mL	00350621021905	Grey	No	
035	0382_SW063_220321	HDPE (no PTFE)	20 mL	00350621021895	Grey	No	
036	0382_SW103_220321	HDPE (no PTFE)	20 mL	00350621022108	Grey	No	
036	0382_SW103_220321	HDPE (no PTFE)	20 mL	00350621022293	Grey	No	
036	0382_SW103_220321	HDPE (no PTFE)	20 mL	00350621022171	Grey	No	
037	0382_SW104_220321	HDPE (no PTFE)	20 mL	00350621022208	Grey	No	
037	0382_SW104_220321	HDPE (no PTFE)	20 mL	00350621021858	Grey	No	
037	0382_SW104_220321	HDPE (no PTFE)	20 mL	00350621022288	Grey	No	
038	0382_SW105_220321	HDPE (no PTFE)	20 mL	00350621022233	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: 34542 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:
QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: ASD
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

038	0382_SW105_220321	HDPE (no PTFE)	20 mL	00350621022116	Grey	No	
038	0382_SW105_220321	HDPE (no PTFE)	20 mL	00350621022235	Grey	No	
039	0382_SW111_220323	HDPE (no PTFE)	20 mL	00350621022268	Grey	No	
039	0382_SW111_220323	HDPE (no PTFE)	20 mL	00350621022338	Grey	No	
039	0382_SW111_220323	HDPE (no PTFE)	20 mL	00350621021744	Grey	No	
040	0382_QC100_220322	HDPE (no PTFE)	20 mL	00350621021807	Grey	No	
040	0382_QC100_220322	HDPE (no PTFE)	20 mL	00350621022294	Grey	No	
040	0382_QC100_220322	HDPE (no PTFE)	20 mL	00350621022289	Grey	No	
041	0382_QC101_220322	HDPE (no PTFE)	20 mL	00350621021936	Grey	No	
041	0382_QC101_220322	HDPE (no PTFE)	20 mL	00350621022272	Grey	No	
041	0382_QC101_220322	HDPE (no PTFE)	20 mL	00350621022215	Grey	No	
042	0382_QC102_220322	HDPE (no PTFE)	20 mL	00350621022238	Grey	No	
042	0382_QC102_220322	HDPE (no PTFE)	20 mL	00350621022248	Grey	No	
042	0382_QC102_220322	HDPE (no PTFE)	20 mL	00350621022157	Grey	No	
043	0382_QC103_220322	HDPE (no PTFE)	20 mL	00350621022299	Grey	No	
043	0382_QC103_220322	HDPE (no PTFE)	20 mL	00350621022168	Grey	No	
043	0382_QC103_220322	HDPE (no PTFE)	20 mL	00350621021795	Grey	No	
044	0382_QC104_220323	HDPE (no PTFE)	20 mL	00350621021996	Grey	No	
044	0382_QC104_220323	HDPE (no PTFE)	20 mL	00350621022060	Grey	No	
044	0382_QC104_220323	HDPE (no PTFE)	20 mL	00350621021864	Grey	No	
045	0382_QC300_220321	HDPE (no PTFE)	20 mL	00350621022284	Grey	No	
045	0382_QC300_220321	HDPE (no PTFE)	20 mL	00350621022301	Grey	No	
045	0382_QC300_220321	HDPE (no PTFE)	20 mL	00350621022326	Grey	No	
046	0382_QC301_220322	HDPE (no PTFE)	20 mL	00350621021912	Grey	No	
046	0382_QC301_220322	HDPE (no PTFE)	20 mL	00350621022149	Grey	No	
046	0382_QC301_220322	HDPE (no PTFE)	20 mL	00350621022172	Grey	No	
047	0382_QC302_220323	HDPE (no PTFE)	20 mL	00350621021803	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: 34542 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:
QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: ASD
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 23/3/22 4PM

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

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

047	0382_QC302_220323	HDPE (no PTFE)	20 mL	00350621022297	Grey	No	
047	0382_QC302_220323	HDPE (no PTFE)	20 mL	00350621021755	Grey	No	

Total Bottle Count: ALS: 163, Non ALS: 0

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2210369**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: NSW_0382_PFASOMP_20	Page	: 1 of 4
Order number	: 60612562_6.1	Quote number	: ES2021AECOMAU0028 (SY/139/19 v4 60612562_6.1)
C-O-C number	: 34542	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Holsworthy		
Sampler	: [redacted]		

Dates

Date Samples Received	: 23-Mar-2022 16:00	Issue Date	: 30-Mar-2022
Client Requested Due Date	: 31-Mar-2022	Scheduled Reporting Date	: **30-Mar-2022**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 6.0' C (Secondary Laboratory Temperature used) - Ice present
Receipt Detail	:	No. of samples received / analysed	: 47 / 46

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample #44 (0382_QC104_220323) wll be put on hold until further advice.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2210369-001	21-Mar-2022 16:58	0382_MW002_220321		✓
ES2210369-002	21-Mar-2022 15:49	0382_MW005_220321		✓
ES2210369-003	23-Mar-2022 09:32	0382_MW112_220323		✓
ES2210369-004	23-Mar-2022 09:22	0382_MW112P_220323		✓
ES2210369-005	23-Mar-2022 10:51	0382_MW113_220323		✓
ES2210369-006	23-Mar-2022 10:42	0382_MW115_220323		✓
ES2210369-007	21-Mar-2022 09:28	0382_MW117_220321		✓
ES2210369-008	23-Mar-2022 10:08	0382_MW119_220323		✓
ES2210369-009	21-Mar-2022 14:14	0382_MW120_220321		✓
ES2210369-010	21-Mar-2022 13:21	0382_MW121_220321		✓
ES2210369-011	23-Mar-2022 10:19	0382_MW119P_220323		✓
ES2210369-012	22-Mar-2022 12:26	0382_MW123_220322		✓
ES2210369-013	22-Mar-2022 11:58	0382_MW124_220322		✓
ES2210369-014	23-Mar-2022 11:10	0382_MW129_220323		✓
ES2210369-015	23-Mar-2022 08:35	0382_MW130_220323		✓
ES2210369-016	23-Mar-2022 07:59	0382_MW131_220323		✓
ES2210369-017	23-Mar-2022 08:48	0382_MW133_220323		✓
ES2210369-018	23-Mar-2022 08:17	0382_MW136_220323		✓
ES2210369-019	21-Mar-2022 15:15	0382_MW301_220321		✓
ES2210369-020	22-Mar-2022 10:48	0382_MW323_220322		✓
ES2210369-021	22-Mar-2022 12:50	0382_MW330_220322		✓
ES2210369-022	22-Mar-2022 11:33	0382_MW349_220322		✓
ES2210369-023	23-Mar-2022 09:41	0382_SW001_220323		✓
ES2210369-024	22-Mar-2022 14:09	0382_SW009_220322		✓
ES2210369-025	21-Mar-2022 17:22	0382_SW011_220321		✓
ES2210369-026	21-Mar-2022 16:40	0382_SW012_220321		✓
ES2210369-027	22-Mar-2022 16:29	0382_SW014_220322		✓
ES2210369-028	22-Mar-2022 14:36	0382_SW015_220322		✓
ES2210369-029	21-Mar-2022 16:18	0382_SW017_220321		✓
ES2210369-030	22-Mar-2022 15:09	0382_SW025_220322		✓
ES2210369-031	22-Mar-2022 10:10	0382_SW030_220322		✓
ES2210369-032	22-Mar-2022 09:23	0382_SW038_220322		✓
ES2210369-033	23-Mar-2022 11:21	0382_SW059_220323		✓
ES2210369-034	22-Mar-2022 15:26	0382_SW062_220322		✓
ES2210369-035	21-Mar-2022 09:38	0382_SW063_220321		✓

			(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2210369-036	21-Mar-2022 10:29	0382_SW103_220321		✓
ES2210369-037	21-Mar-2022 10:24	0382_SW104_220321		✓
ES2210369-038	21-Mar-2022 10:16	0382_SW105_220321		✓
ES2210369-039	23-Mar-2022 10:29	0382_SW111_220323		✓
ES2210369-040	22-Mar-2022 09:22	0382_QC100_220322		✓
ES2210369-041	22-Mar-2022 10:47	0382_QC101_220322		✓
ES2210369-042	22-Mar-2022 12:26	0382_QC102_220322		✓
ES2210369-043	22-Mar-2022 14:09	0382_QC103_220322		✓
ES2210369-044	23-Mar-2022 08:00	0382_QC104_220323	✓	
ES2210369-045	22-Mar-2022 10:35	0382_QC300_220321		✓
ES2210369-046	22-Mar-2022 10:46	0382_QC301_220322		✓
ES2210369-047	23-Mar-2022 11:10	0382_QC302_220323		✓

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

[redacted]

- Chain of Custody (CoC) (COC)	Email	[redacted]

C[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT)	Email	derp.labreports@esdat.com.au

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

J[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- EDI Format - XTab (XTAB)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2210369**	Page	: 1 of 25
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: [redacted]
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 23-Mar-2022 16:00
Order number	: 60612562_6.1	Date Analysis Commenced	: 25-Mar-2022
C-O-C number	: 34542	Issue Date	: 31-Mar-2022 22:06
Sampler	: [redacted]		
Site	: Holsworthy		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 47		
No. of samples analysed	: 46		

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*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 Contact 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 - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: PFAS results for sample #014, #016 confirmed by re-extraction and re-analysis.
- EP231X: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW002_220321	0382_MW005_220321	0382_MW112_220323	0382_MW112P_220323	0382_MW113_220323
				Sampling date / time	21-Mar-2022 16:58	21-Mar-2022 15:49	23-Mar-2022 09:32	23-Mar-2022 09:22	23-Mar-2022 10:51
					ES2210369-001	ES2210369-002	ES2210369-003	ES2210369-004	ES2210369-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	**0.12**	**5.01**	**0.04**	**11.2**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**6.00**	**0.08**	**14.4**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.04**	**0.03**	**48.8**	**1.67**	**140**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**3.21**	**0.09**	**10.3**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.12**	**0.04**	**31.8**	**7.08**	**1240**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.24**
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	**0.6**	<0.1	**4.6**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.05**	<0.02	**1.14**	**0.02**	**16.5**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.06**	<0.02	**8.13**	**0.15**	**30.0**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.04**	<0.02	**1.26**	<0.02	**4.34**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.21**	**0.01**	**3.25**	**0.05**	**10.6**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**1.13**
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.12**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.04
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.04
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.04
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.10
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.05**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.10
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.10

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW002_220321	0382_MW005_220321	0382_MW112_220323	0382_MW112P_220323	0382_MW113_220323
				Sampling date / time	21-Mar-2022 16:58	21-Mar-2022 15:49	23-Mar-2022 09:32	23-Mar-2022 09:22	23-Mar-2022 10:51
Compound	CAS Number	LOR	Unit		ES2210369-001	ES2210369-002	ES2210369-003	ES2210369-004	ES2210369-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.10
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.10
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.04
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.04
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	**17.8**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	**0.09**
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.56**	**0.20**	**109**	**9.18**	**1500**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.16**	**0.07**	**80.6**	**8.75**	**1380**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.56**	**0.20**	**100**	**9.01**	**1480**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**108**	**104**	**106**	**100**	**107**
13C8-PFOA	----	0.02	%		**110**	**106**	**109**	**109**	**109**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW115_220323	0382_MW117_220321	0382_MW119_220323	0382_MW120_220321	0382_MW121_220321
				Sampling date / time	23-Mar-2022 10:42	21-Mar-2022 09:28	23-Mar-2022 10:08	21-Mar-2022 14:14	21-Mar-2022 13:21
					ES2210369-006	ES2210369-007	ES2210369-008	ES2210369-009	ES2210369-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**19.4**	<0.02	**0.84**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**21.9**	<0.02	**0.53**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**160**	**0.05**	**4.60**	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**14.8**	<0.02	**0.35**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**281**	**0.14**	**32.8**	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**3.4**	<0.1	**2.2**	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**5.98**	<0.02	**1.63**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**38.2**	<0.02	**3.00**	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**5.36**	<0.02	**0.22**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**11.2**	<0.01	**0.55**	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.16**	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.10	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.10	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.10	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW115_220323	0382_MW117_220321	0382_MW119_220323	0382_MW120_220321	0382_MW121_220321
				Sampling date / time	23-Mar-2022 10:42	21-Mar-2022 09:28	23-Mar-2022 10:08	21-Mar-2022 14:14	21-Mar-2022 13:21
Compound	CAS Number	LOR	Unit		ES2210369-006	ES2210369-007	ES2210369-008	ES2210369-009	ES2210369-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.10	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.10	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.87**	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**562**	**0.19**	**46.7**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**441**	**0.19**	**37.4**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**525**	**0.19**	**45.8**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**113**	**109**	**104**	**105**	**103**
13C8-PFOA	----	0.02	%		**118**	**109**	**100**	**104**	**107**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW119P_220323	0382_MW123_220322	0382_MW124_220322	0382_MW129_220323	0382_MW130_220323
				Sampling date / time	23-Mar-2022 10:19	22-Mar-2022 12:26	22-Mar-2022 11:58	23-Mar-2022 11:10	23-Mar-2022 08:35
Compound	CAS Number	LOR	Unit		ES2210369-011	ES2210369-012	ES2210369-013	ES2210369-014	ES2210369-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**13.2**	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**18.3**	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**176**	<0.01	<0.01	**0.01**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**14.3**	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**156**	<0.01	<0.01	**0.02**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**1.0**	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**2.48**	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**23.9**	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**3.58**	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**9.02**	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.05**	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.10	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.10	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.10	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW119P_220323	0382_MW123_220322	0382_MW124_220322	0382_MW129_220323	0382_MW130_220323
				Sampling date / time	23-Mar-2022 10:19	22-Mar-2022 12:26	22-Mar-2022 11:58	23-Mar-2022 11:10	23-Mar-2022 08:35
Compound	CAS Number	LOR	Unit		ES2210369-011	ES2210369-012	ES2210369-013	ES2210369-014	ES2210369-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.10	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.10	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.04	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.40**	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**418**	<0.01	<0.01	**0.03**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**332**	<0.01	<0.01	**0.03**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**386**	<0.01	<0.01	**0.03**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.0**	**110**	**109**	**104**	**111**
13C8-PFOA	----	0.02	%		**106**	**111**	**110**	**106**	**113**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW131_220323	0382_MW133_220323	0382_MW136_220323	0382_MW301_220321	0382_MW323_220322
				Sampling date / time	23-Mar-2022 07:59	23-Mar-2022 08:48	23-Mar-2022 08:17	21-Mar-2022 15:15	22-Mar-2022 10:48
					ES2210369-016	ES2210369-017	ES2210369-018	ES2210369-019	ES2210369-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**0.22**	**0.08**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**0.26**	**0.06**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	**1.84**	**0.30**	**0.12**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	**0.03**	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.06**	**2.59**	**0.03**	**0.04**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	**0.1**	**0.1**	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**0.29**	**0.03**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	**0.53**	**0.12**	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**0.03**	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.03**	**0.02**	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW131_220323	0382_MW133_220323	0382_MW136_220323	0382_MW301_220321	0382_MW323_220322
				Sampling date / time	23-Mar-2022 07:59	23-Mar-2022 08:48	23-Mar-2022 08:17	21-Mar-2022 15:15	22-Mar-2022 10:48
Compound	CAS Number	LOR	Unit		ES2210369-016	ES2210369-017	ES2210369-018	ES2210369-019	ES2210369-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.08**	**5.92**	**0.74**	**0.16**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.08**	**4.43**	**0.33**	**0.16**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.08**	**5.63**	**0.68**	**0.16**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	**104**	**102**	**108**	**106**
13C8-PFOA	----	0.02	%		**109**	**110**	**101**	**108**	**107**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW330_220322	0382_MW349_220322	----	----	----
				Sampling date / time	22-Mar-2022 12:50	22-Mar-2022 11:33	----	----	----
Compound	CAS Number	LOR	Unit		ES2210369-021	ES2210369-022	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**2.62**	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**6.27**	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**57.9**	**0.06**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**2.20**	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**3.78**	**0.02**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**1.1**	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**3.00**	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**20.4**	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**1.56**	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**3.90**	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW330_220322	0382_MW349_220322	----	----	----
				Sampling date / time	22-Mar-2022 12:50	22-Mar-2022 11:33	----	----	----
Compound	CAS Number	LOR	Unit		ES2210369-021	ES2210369-022	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**103**	**0.08**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**61.7**	**0.08**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**94.3**	**0.08**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.9**	**102**	----	----	----
13C8-PFOA	----	0.02	%		**102**	**104**	----	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0382_QC300_220321	0382_QC301_220322	0382_QC302_220323	----	----
				Sampling date / time	22-Mar-2022 10:35	22-Mar-2022 10:46	23-Mar-2022 11:10	----	----
Compound	CAS Number	LOR	Unit		ES2210369-045	ES2210369-046	ES2210369-047	--------	--------
					Result	Result	Result	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0382_QC300_220321	0382_QC301_220322	0382_QC302_220323	----	----
				Sampling date / time	22-Mar-2022 10:35	22-Mar-2022 10:46	23-Mar-2022 11:10	----	----
Compound	CAS Number	LOR	Unit		ES2210369-045	ES2210369-046	ES2210369-047	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**93.3**	**101**	**99.1**	----	----
13C8-PFOA	----	0.02	%		**95.2**	**93.8**	**97.4**	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW001_220323	0382_SW009_220322	0382_SW011_220321	0382_SW012_220321	0382_SW014_220322
				Sampling date / time	23-Mar-2022 09:41	22-Mar-2022 14:09	21-Mar-2022 17:22	21-Mar-2022 16:40	22-Mar-2022 16:29
Compound	CAS Number	LOR	Unit		ES2210369-023	ES2210369-024	ES2210369-025	ES2210369-026	ES2210369-027
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.11**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.18**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.15**	**0.07**	**3.28**	**0.06**	**0.04**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.03**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.27**	**0.09**	**0.24**	**0.06**	**0.04**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	**0.10**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.05**	<0.02	**0.60**	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.07**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	<0.01	**0.16**	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW001_220323	0382_SW009_220322	0382_SW011_220321	0382_SW012_220321	0382_SW014_220322
				Sampling date / time	23-Mar-2022 09:41	22-Mar-2022 14:09	21-Mar-2022 17:22	21-Mar-2022 16:40	22-Mar-2022 16:29
Compound	CAS Number	LOR	Unit		ES2210369-023	ES2210369-024	ES2210369-025	ES2210369-026	ES2210369-027
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.49**	**0.16**	**4.77**	**0.12**	**0.08**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.42**	**0.16**	**3.52**	**0.12**	**0.08**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.49**	**0.16**	**4.56**	**0.12**	**0.08**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**109**	**103**	**102**	**102**
13C8-PFOA	----	0.02	%		**106**	**104**	**98.0**	**101**	**104**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW015_220322	0382_SW017_220321	0382_SW025_220322	0382_SW030_220322	0382_SW038_220322
				Sampling date / time	22-Mar-2022 14:36	21-Mar-2022 16:18	22-Mar-2022 15:09	22-Mar-2022 10:10	22-Mar-2022 09:23
Compound	CAS Number	LOR	Unit		ES2210369-028	ES2210369-029	ES2210369-030	ES2210369-031	ES2210369-032
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	**0.07**	**0.02**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	**0.06**	**0.02**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	**0.02**	<0.01	**0.47**	**0.16**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	**0.02**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.02**	**0.02**	<0.01	**0.74**	**0.25**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	**0.08**	**0.03**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	**0.20**	**0.04**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	**0.02**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	**0.04**	**0.01**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW015_220322	0382_SW017_220321	0382_SW025_220322	0382_SW030_220322	0382_SW038_220322
				Sampling date / time	22-Mar-2022 14:36	21-Mar-2022 16:18	22-Mar-2022 15:09	22-Mar-2022 10:10	22-Mar-2022 09:23
Compound	CAS Number	LOR	Unit		ES2210369-028	ES2210369-029	ES2210369-030	ES2210369-031	ES2210369-032
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	**0.04**	<0.01	**1.70**	**0.53**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.04**	**0.04**	<0.01	**1.21**	**0.41**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	**0.04**	<0.01	**1.62**	**0.51**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**104**	**98.1**	**100**	**107**	**111**
13C8-PFOA	----	0.02	%		**102**	**102**	**101**	**99.3**	**97.1**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_SW059_220323	0382_SW062_220322	0382_SW063_220321	0382_SW103_220321	0382_SW104_220321
				Sampling date / time	23-Mar-2022 11:21	22-Mar-2022 15:26	21-Mar-2022 09:38	21-Mar-2022 10:29	21-Mar-2022 10:24
					ES2210369-033	ES2210369-034	ES2210369-035	ES2210369-036	ES2210369-037
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.06**	<0.01	<0.01	**0.02**	**0.02**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.15**	<0.01	<0.01	**0.04**	**0.03**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.02**	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW059_220323	0382_SW062_220322	0382_SW063_220321	0382_SW103_220321	0382_SW104_220321
				Sampling date / time	23-Mar-2022 11:21	22-Mar-2022 15:26	21-Mar-2022 09:38	21-Mar-2022 10:29	21-Mar-2022 10:24
Compound	CAS Number	LOR	Unit		ES2210369-033	ES2210369-034	ES2210369-035	ES2210369-036	ES2210369-037
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.24**	<0.01	<0.01	**0.06**	**0.05**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.21**	<0.01	<0.01	**0.06**	**0.05**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.24**	<0.01	<0.01	**0.06**	**0.05**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**110**	**106**	**107**	**108**	**101**
13C8-PFOA	----	0.02	%		**96.2**	**96.8**	**95.5**	**96.8**	**94.9**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW105_220321	0382_SW111_220323	----	----	----
				Sampling date / time	21-Mar-2022 10:16	23-Mar-2022 10:29	----	----	----
Compound	CAS Number	LOR	Unit		ES2210369-038	ES2210369-039	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	**0.03**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.05**	**0.05**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.01**	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW105_220321	0382_SW111_220323	----	----	----
				Sampling date / time	21-Mar-2022 10:16	23-Mar-2022 10:29	----	----	----
Compound	CAS Number	LOR	Unit		ES2210369-038	ES2210369-039	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.07**	**0.09**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.07**	**0.08**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.07**	**0.09**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	**99.0**	----	----	----
13C8-PFOA	----	0.02	%		**97.7**	**91.9**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0382_QC100_220322	0382_QC101_220322	0382_QC102_220322	0382_QC103_220322	----
				Sampling date / time	22-Mar-2022 09:22	22-Mar-2022 10:47	22-Mar-2022 12:26	22-Mar-2022 14:09	----
Compound	CAS Number	LOR	Unit		ES2210369-040	ES2210369-041	ES2210369-042	ES2210369-043	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.02**	<0.02	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.17**	<0.01	<0.01	**0.07**	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.20**	<0.01	<0.01	**0.09**	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.05**	<0.02	<0.02	**0.02**	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	<0.01	<0.01	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0382_QC100_220322	0382_QC101_220322	0382_QC102_220322	0382_QC103_220322	----
				Sampling date / time	22-Mar-2022 09:22	22-Mar-2022 10:47	22-Mar-2022 12:26	22-Mar-2022 14:09	----
Compound	CAS Number	LOR	Unit		ES2210369-040	ES2210369-041	ES2210369-042	ES2210369-043	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.45**	<0.01	<0.01	**0.18**	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.37**	<0.01	<0.01	**0.16**	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.45**	<0.01	<0.01	**0.18**	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.4**	**95.9**	**99.5**	**102**	----
13C8-PFOA	----	0.02	%		**96.3**	**96.4**	**94.5**	**99.2**	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **RINSATE**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **SURFACE WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2210369**	Page	: 1 of 14
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: [redacted]
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 23-Mar-2022
Order number	: 60612562_6.1	Date Analysis Commenced	: 25-Mar-2022
C-O-C number	: 34542	Issue Date	: 31-Mar-2022
Sampler	: [redacted]		
Site	: Holsworthy		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 47		
No. of samples analysed	: 46		

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

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4248251)									
ES2210369-003	0382_MW112_220323	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	48.8	50.0	2.4	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	31.8	32.0	0.5	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	5.01	5.07	1.0	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	6.00	5.43	10.0	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	3.21	3.26	1.5	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2210369-011	0382_MW119P_220323	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	176	184	4.5	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	156	146	6.6	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	13.2	13.8	4.7	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	18.3	20.9	13.0	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	14.3	15.4	7.0	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.04	<0.04	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4248774)									
ES2210369-021	0382_MW330_220322	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	57.9	57.2	1.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	3.78	3.66	3.2	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	2.62	2.45	6.8	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	6.27	6.26	0.0	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	2.20	2.27	3.4	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2210369-030	0382_SW025_220322	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4248774) - continued									
ES2210369-030	0382_SW025_220322	EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4248780)									
ES2210265-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.12	0.12	0.0	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.72	0.82	13.8	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2210265-003	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.12	0.14	13.5	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.37	0.41	10.8	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4248251)									
ES2210369-003	0382_MW112_220323	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	3.25	3.16	2.9	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	1.14	1.18	3.3	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	8.13	8.40	3.2	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	1.26	1.24	2.3	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.6	0.7	0.0	No Limit
ES2210369-011	0382_MW119P_220323	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	9.02	9.49	5.1	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	2.48	2.63	5.9	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	23.9	21.8	9.0	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	3.58	3.36	6.3	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.04	<0.04	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.04	<0.04	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.04	<0.04	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.04	<0.04	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	1.0	1.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4248774)									
ES2210369-021	0382_MW330_220322	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	3.90	3.70	5.1	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	3.00	2.84	5.6	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 (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4248774) - continued									
ES2210369-021	0382_MW330_220322	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	20.4	20.1	1.7	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	1.56	1.46	7.1	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	1.1	1.0	0.0	0% - 50%
ES2210369-030	0382_SW025_220322	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4248780)									
ES2210265-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.05	0.06	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
ES2210265-003	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4248780) - continued									
ES2210265-003	Anonymous	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4248251)									
ES2210369-003	0382_MW112_220323	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2210369-011	0382_MW119P_220323	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.04	<0.04	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.04	<0.04	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.04	<0.04	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.10	<0.10	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4248774)									
ES2210369-021	0382_MW330_220322	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4248774) - continued									
ES2210369-021	0382_MW330_220322	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2210369-030	0382_SW025_220322	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4248780)									
ES2210265-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2210265-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4248780) - continued									
ES2210265-003	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4248251)									
ES2210369-003	0382_MW112_220323	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2210369-011	0382_MW119P_220323	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.40	0.38	5.1	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4248774)									
ES2210369-021	0382_MW330_220322	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2210369-030	0382_SW025_220322	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4248780)									
ES2210265-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4248780) - continued									
ES2210265-001	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2210265-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4248251)									
ES2210369-003	0382_MW112_220323	EP231X: Sum of PFAS	----	0.01	µg/L	109	110	1.1	0% - 20%
ES2210369-011	0382_MW119P_220323	EP231X: Sum of PFAS	----	0.01	µg/L	418	419	0.2	0% - 20%
EP231P: PFAS Sums (QC Lot: 4248774)									
ES2210369-021	0382_MW330_220322	EP231X: Sum of PFAS	----	0.01	µg/L	103	101	1.8	0% - 20%
ES2210369-030	0382_SW025_220322	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4248780)									
ES2210265-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.94	1.07	12.9	0% - 20%
ES2210265-003	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.61	0.69	12.3	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: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4248251)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	115	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	98.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	96.4	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	86.8	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4248774)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	97.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	91.0	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	87.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	85.0	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	75.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	74.2	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4248780)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	89.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	111	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	84.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	77.0	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	81.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	77.2	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248251)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	96.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	99.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	120	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	107	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	83.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	120	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248774)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	88.9	73.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248774) - continued								
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	91.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	87.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	93.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	88.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	83.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	87.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	82.4	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	87.4	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248780)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	79.8	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	88.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	117	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	90.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	96.4	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	90.2	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	86.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	90.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	87.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	73.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	88.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248251)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	99.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	88.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.9	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	97.4	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	101	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	99.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	93.0	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248774)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	89.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	107	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	93.2	62.6	147

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248774) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	91.2	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	88.1	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	89.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	81.2	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248780)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	99.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	102	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	97.8	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	105	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	69.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4248251)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	114	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	112	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	81.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	85.8	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4248774)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	92.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	85.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	96.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	76.0	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4248780)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	104	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	77.6	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	87.6	71.4	144

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
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4248251)							
ES2210369-004	0382_MW112P_220323	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	104	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	100	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	# Not Determined	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	91.0	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	96.4	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4248774)							
ES2210369-024	0382_SW009_220322	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	108	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	95.0	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	94.4	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	89.0	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	75.0	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	76.4	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4248780)							
ES2210265-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	89.0	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	71.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	87.2	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	80.6	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	80.2	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	82.2	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248251)							
ES2210369-004	0382_MW112P_220323	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	97.9	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	96.0	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	100	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	92.6	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	95.6	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	93.0	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	104	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	106	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	103	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	87.6	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	116	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248774)							
ES2210369-024	0382_SW009_220322	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	89.8	73.0	129

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248774) - continued							
ES2210369-024	0382_SW009_220322	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	106	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	112	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	91.6	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	91.8	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	92.2	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	88.0	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	87.0	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	84.6	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	83.0	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	86.0	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248780)							
ES2210265-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	84.3	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	81.4	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	105	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	92.4	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	85.2	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	84.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	90.2	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	90.6	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	89.2	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	69.6	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	97.4	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248251)							
ES2210369-004	0382_MW112P_220323	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	94.0	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	102	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	97.7	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	88.6	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	101	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	111	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	94.0	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248774)							
ES2210369-024	0382_SW009_220322	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	89.0	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	96.3	68.0	141

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: 4248774) - continued							
ES2210369-024	0382_SW009_220322	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	93.6	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	88.0	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.8	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	89.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	80.6	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248780)							
ES2210265-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	95.6	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	99.8	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	72.2	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	101	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	108	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	86.8	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	67.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4248251)							
ES2210369-004	0382_MW112P_220323	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	101	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	115	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	82.2	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	86.4	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4248774)							
ES2210369-024	0382_SW009_220322	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	82.0	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	87.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	75.4	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	72.2	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4248780)							
ES2210265-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	138	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	88.2	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	88.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	81.4	71.4	144

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2210369**	Page	: 1 of 8
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 23-Mar-2022
Site	: Holsworthy	Issue Date	: 31-Mar-2022
Sampler	: [redacted]	No. of samples received	: 47
Order number	: 60612562_6.1	No. of samples analysed	: 46

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	ES2210369--004	0382_MW112P_220323	**Perfluorohexane sulfonic acid (PFHxS)**	355-46-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	ES2210369--004	0382_MW112P_220323	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0382_MW002_220321,	0382_MW005_220321,	**21-Mar-2022**	**25-Mar-2022**	17-Sep-2022	✓	**25-Mar-2022**	17-Sep-2022	✓
0382_MW117_220321,	0382_MW120_220321,							
0382_MW121_220321,	0382_MW301_220321,							
0382_SW011_220321,	0382_SW012_220321,							
0382_SW017_220321,	0382_SW063_220321,							
0382_SW103_220321,	0382_SW104_220321,							
0382_SW105_220321								
HDPE (no PTFE) (EP231X)								
0382_MW123_220322,	0382_MW124_220322,	**22-Mar-2022**	**25-Mar-2022**	18-Sep-2022	✓	**25-Mar-2022**	18-Sep-2022	✓
0382_MW323_220322,	0382_MW330_220322,							
0382_MW349_220322,	0382_SW009_220322,							
0382_SW014_220322,	0382_SW015_220322,							
0382_SW025_220322,	0382_SW030_220322,							
0382_SW038_220322,	0382_SW062_220322,							
0382_QC100_220322,	0382_QC101_220322,							
0382_QC102_220322,	0382_QC103_220322,							
0382_QC300_220321,	0382_QC301_220322							
HDPE (no PTFE) (EP231X)								

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids - Continued							
0382_MW112_220323, 0382_MW112P_220323, 0382_MW113_220323, 0382_MW115_220323, 0382_MW119_220323, 0382_MW119P_220323, 0382_MW129_220323, 0382_MW130_220323, 0382_MW131_220323, 0382_MW133_220323, 0382_MW136_220323, 0382_SW001_220323, 0382_SW059_220323, 0382_SW111_220323, 0382_QC302_220323	**23-Mar-2022**	**25-Mar-2022**	19-Sep-2022	✓	**25-Mar-2022**	19-Sep-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0382_MW002_220321, 0382_MW005_220321, 0382_MW117_220321, 0382_MW120_220321, 0382_MW121_220321, 0382_MW301_220321, 0382_SW011_220321, 0382_SW012_220321, 0382_SW017_220321, 0382_SW063_220321, 0382_SW103_220321, 0382_SW104_220321, 0382_SW105_220321	**21-Mar-2022**	**25-Mar-2022**	17-Sep-2022	✓	**25-Mar-2022**	17-Sep-2022	✓
HDPE (no PTFE) (EP231X)							
0382_MW123_220322, 0382_MW124_220322, 0382_MW323_220322, 0382_MW330_220322, 0382_MW349_220322, 0382_SW009_220322, 0382_SW014_220322, 0382_SW015_220322, 0382_SW025_220322, 0382_SW030_220322, 0382_SW038_220322, 0382_SW062_220322, 0382_QC100_220322, 0382_QC101_220322, 0382_QC102_220322, 0382_QC103_220322, 0382_QC300_220321, 0382_QC301_220322	**22-Mar-2022**	**25-Mar-2022**	18-Sep-2022	✓	**25-Mar-2022**	18-Sep-2022	✓
HDPE (no PTFE) (EP231X)							
0382_MW112_220323, 0382_MW112P_220323, 0382_MW113_220323, 0382_MW115_220323, 0382_MW119_220323, 0382_MW119P_220323, 0382_MW129_220323, 0382_MW130_220323, 0382_MW131_220323, 0382_MW133_220323, 0382_MW136_220323, 0382_SW001_220323, 0382_SW059_220323, 0382_SW111_220323, 0382_QC302_220323	**23-Mar-2022**	**25-Mar-2022**	19-Sep-2022	✓	**25-Mar-2022**	19-Sep-2022	✓

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
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0382_MW002_220321, 0382_MW005_220321, 0382_MW117_220321, 0382_MW120_220321, 0382_MW121_220321, 0382_MW301_220321, 0382_SW011_220321, 0382_SW012_220321, 0382_SW017_220321, 0382_SW063_220321, 0382_SW103_220321, 0382_SW104_220321, 0382_SW105_220321	**21-Mar-2022**	**25-Mar-2022**	17-Sep-2022	✓	**25-Mar-2022**	17-Sep-2022	✓
HDPE (no PTFE) (EP231X)							
0382_MW123_220322, 0382_MW124_220322, 0382_MW323_220322, 0382_MW330_220322, 0382_MW349_220322, 0382_SW009_220322, 0382_SW014_220322, 0382_SW015_220322, 0382_SW025_220322, 0382_SW030_220322, 0382_SW038_220322, 0382_SW062_220322, 0382_QC100_220322, 0382_QC101_220322, 0382_QC102_220322, 0382_QC103_220322, 0382_QC300_220321, 0382_QC301_220322	**22-Mar-2022**	**25-Mar-2022**	18-Sep-2022	✓	**25-Mar-2022**	18-Sep-2022	✓
HDPE (no PTFE) (EP231X)							
0382_MW112_220323, 0382_MW112P_220323, 0382_MW113_220323, 0382_MW115_220323, 0382_MW119_220323, 0382_MW119P_220323, 0382_MW129_220323, 0382_MW130_220323, 0382_MW131_220323, 0382_MW133_220323, 0382_MW136_220323, 0382_SW001_220323, 0382_SW059_220323, 0382_SW111_220323, 0382_QC302_220323	**23-Mar-2022**	**25-Mar-2022**	19-Sep-2022	✓	**25-Mar-2022**	19-Sep-2022	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0382_MW002_220321, 0382_MW005_220321, 0382_MW117_220321, 0382_MW120_220321, 0382_MW121_220321, 0382_MW301_220321, 0382_SW011_220321, 0382_SW012_220321, 0382_SW017_220321, 0382_SW063_220321, 0382_SW103_220321, 0382_SW104_220321, 0382_SW105_220321	**21-Mar-2022**	**25-Mar-2022**	17-Sep-2022	✓	**25-Mar-2022**	17-Sep-2022	✓
HDPE (no PTFE) (EP231X)							
0382_MW123_220322, 0382_MW124_220322, 0382_MW323_220322, 0382_MW330_220322, 0382_MW349_220322, 0382_SW009_220322, 0382_SW014_220322, 0382_SW015_220322, 0382_SW025_220322, 0382_SW030_220322, 0382_SW038_220322, 0382_SW062_220322, 0382_QC100_220322, 0382_QC101_220322, 0382_QC102_220322, 0382_QC103_220322, 0382_QC300_220321, 0382_QC301_220322	**22-Mar-2022**	**25-Mar-2022**	18-Sep-2022	✓	**25-Mar-2022**	18-Sep-2022	✓
HDPE (no PTFE) (EP231X)							
0382_MW112_220323, 0382_MW112P_220323, 0382_MW113_220323, 0382_MW115_220323, 0382_MW119_220323, 0382_MW119P_220323, 0382_MW129_220323, 0382_MW130_220323, 0382_MW131_220323, 0382_MW133_220323, 0382_MW136_220323, 0382_SW001_220323, 0382_SW059_220323, 0382_SW111_220323, 0382_QC302_220323	**23-Mar-2022**	**25-Mar-2022**	19-Sep-2022	✓	**25-Mar-2022**	19-Sep-2022	✓

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
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0382_MW002_220321, 0382_MW005_220321, 0382_MW117_220321, 0382_MW120_220321, 0382_MW121_220321, 0382_MW301_220321, 0382_SW011_220321, 0382_SW012_220321, 0382_SW017_220321, 0382_SW063_220321, 0382_SW103_220321, 0382_SW104_220321, 0382_SW105_220321	**21-Mar-2022**	**25-Mar-2022**	17-Sep-2022	✓	**25-Mar-2022**	17-Sep-2022	✓
HDPE (no PTFE) (EP231X)							
0382_MW123_220322, 0382_MW124_220322, 0382_MW323_220322, 0382_MW330_220322, 0382_MW349_220322, 0382_SW009_220322, 0382_SW014_220322, 0382_SW015_220322, 0382_SW025_220322, 0382_SW030_220322, 0382_SW038_220322, 0382_SW062_220322, 0382_QC100_220322, 0382_QC101_220322, 0382_QC102_220322, 0382_QC103_220322, 0382_QC300_220321, 0382_QC301_220322	**22-Mar-2022**	**25-Mar-2022**	18-Sep-2022	✓	**25-Mar-2022**	18-Sep-2022	✓
HDPE (no PTFE) (EP231X)							
0382_MW112_220323, 0382_MW112P_220323, 0382_MW113_220323, 0382_MW115_220323, 0382_MW119_220323, 0382_MW119P_220323, 0382_MW129_220323, 0382_MW130_220323, 0382_MW131_220323, 0382_MW133_220323, 0382_MW136_220323, 0382_SW001_220323, 0382_SW059_220323, 0382_SW111_220323, 0382_QC302_220323	**23-Mar-2022**	**25-Mar-2022**	19-Sep-2022	✓	**25-Mar-2022**	19-Sep-2022	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	6	55	**10.91**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	55	**5.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	55	**5.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	55	**5.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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 combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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.

[redacted]

From: [redacted]
Sent: Tuesday, 12 April 2022 10:16 AM
To: [redacted]
Cc:
Subject: RE: [EXTERNAL] SRN for ALS Workorder : ES2212564 | Your Reference: NSW_0382_PFASOMP_20

Importance: High

Hi SR Team,

Can you please add sample ES2210369-011 to this batch and re-send the SRN as per the details below? Thank you.

ALS Environmental will be closed for the following Public Holidays in April: Good Friday 15th April, Easter Monday 18th April, and ANZAC Day Monday 25th April. Please contact your local client service team/ regional office if you have special needs during this period.

[redacted]
Client Services Coordinator, Environmental
Sydney, NSW

[redacted]
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

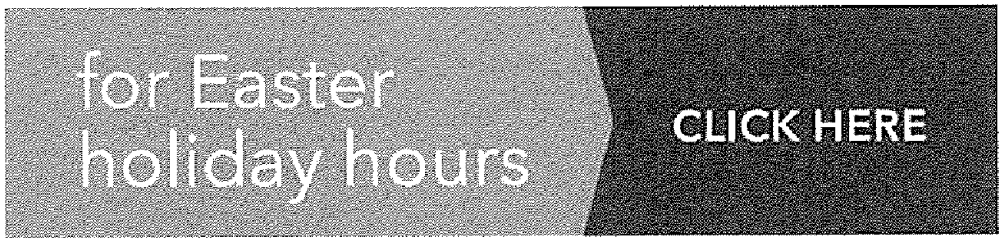
alsglobal.com

right solutions. right partner.

LC117

Environmental Division
Sydney
Work Order Reference
ES2212564

Telephone : + 61-2-8784 8555



From: [redacted]
Sent: Monday, 11 April 2022 6:45 PM
To: [redacted]
Subject: FW: [EXTERNAL] SRN for ALS Workorder : ES2212564 | Your Reference: NSW_0382_PFASOMP_20
Importance: High

Hi All,

Please do not analyse samples 002-007 for PFAS. I have switched these off, please dummy through.

Hi SR Team,

Please add sample ES2210369-011 to ES2212564 and analyse for PFAS. To summarise, the 2 samples in the table below are to be analysed.

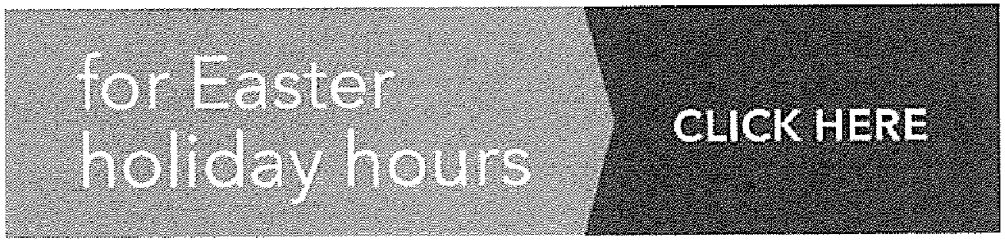
SampleCode	Field ID	Batch Number
ES2210369005	0382_MW113_220323	ES2210369
ES2210369011	0382_MW119P_220323	ES2210369

ALS Environmental will be closed for the following Public Holidays in April: Good Friday 15th April, Easter Monday 18th April, and ANZAC Day Monday 25th April. Please contact your local client service team/ regional office if you have special needs during this period.

[redacted]
Client Services Coordinator, Environmental
Sydney, NSW

[redacted]
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com



From: [redacted]
Sent: Monday, 11 April 2022 5:11 PM
To: [redacted]
Cc: [redacted]
Subject: FW: [EXTERNAL] SRN for ALS Workorder : ES2212564 | Your Reference: NSW_0382_PFASOMP_20

Hi Sep,

As agreed in the attached email, we would like only the following two samples to be re-batched, if we need to cover the cost for it. Could please ensure this is updated in the SRN for the rebatch so that we don't incur additional costs? Thank you.

SampleCode	Field ID	Batch Number
ES2210369005	0382_MW113_220323	ES2210369
ES2210369011	0382_MW119P_220323	ES2210369

Regards,

[redacted]

Environmental Scientist, ANZ NAC
[redacted]

AECOM
aecom.com

Delivering a better world
LinkedIn | Twitter | Facebook | Instagram

From: [redacted]
Sent: Monday, 11 April 2022 1:48 PM
To: [redacted]
Subject: [EXTERNAL] SRN for ALS Workorder : ES2212564 | Your Reference: NSW_0382_PFASOMP_20

Deliverables for ALS Workorder ES2212564

Project: NSW_0382_PFASOMP_20

Dear [redacted]

Please find enclosed the following deliverables for **ES2212564**:

- ES2212564_0_SRN_220411134703.pdf
- ES2212564_COC.pdf

Report Recipients

- [redacted]
  - ES2212564_0_SRN_220411134703.pdf (Email)
  - ES2212564_COC.pdf (Email)
- [redacted]
  - ES2212564_0_SRN_220411134703
  - ES2212564_COC
- [redacted]
  - ES2212564_0_SRN_220411134703
  - ES2212564_COC
- [redacted]
  - ES2212564_0_SRN_220411134703
  - ES2212564_COC

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2212564**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: NSW_0382_PFASOMP_20	Page	: 1 of 3
Order number	: 60612562_6.1	Quote number	: ES2021AECOMAU0028 (SY/139/19 v4 60612562_6.1)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: HOLSWORTHY		
Sampler	:		

Dates

Date Samples Received	: 06-Apr-2022 16:05	Issue Date	: 12-Apr-2022
Client Requested Due Date	: 14-Apr-2022	Scheduled Reporting Date	: **14-Apr-2022**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.1'C
Receipt Detail	:	No. of samples received / analysed	: 8 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- 12/04/22: This is an updated SRN which indicates the addition of sample 0382_MW119P_220323 from WO ES2210369. This sample is being analysed for EP231X analysis as per client.
- **Rebatch of ES2210369**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2212564-001	23-Mar-2022 00:00	0382_MW113_220323	✓
ES2212564-008	23-Mar-2022 00:00	0382_MW119P_220323	✓

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- EDI Format - XTab (XTAB)	Email	

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT)	Email	derp.labreports@esdat.com.au

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- EDI Format - XTab (XTAB)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2212564**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 06-Apr-2022 16:05
Order number	: 60612562_6.1	Date Analysis Commenced	: 11-Apr-2022
C-O-C number	: ----	Issue Date	: 13-Apr-2022 17:21
Sampler	: ----		
Site	: HOLSWORTHY		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 8		
No. of samples analysed	: 8		

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*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 Contact 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 - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Samples re-extracted and re-analysed via direct injection to confirm results.
- EP231X: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW113_220323	0382_MW119P_220323	----	----	----
				Sampling date / time	23-Mar-2022 00:00	23-Mar-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2212564-001	ES2212564-008	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**11.8**	**14.6**	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**14.0**	**22.0**	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**126**	**161**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**11.3**	**11.9**	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**753**	**129**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		**0.30**	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**4.4**	**0.8**	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**17.1**	**2.94**	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**31.9**	**26.3**	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**4.71**	**3.94**	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**11.4**	**10.0**	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**1.18**	**0.05**	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		**0.12**	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.10	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.10	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.10	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.25	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.10	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.25	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.25	<0.05	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW113_220323	0382_MW119P_220323	----	----	----
				Sampling date / time	23-Mar-2022 00:00	23-Mar-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2212564-001	ES2212564-008	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.25	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.25	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.10	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.10	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.10	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**17.2**	**0.36**	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.10	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.10	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1000**	**383**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**879**	**290**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**978**	**349**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**108**	**95.7**	----	----	----
13C8-PFOA	----	0.02	%		**113**	**92.0**	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2212564**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Contact	[redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 06-Apr-2022
Order number	: 60612562_6.1	Date Analysis Commenced	: 11-Apr-2022
C-O-C number	: ----	Issue Date	: 13-Apr-2022
Sampler	: ----		
Site	: HOLSWORTHY		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 8		
No. of samples analysed	: 8		

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*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4283990)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	115	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	97.6	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	98.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	96.8	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	106	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	126	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4283990)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	99.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	126	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	104	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	96.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	94.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	88.0	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	106	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	84.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	105	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4283990)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	113	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	108	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	93.5	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	113	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	114	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	112	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	94.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4283990)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	98.8	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	106	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	108	67.0	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4283990) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	129	71.4	144

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2212564**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 06-Apr-2022
Site	: HOLSWORTHY	Issue Date	: 13-Apr-2022
Sampler	: ----	No. of samples received	: 8
Order number	: 60612562_6.1	No. of samples analysed	: 8

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0382_MW113_220323, 0382_MW119P_220323	**23-Mar-2022**	**13-Apr-2022**	19-Sep-2022	✓	**13-Apr-2022**	19-Sep-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0382_MW113_220323, 0382_MW119P_220323	**23-Mar-2022**	**13-Apr-2022**	19-Sep-2022	✓	**13-Apr-2022**	19-Sep-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0382_MW113_220323, 0382_MW119P_220323	**23-Mar-2022**	**13-Apr-2022**	19-Sep-2022	✓	**13-Apr-2022**	19-Sep-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0382_MW113_220323, 0382_MW119P_220323	**23-Mar-2022**	**13-Apr-2022**	19-Sep-2022	✓	**13-Apr-2022**	19-Sep-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0382_MW113_220323, 0382_MW119P_220323	**23-Mar-2022**	**13-Apr-2022**	19-Sep-2022	✓	**13-Apr-2022**	19-Sep-2022	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	6	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	6	**0.00**	**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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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 combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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.

[redacted]

FAD 14/22 lon

From: [redacted]
Sent: Wednesday, 13 April 2022 11:41 AM
To: [redacted]
Cc: ALSEnviro Sydney; Tredinnick, Geoff
Subject: [EXTERNAL] - RE: ES2210369 - keep samples for possible re-analysis

TAT

[redacted]

Please can you proceed with the re-analysis of the following two samples? Could you also let me know what would be the current TAT for these get rebatched now?

[redacted]	[redacted]	[redacted]
ES2210369021	0382_MW330_220322	ES2210369
ES2210369025	0382_SW011_220321	ES2210369

Regards,

[redacted]
Environmental Scientist, ANZ NAC
[redacted]
AECOM
aecom.com

Delivering a better world
LinkedIn | Twitter | Facebook | Instagram

Environmental Division
Sydney
Work Order Reference
ES2213322

Telephone : + 61-2-8784 8555

From: [redacted]
Sent: Tuesday, 12 April 2022 5:22 PM
To: [redacted]
Cc: [redacted]
Subject: ES2210369 - keep samples for possible re-analysis

Hi [redacted]

Would it be possible for the lab to NOT dispose of the bottles for the following two samples? We may actually get these re-analysed as well (under a new batch, like we did for another 2 samples in this work order). I'll confirm with you in the morning.

[redacted]	[redacted]	[redacted]
ES2210369021	0382_MW330_220322	ES2210369
ES2210369025	0382_SW011_220321	ES2210369

Thanks,

[redacted]

Environmental Scientist, ANZ NAC

[redacted]

AECOM
aecom.com

Delivering a better world
LinkedIn | Twitter | Facebook | Instagram

[redacted]

From: [redacted]
Sent: Thursday, 14 April 2022 2:38 PM
To: [redacted]
Cc:
Subject: RE: [EXTERNAL] - ES2210369 - keep samples for possible re-analysis
Attachments: [EXTERNAL] - RE: ES2210369 - keep samples for possible re-analysis

Apologies, looks like these samples are currently under ES2212564. Please rebatch the samples below into a new batch and set due date to Friday 22/04. Please use the attached email as the CoC. Thank you.

#5,6 LC18

Sample Number	Field ID	Batch Number
ES2210369021	0382_MW330_220322	ES2210369
ES2210369025	0382_SW011_220321	ES2210369

ALS Environmental will be closed for the following Public Holidays in April: Good Friday 15th April, Easter Monday 18th April, and ANZAC Day Monday 25th April. Please contact your local client service team/ regional office if you have special needs during this period.

[redacted]
Client Services Coordinator, Environmental
Sydney, NSW

O: +61 2 8784 8555
[redacted]
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2213322**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	[redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	[redacted]	E-mail	: S[redacted]
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: NSW_0382_PFASOMP_20	Page	: 1 of 3
Order number	: 60612562_6.1	Quote number	: ES2021AECOMAU0028 (SY/139/19 v4 60612562_6.1)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Holsworthy		
Sampler	: [redacted]		

Dates

Date Samples Received	: 23-Mar-2022 16:00	Issue Date	: 19-Apr-2022
Client Requested Due Date	: 22-Apr-2022	Scheduled Reporting Date	: **22-Apr-2022**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2213322-001	22-Mar-2022 12:50	0382_MW330_220322	✓
ES2213322-002	21-Mar-2022 17:22	0382_SW011_220321	✓

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

[redacted]

- Chain of Custody (CoC) (COC)	Email	[redacted]

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT)	Email	derp.labreports@esdat.com.au

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- EDI Format - XTab (XTAB)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2213322**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 23-Mar-2022 16:00
Order number	: 60612562_6.1	Date Analysis Commenced	: 19-Apr-2022
C-O-C number	: ----	Issue Date	: 22-Apr-2022 14:55
Sampler	: [redacted]		
Site	: Holsworthy		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 Contact 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 - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW330_220322	----	----	----	----
				Sampling date / time	22-Mar-2022 12:50	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2213322-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**2.88**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**5.76**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**53.3**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**3.47**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**3.45**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**1.1**	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**2.82**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**20.3**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**1.44**	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**3.80**	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW330_220322	----	----	----	----
				Sampling date / time	22-Mar-2022 12:50	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2213322-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**98.3**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**56.8**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**89.1**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.6**	----	----	----	----
13C8-PFOA	----	0.02	%		**99.9**	----	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW011_220321	----	----	----	----
				Sampling date / time	21-Mar-2022 17:22	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2213322-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.12**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.16**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**3.17**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.04**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.24**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.09**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.67**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.07**	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.17**	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW011_220321	----	----	----	----
				Sampling date / time	21-Mar-2022 17:22	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2213322-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**4.73**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**3.41**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**4.53**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	----	----	----	----
13C8-PFOA	----	0.02	%		**103**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **SURFACE WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2213322**	Page	: 1 of 6
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Contact	[redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 23-Mar-2022
Order number	: 60612562_6.1	Date Analysis Commenced	: 19-Apr-2022
C-O-C number	: ----	Issue Date	: 22-Apr-2022
Sampler	: [redacted]		
Site	: Holsworthy		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4294624)									
ES2212247-007	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4294624)									
ES2212247-007	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4294624)									
ES2212247-007	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4294624) - continued									
ES2212247-007	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4294624)									
ES2212247-007	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4294624)									
ES2212247-007	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4294624)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	124	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	92.2	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	91.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	89.0	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	95.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4294624)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	81.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	113	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	83.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	95.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	102	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	120	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	122	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4294624)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	119	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	92.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	97.4	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	109	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	111	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	121	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	105	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4294624)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	109	67.0	138

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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4294624) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	92.0	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4294624)							
ES2212247-008	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	130	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	99.0	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	97.2	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	95.4	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	86.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	96.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4294624)							
ES2212247-008	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	101	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.4	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	114	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	93.0	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	96.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	111	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	107	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	107	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	116	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	85.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	127	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4294624)							
ES2212247-008	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	118	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	88.8	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	91.4	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	104	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	116	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	123	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: 4294624) - continued							
ES2212247-008	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	106	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4294624)							
ES2212247-008	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	106	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	110	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	99.6	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	106	71.4	144

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2213322**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 23-Mar-2022
Site	: Holsworthy	Issue Date	: 22-Apr-2022
Sampler	: [redacted]	No. of samples received	: 2
Order number	: 60612562_6.1	No. of samples analysed	: 2

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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 : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	17	5.88	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0382_SW011_220321	**21-Mar-2022**	**21-Apr-2022**	17-Sep-2022	✓	**21-Apr-2022**	17-Sep-2022	✓
HDPE (no PTFE) (EP231X) 0382_MW330_220322	**22-Mar-2022**	**21-Apr-2022**	18-Sep-2022	✓	**21-Apr-2022**	18-Sep-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0382_SW011_220321	**21-Mar-2022**	**21-Apr-2022**	17-Sep-2022	✓	**21-Apr-2022**	17-Sep-2022	✓
HDPE (no PTFE) (EP231X) 0382_MW330_220322	**22-Mar-2022**	**21-Apr-2022**	18-Sep-2022	✓	**21-Apr-2022**	18-Sep-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0382_SW011_220321	**21-Mar-2022**	**21-Apr-2022**	17-Sep-2022	✓	**21-Apr-2022**	17-Sep-2022	✓
HDPE (no PTFE) (EP231X) 0382_MW330_220322	**22-Mar-2022**	**21-Apr-2022**	18-Sep-2022	✓	**21-Apr-2022**	18-Sep-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0382_SW011_220321	**21-Mar-2022**	**21-Apr-2022**	17-Sep-2022	✓	**21-Apr-2022**	17-Sep-2022	✓
HDPE (no PTFE) (EP231X) 0382_MW330_220322	**22-Mar-2022**	**21-Apr-2022**	18-Sep-2022	✓	**21-Apr-2022**	18-Sep-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0382_SW011_220321	**21-Mar-2022**	**21-Apr-2022**	17-Sep-2022	✓	**21-Apr-2022**	17-Sep-2022	✓
HDPE (no PTFE) (EP231X) 0382_MW330_220322	**22-Mar-2022**	**21-Apr-2022**	18-Sep-2022	✓	**21-Apr-2022**	18-Sep-2022	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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 combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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.

AECOM

Chain of Custody

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney, NSW, 2000
PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 1000
F +61 2 8934 0001
Email reports to: [redacted]

Laboratory Details

Lab. Name: Envirolab Tel: 02 8784 8555
Lab. Address: 12 Ashley St, Chaswood NSW 2067
Contact Name:
Lab. Ref: Lab Quote No:

Sampled By: [redacted] Project Name: NSW_0382_PFASOMP_20 AECOM Project #: 60612562_6.1 Purchase Order No:

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 291768

Date Received: 24/3/22
Time Received: 1140
Received by:
Temp: Cool/Ambient
Cooling: Ice/Icepack 6°C
Security: Intact/Broken/None

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

6. Report Format: ESdat 7. Project Manager:

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	PFAS in Water Extended	HOLD	Notes
1	0382_QC200_220322	22/03/2022		X				X		3	X		
2	0382_QC201_220322	22/03/2022		X				X		3	X		
3	0382_QC202_220322	22/03/2022		X				X		3	X		
4	0382_QC203_220322	22/03/2022		X				X		3	X		
5	0382_QC204_220323	23/03/2022		X				X		3	X	X	HOLD

Comments: Please send ESdat files to DERP.labreports@esdat.com.au and esdat.apac@aecom.com and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & invoice: [redacted]

Lab Report No: Esky ID:

Relinquished by: [redacted]	Signed:	Date: 23/3/22	Relinquished by:	Signed:	Date:
Received by:	Signed: [redacted]	Date: 24/3/22	Received by:	Signed:	Date:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	[redacted]

Sample Login Details

Your reference	60612562_6.1, NSW_0382_PFASOMP_20
Envirolab Reference	291768
Date Sample Received	24/03/2022
Date Instructions Received	24/03/2022
Date Results Expected to be Reported	31/03/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	5 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	6
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

[redacted]

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	PFAS in Waters Extended	On Hold
0382_QC200_220322	✓	
0382_QC201_220322	✓	
0382_QC202_220322	✓	
0382_QC203_220322	✓	
0382_QC204_220323		✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 291768

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	[redacted]
Address	PO Box Q410, QVB Post Office, Sydney, NSW, 1230

Sample Details

Your Reference	**60612562_6.1, NSW_0382_PFASOMP_20**
Number of Samples	5 Water
Date samples received	24/03/2022
Date completed instructions received	24/03/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	31/03/2022
Date of Issue	31/03/2022

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By

[redacted] Organics and LC Supervisor

Authorised By

[redacted]

PFAS in Waters Extended					
Our Reference		291768-1	291768-2	291768-3	291768-4
Your Reference	UNITS	0382_QC200_220322	0382_QC201_220322	0382_QC202_220322	0382_QC203_220322
Date Sampled		22/03/2022	22/03/2022	22/03/2022	22/03/2022
Type of sample		Water	Water	Water	Water
Date prepared	-	25/03/2022	25/03/2022	25/03/2022	25/03/2022
Date analysed	-	25/03/2022	25/03/2022	25/03/2022	25/03/2022
Perfluorobutanesulfonic acid	µg/L	0.06	0.01	2.1	<0.01
Perfluoropentanesulfonic acid	µg/L	0.07	0.01	6.4	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.58	0.06	63	0.04
Perfluoroheptanesulfonic acid	µg/L	0.03	<0.01	2.9	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.83	0.03	4.2	0.03
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	µg/L	0.05	<0.02	1.5	<0.02
Perfluoropentanoic acid	µg/L	0.06	<0.02	2.6	<0.02
Perfluorohexanoic acid	µg/L	0.20	<0.01	17	<0.01
Perfluoroheptanoic acid	µg/L	0.02	<0.01	1.6	<0.01
Perfluorooctanoic acid PFOA	µg/L	0.03	<0.01	3.9	<0.01
Perfluorononanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02
10:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	108	108	93	105
Surrogate $^{13}C_2$ *PFOA*	%	106	98	99	106
Extracted ISTD $^{13}C_3$ *PFBS*	%	113	110	107	108
Extracted ISTD $^{18}O_2$ *PFHxS*	%	104	110	88	106
Extracted ISTD $^{13}C_4$ *PFOS*	%	108	110	111	113

PFAS in Waters Extended					
Our Reference		291768-1	291768-2	291768-3	291768-4
Your Reference	UNITS	0382_QC200_220322	0382_QC201_220322	0382_QC202_220322	0382_QC203_220322
Date Sampled		22/03/2022	22/03/2022	22/03/2022	22/03/2022
Type of sample		Water	Water	Water	Water
Extracted ISTD $^{13}C_4$ *PFBA*	%	79	91	73	81
Extracted ISTD $^{13}C_3$ *PFPeA*	%	109	106	98	112
Extracted ISTD $^{13}C_2$ *PFHxA*	%	116	112	104	108
Extracted ISTD $^{13}C_4$ *PFHpA*	%	115	108	69	106
Extracted ISTD $^{13}C_4$ *PFOA*	%	120	123	115	120
Extracted ISTD $^{13}C_5$ *PFNA*	%	130	117	123	123
Extracted ISTD $^{13}C_2$ *PFDA*	%	120	122	118	128
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	120	112	115	104
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	116	117	117	110
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	89	93	100	72
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	136	111	79	127
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	130	112	86	125
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	148	146	135	162
Extracted ISTD $^{13}C_8$ *FOSA*	%	124	126	125	121
Extracted ISTD d_3 *N MeFOSA*	%	112	111	115	104
Extracted ISTD d_5 *N EtFOSA*	%	115	114	116	103
Extracted ISTD d_7 *N MeFOSE*	%	93	95	92	95
Extracted ISTD d_9 *N EtFOSE*	%	103	98	102	97
Extracted ISTD d_3 *N MeFOSAA*	%	125	117	105	112
Extracted ISTD d_5 *N EtFOSAA*	%	126	124	114	120
Total Positive PFHxS & PFOS	µg/L	1.4	0.09	67	0.08
Total Positive PFOA & PFOS	µg/L	0.87	0.03	8.1	0.03
Total Positive PFAS	µg/L	1.9	0.12	110	0.08

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.3 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			28/03/2022	[NT]	[NT]	[NT]	[NT]	28/03/2022	[NT]
Date analysed	-			28/03/2022	[NT]	[NT]	[NT]	[NT]	28/03/2022	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	106	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	112	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	108	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	111	[NT]
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	108	[NT]
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	106	[NT]
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	117	[NT]
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	106	[NT]
4:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	110	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	121	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	103	[NT]
10:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	108	[NT]
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	111	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	118	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	107	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	93	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	112	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	107	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	109	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	112	[NT]	[NT]	[NT]	[NT]	110	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	120	[NT]	[NT]	[NT]	[NT]	116	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	106	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	106	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	120	[NT]	[NT]	[NT]	[NT]	115	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	116	[NT]	[NT]	[NT]	[NT]	119	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	112	[NT]	[NT]	[NT]	[NT]	112	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	64	[NT]	[NT]	[NT]	[NT]	66	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	117	[NT]	[NT]	[NT]	[NT]	118	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	127	[NT]	[NT]	[NT]	[NT]	120	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	129	[NT]	[NT]	[NT]	[NT]	135	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	126	[NT]	[NT]	[NT]	[NT]	120	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	104	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	107	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	119	[NT]	[NT]	[NT]	[NT]	127	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	117	[NT]	[NT]	[NT]	[NT]	119	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	117	[NT]	[NT]	[NT]	[NT]	115	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

Prepared for
Department of Defence
ABN: 68706814312

Sampling Event Factual Report, June 2022

PFAS OMP - Holsworthy Barracks

14-Sep-2022
PFAS OMP - Holsworthy Barracks

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Delivering a better world

Sampling Event Factual Report, June 2022

PFAS OMP - Holsworthy Barracks

Client: Department of Defence

ABN: 68706814312

Prepared by

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0	14-Sep-2022	Final	[redacted] Project Manager	[redacted]

Table of Contents

List of Tables (in Text)

List of Acronyms

Acronyms	Term
ADWG	Australian Drinking Water Guidelines
AECOM	AECOM Australia Pty Ltd
AHD	Australian Height Datum
ASC NEPM	Assessment of Site Contamination National Environment Protection
DCMM	Defence Contamination Management Manual
Defence	Department of Defence
DO	Dissolved Oxygen
DoH	Department of Health
DQI	Data Quality Indicator
DQO	Data Quality Objective
EC	Electrical conductivity
HEPA	Heads of Environment Protection Authority
LOR	Limit of Reporting
MW	Monitoring Well
NEMP	National Environmental Management Plan
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NSW	New South Wales
OMP	Ongoing Monitoring Plan
ORP	Oxidation Reduction Potential
PFAS	Per- and poly-fluoroalkyl substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PMAP	PFAS Management Area Plan
QA/QC	Quality Assurance and Quality Control
RPD	Relative Percentage Difference
SAQP	Sample and Analysis Quality Plan
SW	Surface Water
SWL	Standing Water Level

Units	Term
g	Grams
km	Kilometre
L	Litres
m	Metre

Units	Term
mbgl	Metres below ground level
m btoc	Metres below top of casing
mg/kg	Milligrams per kilogram
µg/L	Micrograms per Litre

1.0 Introduction

1.1 General

AECOM Australia Pty Ltd (AECOM) has been engaged by the Department of Defence (Defence) to implement the per- and poly-fluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP) at the Holsworthy Barracks (the 'Site') in the NSW and Jervis Bay Region. The location of the Site is shown in **Figure F1** (in **Appendix A**).

The OMP (Defence, 2020a) for the Site outlines the requirement to complete groundwater and surface water sampling at pre-determined intervals during the initial 3-year implementation period.

Following each sampling event, a sampling event factual report will be prepared. Annual interpretative reports will be prepared following the completion of each 12-month sampling period.

This Sampling Event Factual Report has been prepared to report the results of the quarterly groundwater and surface water sampling event completed on 15 June 2022, specifically highlighting first time detections and/or new exceedances of human health and/or ecological screening criteria for Perfluorooctanesulfonic acid (PFOS) + Perfluorohexanesulfonic acid (PFHxS), PFOS and/or Perfluorooctanoic acid (PFOA).

This report has been prepared in accordance with the Defence *PFAS OMP Factual Report Guidance, (Version 0.2)* issued in May 2021 (Defence, 2021).

1.2 Objectives

The objectives of the OMP are to:

- implement the OMP (Defence, 2020a) prepared as part of the Detailed Environmental Investigation (DSI)
- collect data that will enable Defence to maintain an up to date understanding of the changes in distribution, concentration, transport and transformation of PFAS and assess the data against appropriate guideline values in order to provide:
    - an evidence base for targeted and effective risk management of PFAS contamination to protect human health and environmental receptors
    - an early warning that additional management of PFAS contamination may be warranted in areas not currently affected by PFAS.

The data will assist in the timely identification of risks and inform Defence's approach to the management of PFAS, including updates and revisions to the PFAS Management Area Plan (PMAP) (Defence, 2020b).

The objective of this phase of works is to implement the scope of works for the June 2022 quarterly sampling event in accordance with the Sampling and Analysis Quality Plan (SAQP) (AECOM, 2022).

2.0 Scope of Work

2.1 Summary of Scope

The quarterly groundwater and surface water sampling event was completed on 15 June 2022 generally in accordance with the SAQP (AECOM, 2022), as follows:

- obtain permission (where required) to conduct works at the Site, off-site publicly accessible areas and commercial properties
- gauging of groundwater level in monitoring wells prior to the collection of samples
- groundwater sampling and collection of water quality parameters at 12 groundwater wells (refer to **Table 1** below and **Figure F2** in **Appendix A** for specific locations).
- surface water sampling and collection of water quality parameters at three surface water locations (refer to **Table 2** below and **Figure F3** in **Appendix A** for specific locations).
- collection of field duplicate samples at a rate of 1 in 10 primary samples
- analysis of the samples for the PFAS suite at the standard limit of reporting (LOR)
- data management of the OMP field and laboratory data in Defence ESdat database
- preparation of this Sampling Event Factual Report.

Note: due to privacy considerations, selected monitoring locations are unable to be shown on the figures in **Appendix A**.

2.2 Planned Monitoring Locations

The monitoring locations outlined within the SAQP (AECOM, 2022) for the planned quarterly groundwater and surface water sampling event is provided in **Table 1** and **Table 2** below.

Table 1 Groundwater Sampling Locations

Area	Description	Sampling Locations	Number of Locations
Off-site Road Reserve	Off-site road verges associated with Liverpool Fire Station	MW112, MW112P, MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136	10
Off-site Commercial Property	Liverpool Fire Station	MW113, MW115	2

Table 2 Surface Water Sampling Locations

Area	Description	Sampling Locations	Number of Locations
Off-site	Liverpool Fire Station	SW001, SW059, SW111	3

3.0 Deviations from the SAQP

The June 2022 quarterly OMP sampling event was completed in accordance with the SAQP (AECOM, 2022). No deviations from the SAQP were identified.

4.0 Methodology

4.1 Sampling Methodology

The methodology adopted for the June 2022 quarterly groundwater and surface water sampling event was in accordance with the SAQP (AECOM, 2022) and is summarised below in **Table 3**:

Table 3 Sampling Methodology

Item	Details
Groundwater gauging	The depth to groundwater was measured in each monitoring well immediately prior to collection of groundwater samples using an interface probe.
Field parameters	Temperature, electrical conductivity (EC), dissolved oxygen (DO), oxidation-reduction potential (ORP), pH and observations of water quality were recorded for all groundwater and surface water samples. Field parameters were collected using a calibrated water quality meter (WQM). The equipment supplier and field calibration records are provided in **Appendix C**.
Sampling methodology-	Groundwater samples were collected from the monitoring wells using no-purge methodology HydraSleeves™, with the exception of monitoring well MW134. HydraSleeves™ were installed within the screened interval of the wells following the completion of previous sampling round in March 2022 based on a review of the well construction log. Once sampling was completed, new HydraSleeves™ were deployed at the screened interval depth in preparation for the next sampling round. At monitoring well MW134, the groundwater sample was collected using a dedicated, disposable bailer as the HydraSleeve™ in the well failed to deploy correctly and there was an insufficient volume of groundwater to present. Surface water samples at all locations were collected by placing the laboratory sample bottle immediately below the water surface to minimise the collection of sediment or surface materials with the cap immediately applied once the container was full.
QA/QC Samples	A QA/QC program was implemented for the sampling and analysis program in order to obtain representative data and assess the reliability of the data obtained. To facilitate the QA/QC program the following sample types were obtained during the sampling program: • *Field (intra-laboratory) duplicates* collected at a rate of a rate of 1 per 10 primary samples. The relative percentage difference (RPD) should be less than 30%. • *Inter-laboratory duplicates* collected at a rate of 1 per 10 primary samples. The relative percentage difference (RPD) should be less than 30%. • *Rinsate blanks* collected at a frequency of one per day where sampling equipment was decontaminated and reused between locations. Analytical results should be below the laboratory limit of reporting (LOR). For this quarterly sampling event, the following QA/QC samples were collected: • 2 x intra-laboratory duplicate, which met the target frequency. • 2 x inter-laboratory duplicate; which met the target frequency. • 1 x rinsate, which met the target frequency. The data validation assessment is presented in **Appendix D**.
Sample analysis	Samples were submitted to the primary and secondary laboratories for PFAS suite analysis at the standard LOR. ALS Environmental (ALS) Sydney, NSW was used as the primary laboratory. Envirolab Sydney, NSW was used as the secondary laboratory. ALS and

Item	Details
	Envirolab methods for analyses were certified by the National Association of Testing Authorities (NATA). A summary of the laboratory results is presented in **Section 5.2** and the laboratory certificates are presented in **Appendix E**.

4.2 Adopted Screening Criteria

Adopted screening criteria references the PFAS National Environmental Management Plan, Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance. Guidance documents used to assess the dataset includes the following:

- PFAS National Environmental Management Plan 2.0 (NEMP), (HEPA 2020), https://environment.gov.au/protection/publications/pfas-nemp-2
- Department of Health (DoH), 2017. Health Based Guidance Values for PFAS for use in site investigations in Australia. April 2017 (FSANZ 2017)
- National Health and Medical Research Council (NHMRC), 2019. Guidance on PFAS in Recreational Water. August 2019 (NHMRC 2019)
- National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, as amended in 2013 (ASC NEPM).

The adopted PFAS screening criteria to assess the data generated as part of the OMP are presented in **Table 4** and **Table 5** below.

Table 4 Summary of Adopted Screening Criteria

Pathway	Compound	Criteria	Comment/Reference
Drinking water - groundwater	PFOS + PFHxS	0.07 µg/L	The values presented in the PFAS NEMP (HEPA, 2020) are from DoH 2017, which published final health-based guidance values for PFAS for use in site investigations in Australia. DoH utilised the TDI for PFOS and PFOA from FSANZ, 2017 and the methodology described in Chapter 6.3.3 of the National Health and Medical Research Council's (NHMRC) Australian Drinking Water Guidelines (ADWG), 2022 to determine drinking water values. For PFHxS, DoH 2017 noted that '*FSANZ concluded that there was not enough toxicological and epidemiological information to justify establishing a tolerable daily intake. However, as a precaution, and for the purposes of site investigations, the PFOS tolerable daily intake should apply to PFHxS. In practice, this means that the level of PFHxS exposure should be added to the level of PFOS exposure; and this combined level be compared to the tolerable daily intake for PFOS*'. *All groundwater results were compared to these criteria.*
	PFOA	0.56 µg/L	
Recreational use – surface water	PFOS + PFHxS	2 µg/L	In August 2019, NHMRC released guidance on the assessment of PFAS in surface water. Rather than adopting an ingestion rate of 0.2 L of water per day (as per the ADWG formula), NHMRC adjusted this rate with consideration of an event frequency (150 events/year) to calculate an annual ingestion rate of 30 L per year. *All surface water results were compared to these criteria*
	PFOA	10 µg/L	

Table 5 PFAS criteria summary: Ecological

Pathway	Chemical	Criteria	Comment/Reference
Freshwater	PFOS	0.13 µg/L	HEPA (2020) NEMP 95% species protection
	PFOA	220 µg/L	*All groundwater and surface water results were compared to these criteria.*

4.3 Data Quality Objectives and Data Validation

The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2022). Data validation assessment is provided in **Appendix D**.

Data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported analytical results are representative of the sample locations and that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report.

All data collected during this event has been reviewed and uploaded to the Defence ESdat database in accordance with the Defence Contamination Management Manual (DCMM) requirements.

5.0 Field Observations and Results

5.1 General Field Observations

The field observations recorded during the sampling event are presented in **Table 6** below.

Table 6 General Field Observations

Items	Observations
Weather Conditions	The weather on 15 June 2022 was recorded to be sunny with light winds and a cool temperature. A maximum temperature of 18.6°C was recorded. Rainfall was recorded as 0.2 mm on 15 June 2022 at Holsworthy Army Barracks (Holsworthy Defence AWS, 068263) (Bureau of Meteorology, 2022).
Estate Management Works or Training Activities	No estate management works or training activities were observed during the June 2022 sampling event that would have the potential to impact upon the results.

5.2 Groundwater and Surface Water Observations and Field Measurements

The groundwater and surface water observations and field measurements recorded during the sampling event are presented in **Table 7** below.

Table 7 Groundwater and Surface Water Observations and Field Measurements

Compound	Criteria
Fieldwork Dates	The sampling event was completed on 15 June 2022.
Access and Sample Collection	All locations were accessible and able to be sampled.
Monitoring Well Network Condition	All wells were noted to be in good condition.
Contamination Observations	No obvious visible signs of contamination in groundwater or surface water were observed at the locations sampled.
Depth to Groundwater and Flow Direction	Depth to groundwater ranged from 1.138 (MW129) to 4.874 (MW115) metres below top of casing (mbTOC). Groundwater elevation ranged from 8.388 (MW129) to 11.500 (MW112P) metres Australian height datum (mAHD). Groundwater gauging data is presented in **Table T1** in **Appendix B**. Inferred groundwater contours and groundwater flow directions based on the current data are shown on **Figure F4** in **Appendix A**. The inferred local groundwater flow direction was to the northeast in the vicinity of the Liverpool Fire Station. This is generally consistent with the inferred groundwater flow direction in the Detailed Site Investigation (CH2M Hill, 2018), which was towards the Georges River, located to the east and northeast of the Site. It is noted that gauging data from six wells (MW112P, MW119P, MW131, MW133, MW134 and MW136) in the vicinity of the Fire Station were excluded from the groundwater elevation plan in **Figure F4** in **Appendix A** due to the wells being screened across discontinuous perched water.

Compound	Criteria
Geochemical Parameters	Groundwater and surface water geochemical parameters were measured prior to collecting samples. The stabilised readings are presented in **Table T1** and **Table T2** in **Appendix B** and are summarised below: **Groundwater Geochemical Parameters** • Dissolved oxygen ranged from 0.00 mg/L (MW130) to 3.51 mg/L (MW119P) indicating poorly oxygenated conditions. • Electrical conductivity ranged from 280.3 µS/cm (MW113) to 3257.0 µS/cm (MW129) indicating fresh to brackish conditions. • pH ranged from 5.12 (MW112P) to 6.81 (MW119) indicating moderately acidic to near neutral conditions. • Corrected Redox ranged from 64.3 mV (MW136) to 316.4 mV (MW119P) indicating reducing conditions. **Surface Water Geochemical Parameters** • Dissolved oxygen readings were 1.92 mg/L (SW001), 4.37 mg/L (SW059), and 4.52 mg/L (SW111) indicating moderately to well oxygenated conditions. • Electrical conductivity was recorded at 247.5 µS/cm (SW111), 323.3 µS/cm (SW001), and 372.2 µS/cm (SW059) indicating freshwater conditions. • pH was recorded at 6.86 (SW059), 6.87 (SW111) and 6.97 (SW001), indicating near neutral conditions. • Corrected Redox were calculated to be 251.3 mV (SW001), 251.7 mV (SW059), and 268.1 mV (SW111) indicating reducing conditions.

5.2.1 Groundwater Analytical Results - PFAS

The PFAS groundwater analytical results from this sampling event are presented in **Table T3** in **Appendix B**. In summary, 12 primary groundwater samples were analysed for PFAS, with concentrations of:

- PFAS compounds reported above the laboratory LOR in 11 of the primary groundwater samples analysed
- PFOS+PFHxS, PFOS, and/or PFOA exceeded the adopted human health criteria in 10 of the 12 primary groundwater samples analysed
- PFOS and/or PFOA exceeded the adopted ecological screening criteria in eight of the primary samples analysed.

Deviations from the historical dataset are provided in **Table 8** below.

Table 8 Deviations from Historical Groundwater Dataset

Deviation Type	Groundwater sampling location	Sum of PFOS+PFHxS (µg/L)		PFOA (µg/L)		PFOS (µg/L)	
		June 2022	Previous Maximum	June 2022	Previous Maximum	June 2022	Previous Maximum
First time detections of PFOS+PFHxS and/or PFOA in groundwater	There was no first-time detection reported in the dataset.						
New exceedance of the NEMP (HEPA, 2020) drinking water guidelines	MW119	33.8	37.4	0.63	0.55	27.3	32.8
New exceedance of the adopted Ecological Screening Criteria	There was no new exceedance of the NEMP Ecological Screening Criteria in the dataset.						
Legend							
Blue Shading	Blue shading indicates sampling location with first time detection of PFOS+PFHxS and/or PFOA						
Yellow Shading	Yellow shading indicates sampling location with new exceedance of NEMP Human Health Screening criteria						
Purple Shading	Purple shading indicates sampling location with new exceedance of NEMP Ecological Screening criteria						

5.2.2 Surface Water Analytical Results – PFAS

The PFAS analytical results for surface water samples from this event are presented in **Table T4** in **Appendix B**. In summary, three primary surface water samples were analysed for PFAS, with concentrations of:

- PFOS+PFHxS, PFOS and/or PFOA reported above the laboratory LOR in the three samples
- PFOS+PFHxS, PFOS and/or PFOA exceeded the adopted human health screening criteria in one of the primary surface water samples analysed.
- PFOS and/or PFOA exceeded the adopted ecological screening criteria in two of the three primary samples analysed.

There were no first-time detections or new exceedances of human health or ecological screening criteria for PFOS+PFHxS, PFOS and/or PFOA at the surface water sampling locations.

5.3 Historical Sampling Data

Historical groundwater and surface water sampling data are presented in **Tables T5** and **T6** (respectively) in **Appendix B**.

6.0 Summary and Next Sampling Events

6.1 Summary of Monitoring Event

The quarterly groundwater and surface water monitoring event was completed at the targeted off-site areas on 15 June 2022. The program included:

- gauging of groundwater levels at 12 planned monitoring well locations
- sampling of groundwater from 12 planned monitoring well locations
- sampling of surface water at three planned locations.

The **Table 9** below summarises the findings of the June 2022 sampling event and the recommended actions.

Table 9 Summary of Sampling Event

Item	Comment	Recommended Actions
Access to sampling locations	The following were accessed and able to be sampled: • 12 monitoring wells • three surface water sampling locations	Nil.
Monitoring wells unable to be located	All wells within the quarterly monitoring scope were able to be located.	Nil.
Inaccessible or dry locations	All wells within the quarterly monitoring scope were accessible and able to be sampled.	Nil.
Monitoring well network condition	All groundwater monitoring wells were observed to be in good condition.	Nil.
Analytical Results	PFAS was detected at concentrations above the laboratory LOR in 11 of the 12 primary groundwater samples analysed and all three primary surface water samples analysed.	Locations will be sampled again during the next scheduled sampling event to continue to monitor concentrations over time.
First time detections of PFOS+PFHxS and/or PFOA	No groundwater or surface water locations reported a first-time detection of either PFOS+PFHxS and/or PFOA.	Locations will be sampled again during the next scheduled sampling event to continue to monitor concentrations over time.

Item	Comment	Recommended Actions
First time exceedance of Human Health Screening Criteria	Groundwater well location MW119 reported a first-time exceedance of NEMP Human Health Screening Criteria for PFOA. No groundwater location reported a first-time exceedance of PFOS+PFHxS. No surface water location reported a first-time exceedance of Human Health Screening Criteria for PFOS+PFHxS and/or PFOA.	Locations will be sampled again during the next scheduled sampling event to continue to monitor concentrations over time.
First time exceedance of adopted ecological screening criteria	No groundwater or surface water location reported a first-time exceedance of the adopted ecological screening criteria for PFOS and/or PFOA.	Locations will be sampled again during the next scheduled sampling event to monitor concentrations over time.

6.2 Upcoming Sampling Events

The next scheduled sampling event is in September 2022.

6.3 Upcoming Annual Interpretive Report

The 2022 annual interpretative report is scheduled to be delivered in Q1 2023.

7.0 References

AECOM, 2022. *Sampling and Analysis Quality Plan, Holsworthy Barracks, PFAS OMP*. 18 February 2022 – Revision G.

CH2M Hill, 2018. *Holsworthy Barracks – PFAS Investigations – Detailed Site Investigation, Revision 2.0* – November 2018.

Australian and New Zealand Guidelines, 2018. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.*

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Appendix A

Figures

Appendix A Figures

FIGURE F1:
STUDY AREA

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
June 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 50 100 m

Legend

- Site Boundary
- Primary Source Area
- Groundwater Location (sampled)

Due to privacy considerations, locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136 cannot be shown

FIGURE F2: GROUNDWATER SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
June 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 50 100 m

Legend

- Site Boundary
- Primary Source Area
- Surface Water Location (sampled)

FIGURE F3: SURFACE WATER SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
June 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 30 60 m

Legend

- Site Boundary
- Primary Source Area
- Groundwater Contours (mAHD)
- Inferred Groundwater Flow Direction
- Groundwater Location (sampled)
- 8 .348 Groundwater Elevation (mAHD)

Due to privacy considerations, locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136 cannot be shown

FIGURE F4: GROUNDWATER ELEVATION PLAN

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
June 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

AECOM

N

0 50 100 m

Legend

- Site Boundary
- Primary Source Area
- Sampled, no first time detection or exceedance
- First time exceedance of human health screen criteria for PFOS+PFHxS and/or PFOA
- First time detection of PFOS+PFHxS and/or PFOA

Due to privacy considerations, locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136 cannot be shown

FIGURE F5: GROUNDWATER ANALYTICAL RESULTS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
June 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

Appendix B

Tables

Appendix B Tables

Table T1
Gauging Data and Groundwater Geochemical Parameters

														Field Measurements					
														Dissolved Oxygen	Temperature	Electrical Conductivity	pH	Redox Potential Er	Redox Potential Eh (Corrected)
Location Code	**Alternative Name**	**Easting**	**Northing**	**Top of Casing (mAHD)**	**Top Screen (mbTOC)**	**Bottom Screen (mbTOC)**	**HydraSleeve Collar Depth (mbTOC)**	**Water Depth (mbTOC)**	**Water Elevation (mAHD)**	**Depth to Base (mbTOC)**	**Visit / Gauging / Sampled Date**	**Visit / Gauging Comments**	**Sampling Comments**	mg/L	°C	µS/cm	pH Units	mV	mV
MW112	BH112	308827.830	6242011.630	13.420	10.3	13.3	12.30	4.361	9.059	13.19	15/06/2022	Good condition	Clear, low turbidity, no odour, no sheen	0.62	18.3	2,565.0	5.45	68.2	274.0
MW112P	BH112_P	308826.490	6242011.910	13.430	2	5	4.50	1.930	11.500	5.10	15/06/2022	Good condition	Clear, low turbidity, no odour, no sheen	1.46	17.5	284.0	5.12	71.6	277.4
MW113	BH113	308876.090	6242099.520	13.460	10.9	14.9	13.80	4.561	8.899	14.76	15/06/2022	Good condition	Clear, low turbidity, no odour, no sheen	0.21	20.0	280.3	6.33	66.3	272.1
MW115	BH115	308832.110	6242106.070	14.080	10.1	13.1	12.20	4.874	9.206	13.21	15/06/2022	Good condition	Clear, low turbidity, no odour, no sheen	0.84	20.8	399.7	5.45	67.7	273.5
MW119	BH119	**	**	11.010	8	11	10.30	2.480	8.530	11.20	15/06/2022	Good condition	Ligh yellow, low turbidity, no odour, no sheen	3.35	19.5	894.0	6.81	74.5	280.3
MW119P	BH119_P, MW119S	**	**	11.120	2	5	4.15	2.424	8.696	4.64	15/06/2022	Good condition	Clear, no turbidity, no odour, no sheen	3.51	19.9	1,028.0	5.16	110.6	316.4
MW129		**	**	9.526	5	8	6.70	1.138	8.388	7.67	15/06/2022	Good condition	Light brown, low turbidity, no odour, no sheen	3.31	17.4	3,257.0	5.64	51.8	257.6
MW130		**	**	12.986	6	9	7.70	4.363	8.623	8.70	15/06/2022	Good condition.	Brown, medium turbidity, no odour, no sheen	0.00	19.2	734.0	5.90	26.6	232.4
MW131		**	**	12.179	7	10	9.00	3.705	8.474	9.95	15/06/2022	Good condition	Clear, no turbidity, no odour, no sheen	0.45	19.0	1,764.0	5.79	-78.2	127.6
MW133	MW133P	**	**	13.350	2	4	3.50	2.878	10.472	4.87	15/06/2022	Good condition. Gauged after removing Hydrasleeve.	Clear, low turbidity, no odour, no sheen	2.87	17.9	311.4	5.27	89.2	295.0
MW134		**	**	13.210	1.9	3.9	3.40	3.436	9.774	4.67	15/06/2022	Good condition	Light brown, high turbidity, sulfurous odour, no sheen. Hydrasleeve did not deploy correctly. Sample taken with bailer.	1.34	21.8	795.0	6.37	-55.5	150.3
MW136	MW136P	**	**	11.860	2.25	4.25	3.75	2.798	9.062	4.95	15/06/2022	Good condition	Clear, medium turbidity, sulfurous odour, no sheen. Suspended solids.	0.30	19.1	1,236.0	6.14	-141.5	64.3

Notes

**	Co-ordinates removed due to privacy considerations
mV	milliVolts
mg/L	milligrams per Litre
°C	degrees Celsius
µS/cm	microSiemens per centimetre
mbTOC	metres below top of casing
-	Not measured
n/a	Not applicable
IP	Interface probe

Corrected field Redox measurement Eh = Er + 205.8

Table T2
Surface Water Geochemical Parameters

								Field Measurements					
								Dissolved Oxygen	Temperature	Electrical Conductivity	pH	Redox Potential Er	Redox Potential Eh (Corrected)
Location Code	Easting	Northing	Visit/Sampled Date	Location Comments	Sample Depth From (m)	Sample Depth To (m)	Sample Comment	mg/L	°C	µS/cm	pH Units	mV	mV
SW001	308867.480	6242016.780	15/06/2022	Drainage channel, with reeds and small shrubs. Waterbody dimensions (approx.): 0.4m wide, 0.1m deep. No flow observed.	0.05	0.05	Orange, high turbidity, no odour, biosheen. Suspended solids.	1.92	11.2	323.3	6.97	45.5	251.3
SW059	309636.439	6242152.009	15/06/2022	Creek, with shrubs and bushes along banks. Waterbody dimensions (approx.): 3.0m wide, 0.3m deep. No flow observed.	0.10	0.10	Clear, no turbidity, no odour, no sheen	4.37	10.4	372.2	6.86	45.9	251.7
SW111	309356.120	6241898.415	15/06/2022	Creek, with reeds and trees along banks. Waterbody dimensions (approx.): 5.0m wide, 0.3m deep. No flow observed.	0.10	0.10	Clear, no turbidity, no odour, no sheen	4.52	10.5	247.5	6.87	62.3	268.1

Notes

mV	milliVolts
mg/L	milligrams per Litre
°C	degrees Celsius
µS/cm	microSiemens per centimetre
mbTOC	metres below top of casing
-	Not measured
n/a	Not applicable

Corrected field Redox measurement Eh = Er + 205.8

Table T3
Groundwater Analytical Results

AECOM

																	Per- and Poly-fluoroalkyl Substances																							
																	Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluoroundecanoic acid (PFUnDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecane sulfonic acid (PFDS)	Perfluorododecanoic acid (PFDoDA)	Perfluorodecanoic acid (PFDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorooctane sulfonamide (FOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	Sum of PFAS	Sum of PFAS (WA DER List)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR							0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.1	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.01	0.01
PFAS NEMP 2020 Drinking Water							**0.56**			**0.07**																											
PFAS NEMP 2020 Freshwater 95%							*220*	*0.13*																													
Location Code	**Alternative Name**	**Sampled Date**	**Field ID**	**Sample Type**	**Lab Report #**																																
MW112	BH112	15/06/2022	0382_MW112_220615	Normal	ES2221295		**4.72**	*45.6*	72	**118**	<0.05	<0.05	<0.05	<0.05	<0.05[#1]	<0.05[#1]	<0.12[#1]	8.57	1.77	<0.05[#1]	11.6	4.3	2.01	<0.05[#1]	<0.05[#1]	<0.05[#1]	7.22	1.2	<0.12[#1]	<0.12[#1]	<0.12[#1]	<0.12[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	159	146
MW112P	BH112_P, MW112_P	15/06/2022	0382_MW112P_220615	Normal	ES2221295		0.26	*30.6*	5.74	**36.3**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.28	0.3	<0.02	1.31	0.35	0.12	<0.02	<0.02	<0.02	0.22	0.2	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	39.4	38.8
MW113	BH113	15/06/2022	0382_MW113_220615	Normal	ES2221295		**14.9**	*580*	200	**780**	<0.05	16.6	0.08	<0.05	<0.05[#1]	<0.05[#1]	<0.12[#1]	27	16.8	1.07	38.7	17.8	6.66	0.32	<0.05[#1]	0.08	20.3	5.2	<0.12[#1]	<0.12[#1]	<0.12[#1]	<0.12[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	946	899
MW115	BH115	15/06/2022	0382_MW115_220615	Normal	ES2221295		**15.7**	*358*	203	**561**	<0.05	0.94	<0.05	<0.05	<0.05[#1]	<0.05[#1]	<0.12[#1]	30.4	7.03	0.16	38.2	17.7	6.3	<0.05[#1]	<0.05[#1]	<0.05[#1]	19.4	3.8	<0.12[#1]	<0.12[#1]	<0.12[#1]	<0.12[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	701	652
MW119	BH119	15/06/2022	0382_MW119_220615	Normal	ES2221295		**0.63**	*27.3*	6.5	**33.8**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.7	1.31	<0.02	2.91	0.42	0.28	<0.02	<0.02	<0.02	0.77	1.4	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	42.2	41.1
MW119P	BH119_P, MW119_P MW119S	15/06/2022	0382_MW119P_220615	Normal	ES2221295		**13.4**	*200*	257	**457**	<0.05	0.32	<0.05	<0.05	<0.05[#1]	<0.05[#1]	<0.12[#1]	33.4	3.54	<0.05[#1]	28.8	24	5.28	<0.05[#1]	<0.05[#1]	<0.05[#1]	16.2	1.6	<0.12[#1]	<0.12[#1]	<0.12[#1]	<0.12[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	584	526
MW129		15/06/2022	0382_MW129_220615	Normal	ES2221295		<0.01	0.02	0.01	0.03	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.03	0.03
MW130		15/06/2022	0382_MW130_220615	Normal	ES2221295		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
MW130		15/06/2022	0382_QC100_220615	Field_D	ES2221295		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.01	<0.01
MW131		15/06/2022	0382_MW131_220615	Normal	ES2221295		<0.01	0.09	0.02	**0.11**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.11	0.11
MW133	MW133P	15/06/2022	0382_MW133_220615	Normal	ES2221295		**4.8**	*765*	42.7	**808**	<0.05	<0.05	<0.05	<0.05	<0.05[#1]	<0.05[#1]	<0.12[#1]	3.78	2.54	0.07	10.9	12.7	0.84	<0.05[#1]	<0.05[#1]	<0.05[#1]	2.58	1.6	<0.12[#1]	<0.12[#1]	<0.12[#1]	<0.12[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	848	831
MW134	MW134P	15/06/2022	0382_MW134_220615	Normal	ES2221295		0.02	*0.52*	1.04	**1.56**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.24	0.28	<0.02	0.56	<0.02	0.02	<0.02	<0.02	<0.02	0.31	0.3	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	3.29	3.05
MW136	MW136P	15/06/2022	0382_MW136_220615	Normal	ES2221295		0.03	0.06	0.64	**0.7**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.16	0.05	<0.02	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	0.18	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	1.33	1.17
MW136	MW136P	15/06/2022	0382_QC200_220615	Interlab_D	298106		0.02	0.05	0.46	**0.51**	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<0.5	0.13	0.03	<0.01	0.12	<0.01	0.01	<0.02	<0.05	<0.02	0.13	0.03	<0.05	<0.5	<0.1	<0.05	<0.02	<0.1	<0.02	0.99	-

Notes:

LOR	Limit of Reporting
Normal	Primary Sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
	Denotes first time detection above LOR
	Denotes first time exceedance of human health screening criteria
	Denotes first time exceedance of ecological screening criteria
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

#1 : Reported Analyte LOR is higher than Requested Analyte LOR. LOR values have been adjusted for samples that required dilution due to the presence of high level contamination.

Table T4
Surface Water Analytical Results

AECOM

					Per- and Poly-fluoroalkyl Substances																																			
					Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluoroundecanoic acid (PFUnDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecane sulfonic acid (PFDS)	Perfluorododecanoic acid (PFDoDA)	Perfluorodecanoic acid (PFDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorooctane sulfonamide (FOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	Sum of PFAS	Sum of PFAS (WA DER List)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR					0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.1	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.01	0.01
PFAS NEMP 2020 Freshwater 95%					*220*	*0.13*																																	
PFAS NEMP 2020 Recreational Water					**10**			**2**																															
Location Code	**Sampled Date**	**Field ID**	**Sample Type**	**Lab Report #**																																			
SW001	15/06/2022	0382_SW001_220615	Normal	ES2221295	0.07	*2.06*	0.67	**2.73**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.06	0.09	<0.02	0.24	0.04	0.04	<0.02	<0.02	<0.02	0.07	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	0.13	<0.02	3.47	3.24
SW059	15/06/2022	0382_SW059_220615	Normal	ES2221295	0.02	*0.16*	0.16	0.32	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	0.03	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.42	0.42
SW059	15/06/2022	0382_QC101_220615	Field_D	ES2221295	0.02	0.13	0.14	0.27	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.36	0.36
SW111	15/06/2022	0382_SW111_220615	Normal	ES2221295	0.02	0.08	0.06	0.14	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	0.19	0.19
SW111	15/06/2022	0382_QC201_220615	Interlab_D	298106	0.02	0.05	0.05	0.1	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<0.5	<0.01	<0.02	<0.01	0.02	<0.01	<0.01	<0.02	<0.05	<0.02	0.01	<0.02	<0.05	<0.5	<0.1	<0.05	<0.02	<0.1	<0.02	0.14	-

Notes:

LOR	Limit of Reporting
Normal	Primary sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
	Denotes first time detection above LOR
	Denotes first time exceedance of human health screening criteria
	Denotes first time exceedance of ecological screening criteria
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

Table T5: Historical Groundwater Analytical Results

AECOM

								PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids													PFAS - (n:2) Fluorotelomer				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
								Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR								0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005	0.002	0.002	0.002
PFAS NEMP 2020 Drinking Water																		**0.56**																			**0.07**	
PFAS NEMP 2020 Freshwater 95%												*0.13*						*220*																				
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																																	
MW002	MW002	20/02/2018	0382_MW02_180220	Normal	NSW_0382_PFAS	0.02	<0.01	0.08	<0.01	*0.16*	<0.01	0.05	0.10	0.14	0.10	0.35	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	**0.24**	1.11
MW002	MW002	1/10/2020	0382_MW002_201001	Normal	NSW_0382_PFASOMP_20	0.28	<0.02	0.05	<0.02	0.04	<0.02	<0.1	0.08	0.16	0.04	0.20	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.09**	0.85
MW002	MW002	1/10/2020	0382_QC102_201001	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.03	<0.02	<0.1	0.08	0.07	0.04	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.43
MW002	MW002	26/03/2021	0382_MW002_210326	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	0.03	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.03	<0.05	<0.05	0.03	<0.05	0.05	0.19
MW002	MW002	6/09/2021	0382_MW002_210906	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.03	<0.02	0.04	<0.02	<0.1	0.02	0.04	0.04	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.31
MW002	MW002	21/03/2022	0382_MW002_220321	Normal	NSW_0382_PFASOMP_20	0.04	<0.02	0.04	<0.02	0.12	<0.02	<0.1	0.05	0.06	0.04	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.16**	0.56
MW005	MW005	21/02/2018	0382_MW05_180221	Normal	NSW_0382_PFAS	0.01	0.01	0.11	<0.01	0.11	<0.01	<0.05	0.02	0.04	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.22**	0.34
MW005	MW005	21/03/2022	0382_MW005_220321	Normal	NSW_0382_PFASOMP_20	0.12	<0.02	0.03	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.20
MW112	BH112	28/03/2018	0382_MW112_180328	Normal	NSW_0382_PFAS	6.7	12	58	3.3	*64*	<0.01	0.99	1.5	9.7	1.7	**4.3**	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**122**	162.2
MW112	BH112	1/10/2020	0382_MW112_201001	Normal	NSW_0382_PFASOMP_20	6.32	10.3	70.4	6.01	*52.8*	<0.02	1.0	1.87	11.6	1.97	**4.75**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**123**	167
MW112	BH112	3/12/2020	0382_MW112_201203	Normal	NSW_0382_PFASOMP_20	3.86	6.31	42.4	2.92	*30.0*	<0.02	0.9	1.29	8.16	1.38	**3.03**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**72.4**	100
MW112	BH112	25/03/2021	0382_MW112_210325	Normal	NSW_0382_PFASOMP_20	5.13	6.30	47.4	2.92	*25.7*	<0.02	0.9	1.46	8.38	1.58	**3.76**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**73.1**	104
MW112	BH112	7/06/2021	0382_MW112_210607	Normal	NSW_0382_PFASOMP_20	5.33	8.27	49.5	4.27	*37.9*	<0.02	0.9	1.53	9.40	1.58	**4.14**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**87.4**	123
MW112	BH112	7/09/2021	0382_MW112_210907	Normal	NSW_0382_PFASOMP_20	4.61	6.47	44.0	3.01	*21.2*	<0.02	0.8	1.33	7.88	1.29	**3.12**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**65.2**	93.8
MW112	BH112	6/12/2021	0382_MW112_211206	Normal	NSW_0382_PFASOMP_20	5.31	5.51	46.8	3.65	*34.9*	<0.02	0.9	1.26	9.28	1.32	**2.43**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**81.7**	111
MW112	BH112	23/03/2022	0382_MW112_220323	Normal	NSW_0382_PFASOMP_20	5.01	6.00	48.8	3.21	*31.8*	<0.02	0.6	1.14	8.13	1.26	**3.25**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**80.6**	109
MW112	BH112	15/06/2022	0382_MW112_220615	Normal	NSW_0382_PFASOMP_20	7.22	8.57	72.0	4.30	*45.6*	<0.05	1.2	1.77	11.6	2.01	**4.72**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	**118**	159
MW112P	BH112 P, MW112 P	28/03/2018	0382_MW112 P_180328	Normal	NSW_0382_PFAS	0.33	1.2	6.0	0.34	*50*	<0.01	0.16	0.30	1.4	0.13	0.33	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**56**	60.19
MW112P	BH112 P, MW112 P	1/10/2020	0382_MW112_P_201001	Normal	NSW_0382_PFASOMP_20	0.33	0.64	8.10	0.52	*37.3*	<0.02	0.2	0.35	1.78	0.16	0.40	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**45.4**	49.8
MW112P	BH112 P, MW112 P	3/12/2020	0382_MW112_P_201203	Normal	NSW_0382_PFASOMP_20	0.20	0.38	4.43	0.29	*23.2*	<0.02	0.1	0.22	1.09	0.11	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**27.6**	30.2
MW112P	BH112 P, MW112 P	25/03/2021	0382_MW112_P_210325	Normal	NSW_0382_PFASOMP_20	0.19	0.28	4.75	0.24	*20.1*	<0.02	0.2	0.24	1.35	0.10	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**24.8**	27.7
MW112P	BH112 P, MW112 P	25/03/2021	0382_QC100_210325	Field_D	NSW_0382_PFASOMP_20	0.21	0.31	5.06	0.27	*22.5*	<0.02	0.2	0.26	1.45	0.10	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**27.6**	30.6
MW112P	BH112 P, MW112 P	7/06/2021	0382_MW112P_210607	Normal	NSW_0382_PFASOMP_20	0.24	0.40	5.56	0.36	*28.2*	<0.02	0.2	0.28	1.32	0.12	0.33	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**33.8**	37.0
MW112P	BH112 P, MW112 P	7/09/2021	0382_MW112P_210907	Normal	NSW_0382_PFASOMP_20	0.20	0.32	4.68	0.29	*19.1*	<0.02	0.2	0.23	1.26	0.08	0.24	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**23.8**	26.6
MW112P	BH112 P, MW112 P	6/12/2021	0382_MW112P_211206	Normal	NSW_0382_PFASOMP_20	0.18	0.24	3.90	0.23	*20.8*	<0.02	0.2	0.20	1.17	0.08	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**24.7**	27.2
MW112P	BH112 P, MW112 P	23/03/2022	0382_MW112P_220323	Normal	NSW_0382_PFASOMP_20	0.04	0.08	1.67	0.09	*7.08*	<0.02	<0.1	0.02	0.15	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**8.75**	9.18
MW112P	BH112 P, MW112 P	15/06/2022	0382_MW112P_220615	Normal	NSW_0382_PFASOMP_20	0.22	0.28	5.74	0.35	*30.6*	<0.02	0.2	0.30	1.31	0.12	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**36.3**	39.4
MW113	BH113	28/03/2018	0382_MW113_180328	Normal	NSW_0382_PFAS	11	13	74	3.0	*46*	<0.01	1.2	2.1	13	1.9	**3.7**	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.24	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**120**	169.15
MW113	BH113	1/10/2020	0382_MW113_201001	Normal	NSW_0382_PFASOMP_20	36.2	46.6	284	29.6	*194*	0.17	4.4	8.81	53.0	7.59	**15.7**	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**478**	681
MW113	BH113	3/12/2020	0382_MW113_201203	Normal	NSW_0382_PFASOMP_20	27.3	38.9	162	9.70	*108*	0.05	4.2	6.48	38.0	6.05	**11.8**	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**270**	413
MW113	BH113	3/12/2020	0382_QC100_201203	Field_D	NSW_0382_PFASOMP_20	29.0	40.5	165	10.6	*122*	0.05	4.2	6.40	39.8	6.11	**12.4**	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.64	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**287**	437
MW113	BH113	3/12/2020	0382_QC200_201203	Interlab_D	NSW_0382_PFASOMP_20	22	21	180	6.2	*97*	<0.01	3.4	6.1	31	4.2	**8.2**	0.024	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	0.54	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
MW113	BH113	25/03/2021	0382_MW113_210325	Normal	NSW_0382_PFASOMP_20	10.4	12.5	89.0	5.91	*247*	0.54	3.7	9.56	20.8	3.77	**7.56**	0.56	0.06	<0.02	<0.02	<0.02	<0.05	<0.05	5.68	0.10	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**336**	417
MW113	BH113	7/06/2021	0382_MW113_210607	Normal	NSW_0382_PFASOMP_20	38.4	51.1	269	26.6	*219*	0.16	4.8	10.0	63.0	9.13	**17.8**	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	1.70	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**488**	711
MW113	BH113	7/09/2021	0382_MW113_210907	Normal	NSW_0382_PFASOMP_20	36.0	56.4	252	22.7	*205*	0.07	4.9	8.76	46.4	7.12	**10.0**	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.83	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**457**	650
MW113	BH113	6/12/2021	0382_MW113_211206	Normal	NSW_0382_PFASOMP_20	43.0	46.6	266	20.4	*183*	0.08	4.5	9.43	58.9	7.81	**15.2**	0.10	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	1.16	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**449**	656
MW113	BH113	6/12/2021	0382_QC100_211206	Field_D	NSW_0382_PFASOMP_20	39.8	45.1	262	20.0	*182*	0.09	4.7	8.74	58.4	7.42	**14.6**	0.08	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	1.15	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**444**	644
MW113	BH113	23/03/2022	0382_MW113_220323	Normal	NSW_0382_PFASOMP_20	11.2	14.4	140	10.3	*1240*	0.24	4.6	16.5	30.0	4.34	**10.6**	1.13	0.12	<0.04	<0.04	<0.04	<0.10	<0.05	17.8	0.09	<0.05	0.05	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**1380**	1500
MW113	BH113	15/06/2022	0382_MW113_220615	Normal	NSW_0382_PFASOMP_20	20.3	27.0	200	17.8	*580*	0.32	5.2	16.8	38.7	6.66	**14.9**	1.07	0.08	<0.05	<0.05	<0.05	<0.12	<0.05	16.6	0.08	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	**780**	946
MW115	BH115	28/03/2018	0382_MW115_180328	Normal	NSW_0382_PFAS	21	30	180	14	*360*	<0.2	3.2	5.7	31	5.2	**13**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**540**	663.1
MW115	BH115	1/10/2020	0382_MW115_201001	Normal	NSW_0382_PFASOMP_20	20.1	38.4	218	28.2	*469*	<0.02	3.9	7.38	41.7	6.53	**16.1**	0.15	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.70	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**687**	850
MW115	BH115	3/12/2020	0382_MW115_201203	Normal	NSW_0382_PFASOMP_20	16.0	20.9	133	13.4	*267*	<0.02	3.5	4.92	28.4	4.92	**12.0**	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.57	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**400**	505
MW115	BH115	25/03/2021	0382_MW115_210325	Normal	NSW_0382_PFASOMP_20	13.0	16.2	113	8.63	*160*	<0.02	3.6	4.30	23.8	3.98	**9.06**	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.68	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**273**	356
MW115	BH115	7/06/2021	0382_MW115_210607	Normal	NSW_0382_PFASOMP_20	17.0	28.1	178	17.5	*306*	<0.02	3.6	6.53	32.6	6.07	**14.4**	0.14	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.74	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**484**	611
MW115	BH115	7/09/2021	0382_MW115_210907	Normal	NSW_0382_PFASOMP_20	17.5	27.6	162	14.9	*262*	<0.02	3.5	5.66	31.6	3.94	**8.78**	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.67	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**424**	538
MW115	BH115	6/12/2021	0382_MW115_211206	Normal	NSW_0382_PFASOMP_20	15.9	18.2	133	10.8	*210*	<0.04	3.2	5.08	32.8	4.61	**10.4**	0.12	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.60	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**343**	445
MW115	BH115	23/03/2022	0382_MW115_220323	Normal	NSW_0382_PFASOMP_20	19.4	21.9	160	14.8	*281*	<0.04	3.4	5.98	38.2	5.36	**11.2**	0.16	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.87	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**441**	562
MW115	BH115	15/06/2022	0382_MW115_220615	Normal	NSW_0382_PFASOMP_20	19.4	30.4	203	17.7	*358*	<0.05	3.8	7.03	38.2	6.30	**15.7**	0.16	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.94	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	**561**	701
MW117	BH117	1/05/2018	0382_MW117_180501	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	<0.01	0.06	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.08**	<0.1
MW117	BH117	1/05/2018	0382_QC101_180501	Field_D	NSW_0382_PFAS	<0.01	<0.01	0.02	<0.01	0.06	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.08**	<0.1
MW117	BH117	1/05/2018	0382_QC201_180501	Interlab_D	NSW_0382_PFAS	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	0.04	0.04
MW117	BH117	26/03/2021	0382_MW117_210326	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	0.02	0.02
MW117	BH117	7/09/2021	0382_MW117_210907	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	0.01	0.01
MW117	BH117	21/03/2022	0382_MW117_220321	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.05	<0.02	*0.14*	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	**0.19**	0.19
MW119	BH119	28/03/2018	0382_MW119_180328	Normal	NSW_0382_PFAS	0.42	0.58	1.9	0.03	*0.62*	<0.01	0.05	0.07	0.44	0.07	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**2.52**	4.26

Table T5: Historical Groundwater Analytical Results

AECOM

								PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids												PFAS - (n:2) Fluorotelomer				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
								Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR								0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005	0.002	0.002
PFAS NEMP 2020 Drinking Water																		**0.56**																		**0.07**	
PFAS NEMP 2020 Freshwater 95%												*0.13*						*220*																			
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																																	
MW119	BH119	6/12/2021	0382_QC102_180328	Field_D	NSW_0382_PFAS	0.43	0.49	2.2	0.04	*0.62*	<0.01	0.05	0.07	0.46	0.07	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**2.82**	4.51
MW119	BH119	1/10/2020	0382_MW119_201001	Normal	NSW_0382_PFASOMP_20	0.62	0.62	5.17	0.37	*18.6*	<0.02	<0.1	0.16	0.80	0.10	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**23.8**	26.8
MW119	BH119	3/12/2020	0382_MW119_201203	Normal	NSW_0382_PFASOMP_20	0.19	0.19	1.04	0.06	*2.03*	<0.02	<0.1	0.06	0.27	0.04	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**3.07**	3.98
MW119	BH119	25/03/2021	0382_MW119_210325	Normal	NSW_0382_PFASOMP_20	0.78	0.56	5.78	0.32	*24.0*	<0.02	0.4	0.43	1.53	0.14	0.39	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**29.8**	34.3
MW119	BH119	7/06/2021	0382_MW119_210607	Normal	NSW_0382_PFASOMP_20	0.81	0.55	3.59	0.15	*8.80*	<0.02	0.4	0.47	1.53	0.14	0.40	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**12.4**	16.8
MW119	BH119	7/06/2021	0382_QC100_210607	Field_D	NSW_0382_PFASOMP_20	0.78	0.53	3.41	0.14	*7.53*	<0.02	0.4	0.49	1.47	0.15	0.40	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**10.9**	15.3
MW119	BH119	7/09/2021	0382_MW119_210907	Normal	NSW_0382_PFASOMP_20	1.12	1.08	6.17	0.31	*8.84*	<0.02	0.46	0.59	2.28	0.25	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**15.0**	21.6
MW119	BH119	6/12/2021	0382_MW119_211206	Normal	NSW_0382_PFASOMP_20	1.07	0.89	5.36	0.25	*7.43*	<0.02	0.4	0.46	2.40	0.21	0.39	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**12.8**	18.9
MW119	BH119	23/03/2022	0382_MW119_220323	Normal	NSW_0382_PFASOMP_20	0.84	0.53	4.60	0.35	*32.8*	<0.02	2.2	1.63	3.00	0.22	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**37.4**	46.7
MW119	BH119	15/06/2022	0382_MW119_220615	Normal	NSW_0382_PFASOMP_20	0.77	0.70	6.50	0.42	*27.3*	<0.02	1.4	1.31	2.91	0.28	**0.63**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**33.8**	42.2
MW119P	BH119_P, MW119_P	28/03/2018	0382_MW119_P_180328	Normal	NSW_0382_PFAS	2.2	3.9	16	2.0	*30*	<0.01	0.33	0.48	3.3	0.44	**1.6**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**46**	60.25
MW119P	BH119_P, MW119_P	1/10/2020	0382_MW119_P_201001	Normal	NSW_0382_PFASOMP_20	4.00	5.55	34.8	1.26	*4.32*	<0.02	0.7	1.73	10.4	1.15	**1.22**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**39.1**	65.1
MW119P	BH119_P, MW119_P	3/12/2020	0382_MW119_P_201203	Normal	NSW_0382_PFASOMP_20	1.53	2.76	10.3	0.30	*2.65*	<0.02	0.4	0.59	3.16	0.43	0.40	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**13.0**	22.5
MW119P	BH119_P, MW119_P	25/03/2021	0382_MW119_P_210325	Normal	NSW_0382_PFASOMP_20	1.61	1.93	10.3	0.27	*1.89*	<0.02	0.3	0.51	2.95	0.38	0.40	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**12.2**	20.5
MW119P	BH119_P, MW119_P	7/06/2021	0382_MW119P_210607	Normal	NSW_0382_PFASOMP_20	16.3	26.0	114	6.42	*51.6*	<0.02	1.8	6.24	44.4	4.09	**5.40**	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.38	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	**166**	277
MW119P	BH119_P, MW119_P	7/09/2021	0382_MW119P_210907	Normal	NSW_0382_PFASOMP_20	13.4	23.8	156	6.64	*69.5*	<0.02	1.35	4.32	29.5	4.64	**6.40**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.42	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	**226**	316
MW119P	BH119_P, MW119_P	6/12/2021	0382_MW119P_211206	Normal	NSW_0382_PFASOMP_20	9.30	15.4	130	7.23	*52.5*	<0.04	1.0	2.60	22.6	3.18	**6.06**	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.44	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**182**	250
MW119P	BH119_P, MW119_P	23/03/2022	0382_MW119P_220323	Normal	NSW_0382_PFASOMP_20	13.2	18.3	176	14.3	*156*	<0.04	1.0	2.48	23.9	3.58	**9.02**	0.05	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.40	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**332**	418
MW119P	BH119_P, MW119_P	15/06/2022	0382_MW119P_220615	Normal	NSW_0382_PFASOMP_20	16.2	33.4	257	24.0	*200*	<0.05	1.6	3.54	28.8	5.28	**13.4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.32	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	**457**	584
MW120	BH120	14/03/2018	0382_MW120_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	
MW120	BH120	1/10/2020	0382_MW120_201001	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW120	BH120	25/03/2021	0382_MW120_210325	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW120	BH120	6/09/2021	0382_MW120_210906	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW120	BH120	21/03/2022	0382_MW120_220321	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW121	BH121	14/03/2018	0382_MW121_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	
MW121	BH121	14/03/2018	0382_QC101_180314	Field_D	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	
MW121	BH121	14/03/2018	0382_QC201_180314	Interlab_D	NSW_0382_PFAS	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW121	BH121	1/10/2020	0382_MW121_201001	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW121	BH121	1/10/2020	0382_QC202_201001	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-	
MW121	BH121	25/03/2021	0382_MW121_210325	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW121	BH121	6/09/2021	0382_MW121_210906	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW121	BH121	21/03/2022	0382_MW121_220321	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW122	BH122	14/03/2018	0382_MW122_180314	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	
MW122	BH122	1/10/2020	0382_MW122_201001	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW122	BH122	26/03/2021	0382_MW122_210326	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW123	BH123	15/03/2018	0382_MW123_180315	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	
MW123	BH123	1/10/2020	0382_MW123_201001	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW123	BH123	24/03/2021	0382_MW123_210324	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW123	BH123	6/09/2021	0382_MW123_210906	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW123	BH123	6/09/2021	0382_QC201_210906	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	<0.01	<0.01	
MW123	BH123	22/03/2022	0382_MW123_220322	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW123	BH123	22/03/2022	0382_QC102_220322	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW124	BH124	15/03/2018	0382_MW124_180315	Normal	NSW_0382_PFAS	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.1	
MW124	BH124	1/10/2020	0382_MW124_201001	Normal	NSW_0382_PFASOMP_20	0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.02	
MW124	BH124	24/03/2021	0382_MW124_210324	Normal	NSW_0382_PFASOMP_20	0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.06	
MW124	BH124	6/09/2021	0382_MW124_210906	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.10	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW124	BH124	6/09/2021	0382_QC200_210906	Interlab_D	NSW_0382_PFASOMP_20	0.03	<0.01	0.01	<0.01	<0.01	<0.02	<0.02	<0.02	0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.01	0.05	
MW124	BH124	22/03/2022	0382_MW124_220322	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW129		17/07/2018	0382_MW129_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	
MW129		1/10/2020	0382_MW129_201001	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	
MW129		3/12/2020	0382_MW129_201203	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	
MW129		25/03/2021	0382_MW129_210325	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	
MW129		7/06/2021	0382_MW129_210607	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	
MW129		7/09/2021	0382_MW129_210907	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.04	<0.02	<0.10	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	
MW129		6/12/2021	0382_MW129_211206	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	

Table T5: Historical Groundwater Analytical Results

AECOM

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005	0.002	0.002
PFAS NEMP 2020 Drinking Water																**0.56**																	**0.07**	
PFAS NEMP 2020 Freshwater 95%										*0.13*						*220*																		
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																													
MW129		23/03/2022	0382_MW129_220323	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03
MW129		15/06/2022	0382_MW129_220615	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03
MW130		17/07/2018	0382_MW130_180717	Normal	NSW_0382_PFAS	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.1
MW130		1/10/2020	0382_MW130_201001	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01
MW130		3/12/2020	0382_MW130_201203	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03
MW130		25/03/2021	0382_MW130_210325	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW130		7/06/2021	0382_MW130_210607	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03
MW130		7/09/2021	0382_MW130_210907	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02
MW130		7/09/2021	0382_QC103_210907	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02
MW130		6/12/2021	0382_MW130_211206	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.07	<0.02	0.11	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.18**	0.18
MW130		23/03/2022	0382_MW130_220323	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW130		15/06/2022	0382_MW130_220615	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW130		15/06/2022	0382_QC100_220615	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW131		17/07/2018	0382_MW131_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.1
MW131		1/10/2020	0382_MW131_201001	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.03	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.11**	0.11
MW131		3/12/2020	0382_MW131_201203	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW131		25/03/2021	0382_MW131_210325	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW131		7/06/2021	0382_MW131_210607	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06
MW131		7/06/2021	0382_QC200_210607	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	0.078	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
MW131		7/09/2021	0382_MW131_210907	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02
MW131		6/12/2021	0382_MW131_211206	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.01	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04
MW131		6/12/2021	0382_QC200_211206	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.02	0.02
MW131		23/03/2022	0382_MW131_220323	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.08**	0.08
MW131		15/06/2022	0382_MW131_220615	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.11**	0.11
MW133		7/09/2021	0382_MW133_210907	Normal	NSW_0382_PFASOMP_20	0.41	0.12	1.58	0.07	*4.06*	<0.02	0.6	0.45	1.81	0.04	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**5.64**	9.19
MW133		6/12/2021	0382_MW133_211206	Normal	NSW_0382_PFASOMP_20	1.15	0.97	22.0	6.37	*168*	<0.04	1.0	0.92	4.82	0.36	**2.88**	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**190**	208
MW133		23/03/2022	0382_MW133_220323	Normal	NSW_0382_PFASOMP_20	0.22	0.26	1.84	0.03	*2.59*	<0.02	0.1	0.29	0.53	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**4.43**	5.92
MW133		15/06/2022	0382_MW133_220615	Normal	NSW_0382_PFASOMP_20	2.58	3.78	42.7	12.7	*765*	<0.05	1.6	2.54	10.9	0.84	**4.80**	0.07	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	**808**	848
MW134		25/03/2021	0382_MW134P_210325	Normal	NSW_0382_PFASOMP_20	0.10	0.07	0.48	<0.02	*0.41*	0.07	0.2	0.16	0.26	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.89**	1.77
MW134		25/03/2021	0382_QC200_210325	Interlab_D	NSW_0382_PFASOMP_20	0.085	0.062	0.38	<0.01	*0.35*	<0.01	0.17	0.13	0.17	0.011	0.018	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
MW134		7/06/2021	0382_MW134_210607	Normal	NSW_0382_PFASOMP_20	0.23	0.26	1.16	0.02	*0.44*	<0.02	0.1	0.16	0.42	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**1.60**	2.82
MW134		15/06/2022	0382_MW134_220615	Normal	NSW_0382_PFASOMP_20	0.31	0.24	1.04	<0.02	*0.52*	<0.02	0.3	0.28	0.56	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**1.56**	3.29
MW136		18/12/2020	0382_MW136_201218	Normal	NSW_0382_PFAS	0.008	0.004	0.016	<0.002	0.016	<0.002	<0.01	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	0.082	<0.005	<0.005	<0.002	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	0.032	0.129
MW136		7/06/2021	0382_MW136_210607	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.11	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.15**	0.15
MW136		7/09/2021	0382_MW136_210907	Normal	NSW_0382_PFASOMP_20	0.06	0.03	0.11	<0.02	0.04	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.15**	0.29
MW136		6/12/2021	0382_MW136_211206	Normal	NSW_0382_PFASOMP_20	0.06	0.03	0.08	<0.02	0.05	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.13**	0.24
MW136		23/03/2022	0382_MW136_220323	Normal	NSW_0382_PFASOMP_20	0.08	0.06	0.30	<0.02	0.03	<0.02	0.1	0.03	0.12	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.33**	0.74
MW136		15/06/2022	0382_MW136_220615	Normal	NSW_0382_PFASOMP_20	0.18	0.16	0.64	<0.02	0.06	<0.02	<0.1	0.05	0.21	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.70**	1.33
MW136		15/06/2022	0382_QC200_220615	Interlab_D	NSW_0382_PFASOMP_20	0.13	0.13	0.46	<0.01	0.05	<0.02	0.03	0.03	0.12	0.01	0.02	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	**0.51**	0.99
MW301	MW1	19/02/2018	0382_MW1_180219	Normal	NSW_0382_PFAS	0.03	0.04	0.72	<0.01	0.10	<0.01	<0.05	0.01	0.04	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.82**	0.96
MW301	MW1	1/10/2020	0382_MW301_201001	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.09	<0.02	*0.16*	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.25**	0.26
MW301	MW1	26/03/2021	0382_MW301_210326	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.06	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.14**	0.15
MW301	MW1	6/09/2021	0382_MW301_210906	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.10**	0.10
MW301	MW1	6/09/2021	0382_QC101_210906	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	0.05	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.12**	0.12
MW301	MW1	21/03/2022	0382_MW301_220321	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.12	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.16**	0.16
MW323	BH345	16/02/2018	0382_BH345_180216	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	0.09	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.09**	<0.1
MW323	BH345	16/02/2018	0382_QC101_180216	Field_D	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	0.09	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.09**	<0.1
MW323	BH345	16/02/2018	0382_QC201_180216	Interlab_D	NSW_0382_PFAS	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02
MW323	BH345	1/10/2020	0382_MW323_201001	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW323	BH345	24/03/2021	0382_MW323_210324	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW323	BH345	6/09/2021	0382_MW323_210906	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW323	BH345	22/03/2022	0382_MW323_220322	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW323	BH345	22/03/2022	0382_QC101_220322	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW330	BH365	7/02/2018	0382_BH365_180207	Normal	NSW_0382_PFAS	3.4	7.7	44	0.49	0.05	<0.01	1.6	3.2	19	1.8	**0.98**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**44.05**	82.22
MW330	BH365	27/02/2018	0382_BH365_180227	Normal	NSW_0382_PFAS	1.7	5.1	40	0.48	0.03	<0.01	1.1	1.9	11	1.2	**1.3**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**40.03**	63.81

Table T5: Historical Groundwater Analytical Results

								PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
								Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR								0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005	0.002	0.002
PFAS NEMP 2020 Drinking Water																		**0.56**																	**0.07**	
PFAS NEMP 2020 Freshwater 95%												*0.13*						*220*																		
Location Code	**Location Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																															
MW330	BH365	27/02/2018	0382_QC101_180227	Field_D	NSW_0382_PFAS	1.7	4.6	39	0.47	0.03	<0.01	1.0	1.9	11	1.2	**1.3**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**39.03**	62.2
MW330	BH365	27/02/2018	0382_QC201_180227	Interlab_D	NSW_0382_PFAS	1.11	3.13	25.8	0.40	0.04	<0.02	<0.1	1.23	10.0	1.12	**1.45**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**25.8**	44.3
MW330	BH365	22/03/2022	0382_MW330_220322	Normal	NSW_0382_PFASOMP_20	2.62	6.27	57.9	2.20	*3.78*	<0.02	1.1	3.00	20.4	1.56	**3.90**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**61.7**	103
MW330	BH365	22/03/2022	0382_QC202_220322	Interlab_D	NSW_0382_PFASOMP_20	2.1	6.4	63	2.9	*4.2*	<0.02	1.5	2.6	17	1.6	**3.9**	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	**67**	110
MW349	BH612	12/02/2018	0382_BH612_180212	Normal	NSW_0382_PFAS	0.02	0.03	0.2	0.02	0.1	<0.01	<0.05	<0.01	0.03	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.3**	0.41
MW349	BH612	1/10/2020	0382_MW349_201001	Normal	NSW_0382_PFASOMP_20	0.03	0.04	0.28	<0.02	0.12	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.40**	0.51
MW349	BH612	24/03/2021	0382_MW349_210324	Normal	NSW_0382_PFASOMP_20	0.03	0.02	0.16	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.22**	0.27
MW349	BH612	6/09/2021	0382_MW349_210906	Normal	NSW_0382_PFASOMP_20	0.03	0.04	0.23	<0.02	0.10	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.33**	0.42
MW349	BH612	22/03/2022	0382_MW349_220322	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.06	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.08**	0.08
MW349	BH612	22/03/2022	0382_QC201_220322	Interlab_D	NSW_0382_PFASOMP_20	0.01	0.01	0.06	<0.01	0.03	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	**0.09**	0.12
MW361	HMW7	21/02/2018	0382_HMW7_180221	Normal	NSW_0382_PFAS	0.02	0.02	0.11	<0.01	0.07	<0.01	<0.05	0.02	0.04	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.18**	0.31
MW361	HMW7	1/10/2020	0382_MW361_201001	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.03	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06

Notes:

LOR	Limit of Reporting
Normal	Primary sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

Table T6: Historical Surface Water Analytical Results

AECOM

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05	0.01	0.01
PFAS NEMP 2020 Freshwater 95%										*0.13*						*220*																		
PFAS NEMP 2020 Recreational Water																**10**																	**2**	
Location Code	**Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																														
SW001		15/03/2018	0382_SW001_180315	Normal	NSW_0382_PFAS	0.36	1.0	6.9	0.36	*3.9*	0.04	0.41	0.92	2.7	0.45	0.86	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10.8**	18.04
SW001		25/03/2021	0382_SW001_210325	Normal	NSW_0382_PFASOMP_20	0.04	0.04	0.58	<0.02	*0.65*	<0.02	<0.1	0.09	0.19	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	1.23	1.62
SW001		7/06/2021	0382_SW001_210607	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.06	<0.02	0.13	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.19	0.19
SW001		7/09/2021	0382_SW001_210907	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.13	0.13
SW001		6/12/2021	0382_QC101_211206	Field_D	NSW_0382_PFASOMP_20	0.05	0.04	0.49	0.02	*0.72*	<0.02	<0.1	0.11	0.22	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	1.21	1.72
SW001		6/12/2021	0382_SW001_211206	Normal	NSW_0382_PFASOMP_20	0.06	0.04	0.50	0.02	*0.76*	<0.02	<0.1	0.12	0.22	0.03	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	1.26	1.80
SW001		23/03/2022	0382_SW001_220323	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.15	<0.02	*0.27*	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.42	0.49
SW001		15/06/2022	0382_SW001_220615	Normal	NSW_0382_PFASOMP_20	0.07	0.06	0.67	0.04	*2.06*	<0.02	<0.1	0.09	0.24	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**2.73**	3.47
SW009		26/09/2017	0382_SW009_170926	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	<0.01	0.03	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-
SW009		30/09/2020	0382_QC101_200930	Field_D	NSW_0382_PFASOMP_20	0.05	0.05	0.28	<0.02	*0.20*	<0.02	<0.1	<0.02	0.07	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.48	0.66
SW009		30/09/2020	0382_SW009_200930	Normal	NSW_0382_PFASOMP_20	0.04	0.04	0.25	<0.02	*0.17*	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.42	0.57
SW009		26/03/2021	0382_SW009_210326	Normal	NSW_0382_PFASOMP_20	0.02	<0.02	0.12	<0.02	0.09	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.21	0.25
SW009		6/09/2021	0382_SW009_210906	Normal	NSW_0382_PFASOMP_20	0.03	0.04	0.18	<0.02	0.13	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.31	0.44
SW009		22/03/2022	0382_QC103_220322	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	0.07	<0.02	0.09	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.16	0.18
SW009		22/03/2022	0382_SW009_220322	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.07	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.16	0.16
SW011		27/09/2017	0382_SW011_170927	Normal	NSW_0382_PFAS	<0.01	<0.01	0.03	<0.01	0.04	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-
SW011		30/09/2020	0382_SW011_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.08	0.08
SW011		26/03/2021	0382_SW011_210326	Normal	NSW_0382_PFASOMP_20	0.04	<0.02	0.08	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.16	0.20
SW011		8/09/2021	0382_SW011_210908	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.08	0.08
SW011		21/03/2022	0382_SW011_220321	Normal	NSW_0382_PFASOMP_20	0.11	0.18	3.28	0.03	*0.24*	<0.02	<0.1	0.10	0.60	0.07	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**3.52**	4.77
SW012		27/09/2017	0382_SW012_170927	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	<0.01	0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-
SW012		30/09/2020	0382_SW012_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07
SW012		6/09/2021	0382_SW012_210906	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07
SW012		21/03/2022	0382_SW012_220321	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.06	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.12	0.12
SW014		27/09/2017	0382_SW014_170927	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	<0.01	0.03	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-
SW014		30/09/2020	0382_QC100_200930	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	0.03	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07
SW014		30/09/2020	0382_SW014_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.10	0.10
SW014		26/03/2021	0382_SW014_210326	Normal	NSW_0382_PFASOMP_20	0.03	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.07
SW014		8/09/2021	0382_SW014_210908	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.08	0.08
SW014		22/03/2022	0382_SW014_220322	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.08	0.08
SW015		26/09/2017	0382_SW015_170926	Normal	NSW_0382_PFAS	<0.01	<0.01	0.08	<0.01	0.07	<0.01	<0.05	0.02	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-
SW015		30/09/2020	0382_SW015_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
SW015		25/03/2021	0382_QC101_210325	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.06
SW015		25/03/2021	0382_SW015_210325	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04
SW015		8/09/2021	0382_SW015_210908	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.08	0.08
SW015		22/03/2022	0382_QC203_220322	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.04	<0.01	0.03	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.08	0.08
SW015		22/03/2022	0382_SW015_220322	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04
SW017		27/09/2017	0382_SW017_170927	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	<0.01	0.03	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-
SW017		30/09/2020	0382_SW017_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.11	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.15	0.15
SW017		26/03/2021	0382_QC201_210326	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW017		26/03/2021	0382_SW017_210326	Normal	NSW_0382_PFASOMP_20	0.03	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.08
SW017		8/09/2021	0382_SW017_210908	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.08	0.08
SW017		21/03/2022	0382_SW017_220321	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04
SW025	HBK_SW001	15/06/2016	HBK-QA01	Normal	ACTNSW_Hist_202009-2	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-
SW025	HBK_SW001	15/06/2016	HBK-SW001	Normal	ACTNSW_Hist_202009-2	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	-	<0.01
SW025	HBK_SW001	26/09/2017	0382_SW025_170926	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-
SW025	HBK_SW001	30/09/2020	0382_SW025_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
SW025	HBK_SW001	25/03/2021	0382_SW025_210325	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.03
SW025	HBK_SW001	8/09/2021	0382_SW025_210908	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
SW025	HBK_SW001	22/03/2022	0382_SW025_220322	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
SW029		5/03/2018	0382_SW029_180305	Normal	NSW_0382_PFAS	<0.01	<0.01	0.08	<0.01	0.12	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	0.21
SW030		9/03/2018	0382_SW030_180309	Normal	NSW_0382_PFAS	0.01	0.01	0.07	<0.01	0.03	<0.01	<0.05	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.16
SW030		30/09/2020	0382_SW030_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.11	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.14	0.14
SW030		24/03/2021	0382_SW030_210324	Normal	NSW_0382_PFASOMP_20	0.10	0.09	0.79	0.03	*0.78*	<0.02	<0.1	0.08	0.28	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	1.57	2.19

Table T6: Historical Surface Water Analytical Results

AECOM

							PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids												PFAS - (n:2) Fluorotelomer				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
							Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR							0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05	0.01	0.01
PFAS NEMP 2020 Freshwater 95%											*0.13*							*220*																	
PFAS NEMP 2020 Recreational Water																		**10**																**2**	
Location Code	**Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																														
SW030		7/09/2021	0382_QC102_210907	Field_D	NSW_0382_PFASOMP_20	0.31	0.40	2.72	0.11	*1.58*	<0.02	<0.1	0.03	0.33	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**4.30**	5.59
SW030		7/09/2021	0382_SW030_210907	Normal	NSW_0382_PFASOMP_20	0.29	0.40	2.66	0.10	*1.52*	<0.02	<0.1	0.04	0.33	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**4.18**	5.45
SW030		22/03/2022	0382_QC200_220322	Interlab_D	NSW_0382_PFASOMP_20	0.06	0.07	0.58	0.03	*0.83*	<0.02	0.05	0.06	0.20	0.02	0.03	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	1.4	1.9
SW030		22/03/2022	0382_SW030_220322	Normal	NSW_0382_PFASOMP_20	0.07	0.06	0.47	0.02	*0.74*	<0.02	<0.1	0.08	0.20	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	1.21	1.70
SW038		8/03/2018	0382_SW038_180308	Normal	NSW_0382_PFAS	0.02	0.03	0.22	<0.01	*0.32*	<0.01	<0.05	0.02	0.03	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.54	0.65
SW038		24/03/2021	0382_SW038_210324	Normal	NSW_0382_PFASOMP_20	0.06	0.05	0.53	0.02	*0.46*	<0.02	<0.1	0.12	0.15	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.99	1.42
SW038		6/09/2021	0382_QC100_210906	Field_D	NSW_0382_PFASOMP_20	0.03	0.04	0.25	<0.02	*0.19*	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.44	0.55
SW038		6/09/2021	0382_SW038_210906	Normal	NSW_0382_PFASOMP_20	0.03	0.04	0.26	<0.02	*0.21*	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.47	0.58
SW038		22/03/2022	0382_QC100_220322	Field_D	NSW_0382_PFASOMP_20	0.02	<0.02	0.17	<0.02	*0.20*	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.37	0.45
SW038		22/03/2022	0382_SW038_220322	Normal	NSW_0382_PFASOMP_20	0.02	0.02	0.16	<0.02	*0.25*	<0.02	<0.1	0.03	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.41	0.53
SW059		1/03/2018	0382_SW059_180301	Normal	NSW_0382_PFAS	<0.01	<0.01	0.06	<0.01	0.07	<0.01	<0.05	0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	0.18
SW059		30/09/2020	0382_SW059_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.07	<0.02	0.11	<0.02	<0.1	<0.02	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.18	0.22
SW059		3/12/2020	0382_SW059_201203	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.05	<0.02	0.08	<0.02	<0.1	<0.02	0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.13	0.18
SW059		25/03/2021	0382_SW059_210325	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.07	<0.02	0.11	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.18	0.22
SW059		7/06/2021	0382_QC101_210607	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	0.05	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.14	0.15
SW059		7/06/2021	0382_QC201_210607	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.044	<0.01	0.069	<0.01	<0.05	<0.02	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW059		7/06/2021	0382_SW059_210607	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.05	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.14	0.15
SW059		7/09/2021	0382_QC203_210907	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.04	<0.01	0.05	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.09	0.09
SW059		7/09/2021	0382_SW059_210907	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.04	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.10	0.10
SW059		6/12/2021	0382_QC201_211206	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.04	<0.01	0.07	<0.02	<0.02	<0.02	0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.11	0.13
SW059		6/12/2021	0382_SW059_211206	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
SW059		23/03/2022	0382_SW059_220323	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.06	<0.02	*0.15*	<0.02	<0.1	<0.02	0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.21	0.24
SW059		15/06/2022	0382_QC101_220615	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	0.14	<0.02	0.13	<0.02	<0.1	0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.27	0.36
SW059		15/06/2022	0382_SW059_220615	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.16	<0.02	*0.16*	<0.02	<0.1	0.03	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.32	0.42
SW062		5/03/2018	0382_SW062_180305	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1
SW062		30/09/2020	0382_SW062_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
SW062		8/09/2021	0382_SW062_210908	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01
SW062		22/03/2022	0382_SW062_220322	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
SW063		18/04/2018	0382_SW063_180418	Normal	NSW_0382_PFAS	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.1
SW063		8/09/2021	0382_SW063_210908	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01
SW063		21/03/2022	0382_SW063_220321	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
SW103		15/06/2018	0382_QC102_180615	Field_D	NSW_0382_PFAS	<0.01	<0.01	0.07	<0.01	*0.22*	<0.01	<0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.29	0.31
SW103		15/06/2018	0382_QC202_180615	Interlab_D	NSW_0382_PFAS	<0.02	<0.02	0.07	<0.02	*0.16*	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.23	0.23
SW103		15/06/2018	0382_SW103_180615	Normal	NSW_0382_PFAS	<0.01	<0.01	0.08	<0.05	*0.21*	<0.01	<0.05	<0.01	0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.29	0.31
SW103		30/09/2020	0382_QC201_200930	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.022	<0.01	0.1	<0.01	<0.05	<0.2	<0.01	<0.01	0.019	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	0.11	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW103		30/09/2020	0382_SW103_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.03	<0.02	*0.15*	<0.02	<0.1	0.21	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.13	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.18	0.56
SW103		24/03/2021	0382_SW103_210324	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03
SW103		7/09/2021	0382_QC202_210907	Interlab_D	NSW_0382_PFASOMP_20	0.02	<0.01	0.07	<0.01	*0.15*	<0.02	<0.02	<0.02	0.03	<0.01	0.02	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	0.04	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.21	0.33
SW103		7/09/2021	0382_SW103_210907	Normal	NSW_0382_PFASOMP_20	0.05	<0.02	0.06	<0.02	*0.15*	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.21	0.30
SW103		21/03/2022	0382_SW103_220321	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06
SW104		15/06/2018	0382_SW104_180615	Normal	NSW_0382_PFAS	<0.01	<0.01	0.07	<0.05	*0.15*	<0.01	<0.05	<0.01	0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.22	0.23
SW104		30/09/2020	0382_SW104_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.15	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.10	0.27
SW104		24/03/2021	0382_SW104_210324	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02
SW104		7/09/2021	0382_SW104_210907	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.03	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.10	0.10
SW104		21/03/2022	0382_SW104_220321	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05
SW105		15/06/2018	0382_SW105_180615	Normal	NSW_0382_PFAS	0.01	<0.01	0.13	<0.05	*0.51*	<0.01	<0.05	0.02	0.03	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.64	0.7
SW105		30/09/2020	0382_SW105_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.03	<0.02	0.13	<0.02	<0.1	0.04	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.23	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.16	0.45
SW105		24/03/2021	0382_SW105_210324	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03
SW105		7/09/2021	0382_SW105_210907	Normal	NSW_0382_PFASOMP_20	0.04	<0.02	0.04	<0.02	0.12	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.16	0.20
SW105		21/03/2022	0382_SW105_220321	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.02	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07
SW111		30/09/2020	0382_SW111_200930	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.05	<0.02	0.10	<0.02	<0.1	<0.02	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.15	0.19
SW111		3/12/2020	0382_QC101_201203	Field_D	NSW_0382_PFASOMP_20	<0.02	<0.02	0.05	<0.02	0.08	<0.02	<0.1	<0.02	0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.13	0.18
SW111		3/12/2020	0382_QC201_201203	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.05	<0.01	0.084	<0.01	<0.05	<0.02	0.022	0.01	0.018	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW111		3/12/2020	0382_SW111_201203	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.05	<0.02	0.07	<0.02	<0.1	<0.02	0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.12	0.17

Table T6: Historical Surface Water Analytical Results

AECOM

	PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05	0.01	0.01
PFAS NEMP 2020 Freshwater 95%					*0.13*						*220*																				
PFAS NEMP 2020 Recreational Water											**10**																			**2**	
Location Code	**Alt. Name**	**Date**	**Field ID**	**Sample Type**	**Project ID**																										
SW111		25/03/2021	0382_SW111_210325	Normal	NSW_0382_PFASOMP_20	0.09	0.08	1.03	0.04	*1.42*	<0.02	<0.1	0.13	0.35	0.03	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**2.45**	3.23
SW111		7/06/2021	0382_SW111_210607	Normal	NSW_0382_PFASOMP_20	0.06	0.08	0.90	0.04	*1.93*	<0.02	<0.1	0.05	0.20	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**2.83**	3.41
SW111		7/09/2021	0382_SW111_210907	Normal	NSW_0382_PFASOMP_20	0.05	0.06	0.73	0.03	*1.01*	<0.02	<0.1	0.04	0.20	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	1.74	2.18
SW111		6/12/2021	0382_SW111_211206	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.03	<0.02	0.06	<0.02	<0.1	<0.02	0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.09	0.12
SW111		23/03/2022	0382_SW111_220323	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.08	0.09
SW111		15/06/2022	0382_QC201_220615	Interlab_D	NSW_0382_PFASOMP_20	0.01	<0.01	0.05	<0.01	0.05	<0.02	<0.02	<0.02	0.02	<0.01	0.02	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.1	0.14
SW111		15/06/2022	0382_SW111_220615	Normal	NSW_0382_PFASOMP_20	<0.02	<0.02	0.06	<0.02	0.08	<0.02	<0.1	<0.02	0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.14	0.19

Notes:

LOR	Limit of Reporting
Normal	Primary sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

Appendix C

Calibration Certificates

Appendix C Calibration Certificates

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 21B104020

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. pH 7.00		pH 7.00		377339	pH 6.90
2. pH 4.00		pH 4.00		380327	pH 4.16
3. mV		240.7mV		380834/378285	240.8mV
4. EC		2.76mS		377099	2.76mS
5. D.O		0ppm		11343	0.01ppm
6. Temp		19.7°C		MultiTherm	17.8°C

Calibrated by: [redacted]

Calibration date: **8/06/2022**

Next calibration due: **8/12/2022**

Oil / Water Interface Meter

Instrument Geotech Interface Meter (30M)
Serial No. 4063

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Calibrated by: [redacted]

Calibration date: 10/06/2022

Next calibration due: 9/08/2022

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	Holsworthy May 2022 OMP GME	**Project Number:**	60612562_6.1
Project Location:	Holsworthy	**Client:**	Department of Defence
PM Name:	[redacted]	**Fieldwork Staff Name:**	[redacted]

This calibration record is intended to prompt fieldwork staff to calibrate water quality meter (WQM) daily before the start of fieldworks.

INSTRUMENT DETAILS

Supplier:	Aimet
Make and Model:	YSI Pro Plus
Serial Number:	21B104020

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	15 June 22				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	4	7	2416		
Calibration Reading:	4.0	7.0	2416		
Calibration Temperature:	18.6	19.0	18.6		

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	15 June 22				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	4	7	2416	0.0	
Bump Test Reading:	4.22	6.63	2508	0.0	
Bump Test Temperature:	18.6	19.0	18.6	18.4	

COMMENTS

Detail any equipment faults, minor maintenance performed, change of batteries or technical support provided.

Approval and Distribution

☑ Each individual instrument has ~~been inspected~~ and calibrated daily and bump tested as required by fieldwork staff.

[redacted] — Fieldwork Staff Signature

15 June 22 — Date

Distribution: Project Central File

Appendix D

Analytical Data Validation

Appendix D Analytical Data Validation

DATA VALIDATION REPORT

Project number:	60612562	Validation by:	[redacted]	Date:	30/06/2022
Client:	Department of Defence	Data verified by:	[redacted]	Date:	07/07/2022
Site:	Holsworthy Barracks	Project Manager:			
Matrix type:	Surface Water and Groundwater				
Primary samples:	12 Groundwater samples 3 Surface water samples				
Laboratory:	Primary: ALS Secondary: Envirolab				
Lab reference:	ES2221295 and 298106				

Key Issues:	No QA/QC issues were identified in the field or laboratory datasets that could have a material implication to decision-making on the project.

Field Quality Assurance and Quality Control

Field DQOs and DQIs	The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2022).
Sampling personnel	Sampling was conducted by [redacted]on 15/06/2022. Field personnel were all suitably qualified and experienced AECOM Environmental Scientists.
Sampling Methodology	Surface water samples were collected from directly beneath the water surface to limit the infiltration of sediments into samples. The majority of groundwater samples were collected from monitoring wells using no-purge methodology (HydraSleeves™), which were installed during the previous sampling event in December 2021, at depths based on screen intervals. At location MW134, the HydraSleeve™ failed to deploy, therefore a dedicated disposable bailer was used to collect a grab sample from this location. Once sampling was completed at each location, a new HydraSleeve™ was deployed at the screened interval depth in preparation for the next sampling round. Following sampling at each location, the water quality meter and interface probe were decontaminated using Liquinox and nitrile gloves were disposed of, with a new pair used for each sampling location.
Chain of Custody (COC)	All samples taken were reported on the Chain of Custody documents (COC) and analysed for requested analytes.
Rinsate Blank	Rinsate blanks were collected from the final rinse of the decontaminated interface probe (IP) at a rate of one rinsate blank per day.
Frequency of field QC	Field duplicates (intra-laboratory duplicates) and triplicates (inter-laboratory duplicates) were to be collected at a frequency of one in ten primary samples. In total, two field intra-laboratory duplicates, and two inter-laboratory duplicates were analysed for surface water and groundwater (two for surface water and two for groundwater), meeting the DQI.
Handling and preservation	All samples were received at the primary laboratory in appropriate containers and at a temperature of 10.1 °C, with ice present. Although, the temperature is outside of the recommended temperature range, given that ice was present , AECOM coinsiders that the samples were appropriately preserved. All samples were received at the secondary laboratory in appropriate containers and at a temperature of 5.0°C with ice present.
Calibration of equipment	Measurements of water geochemical parameters were undertaken using the YSI WQM Professional Plus, which was calibrated by the supplier prior to use, in accordance with the manufacturer's instructions and daily by the field personnel. All calibration and service certificates are presented in Appendix C.

DATA VALIDATION REPORT

Laboratory QA/QC	
Laboratory DQOs and DQIs	The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2022).
Tests requested/reported	All surface water and groundwater samples were analysed for the PFAS extended suite. All sample requests of analysis are reported on the Chain of Custody (COC).
Holding time compliance	All samples were extracted and analysed by the laboratory within the recommended holding times.
Laboratory	The primary laboratory analysis was conducted by ALS Environmental Pty Ltd (Sydney), a National Association of Testing Authorities (NATA) accredited laboratory (Accreditation No. 825). The secondary samples were analysed at Envirolab Services, also a NATA accredited laboratory (accreditation number 2901).
Frequency of laboratory QC	Both laboratories reported a sufficient frequency of quality control samples to assess whether the results have been reported to an acceptable accuracy and precision with the exception of: Laboratory Duplicates • PFAS by LCMSMS: Actual Rate (%) 0.00, Expected Rate (%) 10.00 Matrix Spikes • PFAS by LCMSMS: Actual Rate (%) 0.00, Expected Rate (%) 5.00 The precision of the data can be assessed as acceptable based on the intra-laboratory duplicate RPDs which were reported at the required frequencies and within control limits. The accuracy of the data can be assessed as acceptable based on method blanks, laboratory control spike and surrogate spike recoveries, which were reported at the required frequencies and within control limits.
Method Blank	All method blank concentrations were reported <LOR for the analytes tested. This is presented in the Quality Control Reports for both laboratories.
Laboratory duplicate RPDs	No laboratory duplicate Relative Percentage Differences (RPDs) were reported.
LCS recovery	Laboratory control spike (LCS) recoveries were within control limits. This is presented in the Quality Control Reports for both laboratories.
Matrix spike recovery	No matrix spike (MS) recoveries were reported.
Surrogate spike recovery	The reported surrogate spike recoveries were within laboratory control limits. This is presented in the Quality Control Reports for both laboratories.
Other	Nil
QA/QC Data Evaluation	
Comparison of Field Observations and Laboratory Results	No anomalies between field observations and analytical results were noted.
Data transcription	A check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by AECOM.
Limits of reporting	With the exception of the PFAS NEMP Freshwater 99% species protection (HEPA 2020) values for PFOS, the laboratory LORs were sufficiently low to enable assessment against adopted screening levels. As per the SAQP (AECOM, 2022), the laboratory LOR

	was adopted for screening purposes at locations where PFOS was analysed at the standard LOR.
Rinsate Blank sample results	The concentrations of PFAS in the Rinsate Blank sample (0382_QC300_220615) was below the limit of reporting (LOR), indicating decontamination procedures were adequate.
Intra-laboratory duplicate RPDs	Intra-laboratory duplicates RPDs were reported within acceptable limits (≤30%, or ≤50% for results 10-20 x LOR, or No Limit for results <10 x LOR).
Inter-laboratory duplicate RPDs	Inter-laboratory duplicates RPDs were reported within acceptable limits (≤30%, or ≤50% for results 10-20 x LOR, or No Limit for results <10 x LOR) with the following exception: • MW136 / QC200: PFHxS (33%) • MW136 / QC200: PFHxA (55%) • MW136 / QC200: Sum of PFHxS and PFOS (31%) As all concentrations of analytes with high RPDs were well above the adopted criteria (PFHxS+PFOS) or had no screening criteria applied (PFHxS, PFHxA), the elevated RPD is not considered to impact the interpretation of results against the guidelines. Where required for quantitative purposes, the highest concentration from the primary and duplicate pair will be used in the assessment.
Overall Assessment	
	Data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported analytical results are representative of the sample locations and that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report.

Attached:

Table D1 – Water RPDs
Table D2 - Rinsate Blank Results

Table D1 Water RPDs

AECOM

			Lab Report Number	ES2221295	ES2221295		ES2221295	ES2221295		ES2221295	298106		ES2221295	298106	
			Field ID	0382_MW130_220615	0382_QC100_220615	**RPD**	0382_SW059_220615	0382_QC101_220615	**RPD**	0382_MW136_220615	0382_QC200_220615	**RPD**	0382_SW111_220615	0382_QC201_220615	**RPD**
			Sampled Date/Time	15/06/2022 13:48	15/06/2022 13:48		15/06/2022 11:07	15/06/2022 11:07		15/06/2022 10:12	15/06/2022 10:12		15/06/2022 13:53	15/06/2022 13:53	
Chem_Group	**ChemName**	**Units**	**LOR**												
Per- and Poly-fluoroalkyl Substances	Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	nc	0.02	0.02	0	0.03	0.02	40	0.02	0.02	0
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	nc	0.16	0.13	21	0.06	0.05	18	0.08	0.05	46
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	nc	0.16	0.14	13	**0.64**	**0.46**	**33**	0.06	0.05	18
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.01	nc	<0.05	<0.01	nc
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.01	nc	<0.05	<0.01	nc
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.02	nc	<0.05	<0.02	nc
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.02	nc	<0.05	<0.02	nc
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02 : 0.1 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.1	nc	<0.02	<0.1	nc
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.5 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.5	nc	<0.05	<0.5	nc
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	0.16	0.13	21	<0.02	<0.01	nc
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	nc	0.03	0.02	40	0.05	0.03	50	<0.02	<0.02	nc
	Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	nc	0.05	0.05	0	**0.21**	**0.12**	**55**	0.03	0.02	40
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	0.01	nc	<0.02	<0.01	nc
	Perfluorodecane sulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.05 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.05	nc	<0.02	<0.05	nc
	Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	0.18	0.13	32	<0.02	0.01	nc
	Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.02 (Interlab)	<0.1	<0.1	nc	<0.1	<0.1	nc	<0.1	0.03	nc	<0.1	<0.02	nc
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05 : 0.5 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.5	nc	<0.05	<0.5	nc
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.1 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.1	nc	<0.05	<0.1	nc
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.1 (Interlab)	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.1	nc	<0.02	<0.1	nc
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	nc	0.32	0.27	17	**0.7**	**0.51**	**31**	0.14	0.1	33
	Sum of PFAS	µg/L	0.01	<0.01	<0.01	nc	0.42	0.36	15	1.33	0.99	29	0.19	0.14	30
	Sum of PFAS (WA DER List)	µg/L	0.01	<0.01	<0.01	nc	0.42	0.36	15						

*RPDs have only been considered where a concentration is greater than 1 times the LOR.
nc = not caluclated
**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are:
200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories.

Table D2 Rinsate Blank Results

AECOM

Lab Report Number	ES2221295
Field ID	0382_QC300_220615
Sampled_Date/Time	15/06/2022 15:53
Sample Type	Rinsate

Chem_Group	ChemName	Units	EQL	
Per- and Poly-fluoroalkyl Substances	Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	<0.05
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.05
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	<0.02
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02
	Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02
	Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	<0.02
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02
	Perfluorodecane sulfonic acid (PFDS)	µg/L	0.02	<0.02
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02
	Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<0.02
	Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05
	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02	<0.02
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02
	Sum of PFHxS and PFOS	µg/L	0.01	<0.01
	Sum of PFAS	µg/L	0.01	<0.01
	Sum of PFAS (WA DER List)	µg/L	0.01	<0.01

Appendix E

Laboratory Certificates

Appendix E Laboratory Certificates

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2221295**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: NSW_0382_PFASOMP_20	Page	: 1 of 3
Order number	: 60612562_6.1	Quote number	: ES2021AECOMAU0028 (SY/139/19 v4 60612562_6.1)
C-O-C number	: 38944	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: 0382		
Sampler	: [redacted]		

Dates

Date Samples Received	: 17-Jun-2022 15:00	Issue Date	: 20-Jun-2022
Client Requested Due Date	: 23-Jun-2022	Scheduled Reporting Date	: **23-Jun-2022**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.1'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 18 / 18

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2221295-001	15-Jun-2022 11:47	0382_MW112_220615	✓
ES2221295-002	15-Jun-2022 13:51	0382_MW112P_220615	✓
ES2221295-003	15-Jun-2022 13:54	0382_MW113_220615	✓
ES2221295-004	15-Jun-2022 13:08	0382_MW115_220615	✓
ES2221295-005	15-Jun-2022 12:17	0382_MW119_220615	✓
ES2221295-006	15-Jun-2022 12:25	0382_MW119P_220615	✓
ES2221295-007	15-Jun-2022 13:52	0382_MW129_220615	✓
ES2221295-008	15-Jun-2022 13:48	0382_MW130_220615	✓
ES2221295-009	15-Jun-2022 13:45	0382_MW131_220615	✓
ES2221295-010	15-Jun-2022 09:54	0382_MW133_220615	✓
ES2221295-011	15-Jun-2022 12:45	0382_MW134_220615	✓
ES2221295-012	15-Jun-2022 10:12	0382_MW136_220615	✓
ES2221295-013	15-Jun-2022 11:57	0382_SW001_220615	✓
ES2221295-014	15-Jun-2022 11:07	0382_SW059_220615	✓
ES2221295-015	15-Jun-2022 13:53	0382_SW111_220615	✓
ES2221295-016	15-Jun-2022 09:38	0382_QC100_220615	✓
ES2221295-017	15-Jun-2022 11:07	0382_QC101_220615	✓
ES2221295-018	15-Jun-2022 15:53	0382_QC300_220615	✓

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT)	Email	derp.labreports@esdat.com.au

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- EDI Format - XTab (XTAB)	Email	
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2221295**	Page	: 1 of 13
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 17-Jun-2022 15:00
Order number	: 60612562_6.1	Date Analysis Commenced	: 20-Jun-2022
C-O-C number	: 38944	Issue Date	: 24-Jun-2022 12:37
Sampler	[redacted]		
Site	: 0382		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 18		
No. of samples analysed	: 18		

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*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: PFAS results for ALS work order ES2221295_007 confirmed by re-extraction and re-analysis.
- EP231X: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW112_220615	0382_MW112P_220615	0382_MW113_220615	0382_MW115_220615	0382_MW119_220615
				Sampling date / time	15-Jun-2022 11:47	15-Jun-2022 13:51	15-Jun-2022 13:54	15-Jun-2022 13:08	15-Jun-2022 12:17
Compound	CAS Number	LOR	Unit		ES2221295-001	ES2221295-002	ES2221295-003	ES2221295-004	ES2221295-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**7.22**	**0.22**	**20.3**	**19.4**	**0.77**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**8.57**	**0.28**	**27.0**	**30.4**	**0.70**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**72.0**	**5.74**	**200**	**203**	**6.50**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**4.30**	**0.35**	**17.8**	**17.7**	**0.42**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**45.6**	**30.6**	**580**	**358**	**27.3**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.05	<0.02	**0.32**	<0.05	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**1.2**	**0.2**	**5.2**	**3.8**	**1.4**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**1.77**	**0.30**	**16.8**	**7.03**	**1.31**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**11.6**	**1.31**	**38.7**	**38.2**	**2.91**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**2.01**	**0.12**	**6.66**	**6.30**	**0.28**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**4.72**	**0.26**	**14.9**	**15.7**	**0.63**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.05	<0.02	**1.07**	**0.16**	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.05	<0.02	**0.08**	<0.05	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.05	<0.02	<0.05	<0.05	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.05	<0.02	<0.05	<0.05	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.05	<0.02	<0.05	<0.05	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.12	<0.05	<0.12	<0.12	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.05	<0.02	<0.05	<0.05	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.12	<0.05	<0.12	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.12	<0.05	<0.12	<0.12	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW112_220615	0382_MW112P_220615	0382_MW113_220615	0382_MW115_220615	0382_MW119_220615
				Sampling date / time	15-Jun-2022 11:47	15-Jun-2022 13:51	15-Jun-2022 13:54	15-Jun-2022 13:08	15-Jun-2022 12:17
Compound	CAS Number	LOR	Unit		ES2221295-001	ES2221295-002	ES2221295-003	ES2221295-004	ES2221295-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.12	<0.05	<0.12	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.12	<0.05	<0.12	<0.12	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.05	<0.02	<0.05	<0.05	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.05	<0.02	<0.05	<0.05	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	**16.6**	**0.94**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	**0.08**	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**159**	**39.4**	**946**	**701**	**42.2**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**118**	**36.3**	**780**	**561**	**33.8**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**146**	**38.8**	**899**	**652**	**41.1**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.0**	**97.7**	**105**	**102**	**96.8**
13C8-PFOA	----	0.02	%		**109**	**102**	**107**	**97.0**	**102**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW119P_220615	0382_MW129_220615	0382_MW130_220615	0382_MW131_220615	0382_MW133_220615
				Sampling date / time	15-Jun-2022 12:25	15-Jun-2022 13:52	15-Jun-2022 13:48	15-Jun-2022 13:45	15-Jun-2022 09:54
					ES2221295-006	ES2221295-007	ES2221295-008	ES2221295-009	ES2221295-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**16.2**	<0.02	<0.02	<0.02	**2.58**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**33.4**	<0.02	<0.02	<0.02	**3.78**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**257**	**0.01**	<0.01	**0.02**	**42.7**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**24.0**	<0.02	<0.02	<0.02	**12.7**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**200**	**0.02**	<0.01	**0.09**	**765**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.05
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**1.6**	<0.1	<0.1	<0.1	**1.6**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**3.54**	<0.02	<0.02	<0.02	**2.54**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**28.8**	<0.02	<0.02	<0.02	**10.9**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**5.28**	<0.02	<0.02	<0.02	**0.84**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**13.4**	<0.01	<0.01	<0.01	**4.80**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	**0.07**
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.05
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.05
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.05
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.05
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.12
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.12

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW119P_220615	0382_MW129_220615	0382_MW130_220615	0382_MW131_220615	0382_MW133_220615
				Sampling date / time	15-Jun-2022 12:25	15-Jun-2022 13:52	15-Jun-2022 13:48	15-Jun-2022 13:45	15-Jun-2022 09:54
Compound	CAS Number	LOR	Unit		ES2221295-006	ES2221295-007	ES2221295-008	ES2221295-009	ES2221295-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.12
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.12
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.05
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.32**	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**584**	**0.03**	<0.01	**0.11**	**848**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**457**	**0.03**	<0.01	**0.11**	**808**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**526**	**0.03**	<0.01	**0.11**	**831**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**107**	**92.1**	**97.2**	**97.8**	**92.0**
13C8-PFOA	----	0.02	%		**94.0**	**98.8**	**101**	**99.3**	**107**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW134_220615	0382_MW136_220615	0382_QC100_220615	----	----
				Sampling date / time	15-Jun-2022 12:45	15-Jun-2022 10:12	15-Jun-2022 09:38	----	----
Compound	CAS Number	LOR	Unit		ES2221295-011	ES2221295-012	ES2221295-016	--------	--------
					Result	Result	Result	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.31**	**0.18**	<0.02	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.24**	**0.16**	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**1.04**	**0.64**	<0.01	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.52**	**0.06**	<0.01	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.3**	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.28**	**0.05**	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.56**	**0.21**	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.02**	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.03**	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW134_220615	0382_MW136_220615	0382_QC100_220615	----	----
				Sampling date / time	15-Jun-2022 12:45	15-Jun-2022 10:12	15-Jun-2022 09:38	----	----
Compound	CAS Number	LOR	Unit		ES2221295-011	ES2221295-012	ES2221295-016	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**3.29**	**1.33**	<0.01	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.56**	**0.70**	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**3.05**	**1.17**	<0.01	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**103**	**106**	**89.7**	----	----
13C8-PFOA	----	0.02	%		**104**	**98.8**	**95.9**	----	----

Analytical Results

Sub-Matrix: **RINSATE** (Matrix: **WATER**)				Sample ID	0382_QC300_220615	----	----	----	----
				Sampling date / time	15-Jun-2022 15:53	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2221295-018	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: **RINSATE** (Matrix: **WATER**)				Sample ID	0382_QC300_220615	----	----	----	----
				Sampling date / time	15-Jun-2022 15:53	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2221295-018	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**106**	----	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW001_220615	0382_SW059_220615	0382_SW111_220615	0382_QC101_220615	----
				Sampling date / time	15-Jun-2022 11:57	15-Jun-2022 11:07	15-Jun-2022 13:53	15-Jun-2022 11:07	----
Compound	CAS Number	LOR	Unit		ES2221295-013	ES2221295-014	ES2221295-015	ES2221295-017	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.07**	<0.02	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.06**	<0.02	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.67**	**0.16**	**0.06**	**0.14**	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.04**	<0.02	<0.02	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**2.06**	**0.16**	**0.08**	**0.13**	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.09**	**0.03**	<0.02	**0.02**	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.24**	**0.05**	**0.03**	**0.05**	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.04**	<0.02	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.07**	**0.02**	**0.02**	**0.02**	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		**0.13**	<0.02	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW001_220615	0382_SW059_220615	0382_SW111_220615	0382_QC101_220615	----
				Sampling date / time	15-Jun-2022 11:57	15-Jun-2022 11:07	15-Jun-2022 13:53	15-Jun-2022 11:07	----
Compound	CAS Number	LOR	Unit		ES2221295-013	ES2221295-014	ES2221295-015	ES2221295-017	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**3.47**	**0.42**	**0.19**	**0.36**	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**2.73**	**0.32**	**0.14**	**0.27**	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**3.24**	**0.42**	**0.19**	**0.36**	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.9**	**100**	**91.7**	**102**	----
13C8-PFOA	----	0.02	%		**98.8**	**99.4**	**107**	**105**	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **RINSATE**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **SURFACE WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2221295**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Contact	[redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 17-Jun-2022
Order number	: 60612562_6.1	Date Analysis Commenced	: 20-Jun-2022
C-O-C number	: 38944	Issue Date	: 24-Jun-2022
Sampler	: [redacted]		
Site	: 0382		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 18		
No. of samples analysed	: 18		

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*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4410214)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	124	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	120	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	106	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	90.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4410214)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	119	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	114	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	120	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	111	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	109	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	111	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	120	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	117	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	109	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	89.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4410214)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	111	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	101	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	91.2	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	116	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	110	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	99.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4410214)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	100	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	122	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	110	67.0	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4410214) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	112	71.4	144

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2221295**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 17-Jun-2022
Site	: 0382	Issue Date	: 24-Jun-2022
Sampler	[redacted]	No. of samples received	: 18
Order number	: 60612562_6.1	No. of samples analysed	: 18

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	18	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	18	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0382_MW112_220615,	0382_MW112P_220615,	**15-Jun-2022**	**21-Jun-2022**	12-Dec-2022	✓	**22-Jun-2022**	12-Dec-2022	✓
0382_MW113_220615,	0382_MW115_220615,							
0382_MW119_220615,	0382_MW119P_220615,							
0382_MW129_220615,	0382_MW130_220615,							
0382_MW131_220615,	0382_MW133_220615,							
0382_MW134_220615,	0382_MW136_220615,							
0382_SW001_220615,	0382_SW059_220615,							
0382_SW111_220615,	0382_QC100_220615,							
0382_QC101_220615,	0382_QC300_220615							
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0382_MW112_220615,	0382_MW112P_220615,	**15-Jun-2022**	**21-Jun-2022**	12-Dec-2022	✓	**22-Jun-2022**	12-Dec-2022	✓
0382_MW113_220615,	0382_MW115_220615,							
0382_MW119_220615,	0382_MW119P_220615,							
0382_MW129_220615,	0382_MW130_220615,							
0382_MW131_220615,	0382_MW133_220615,							
0382_MW134_220615,	0382_MW136_220615,							
0382_SW001_220615,	0382_SW059_220615,							
0382_SW111_220615,	0382_QC100_220615,							
0382_QC101_220615,	0382_QC300_220615							

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
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0382_MW112_220615,	0382_MW112P_220615,	**15-Jun-2022**	**21-Jun-2022**	12-Dec-2022	✓	**22-Jun-2022**	12-Dec-2022	✓
0382_MW113_220615,	0382_MW115_220615,							
0382_MW119_220615,	0382_MW119P_220615,							
0382_MW129_220615,	0382_MW130_220615,							
0382_MW131_220615,	0382_MW133_220615,							
0382_MW134_220615,	0382_MW136_220615,							
0382_SW001_220615,	0382_SW059_220615,							
0382_SW111_220615,	0382_QC100_220615,							
0382_QC101_220615,	0382_QC300_220615							
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0382_MW112_220615,	0382_MW112P_220615,	**15-Jun-2022**	**21-Jun-2022**	12-Dec-2022	✓	**22-Jun-2022**	12-Dec-2022	✓
0382_MW113_220615,	0382_MW115_220615,							
0382_MW119_220615,	0382_MW119P_220615,							
0382_MW129_220615,	0382_MW130_220615,							
0382_MW131_220615,	0382_MW133_220615,							
0382_MW134_220615,	0382_MW136_220615,							
0382_SW001_220615,	0382_SW059_220615,							
0382_SW111_220615,	0382_QC100_220615,							
0382_QC101_220615,	0382_QC300_220615							
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0382_MW112_220615,	0382_MW112P_220615,	**15-Jun-2022**	**21-Jun-2022**	12-Dec-2022	✓	**22-Jun-2022**	12-Dec-2022	✓
0382_MW113_220615,	0382_MW115_220615,							
0382_MW119_220615,	0382_MW119P_220615,							
0382_MW129_220615,	0382_MW130_220615,							
0382_MW131_220615,	0382_MW133_220615,							
0382_MW134_220615,	0382_MW136_220615,							
0382_SW001_220615,	0382_SW059_220615,							
0382_SW111_220615,	0382_QC100_220615,							
0382_QC101_220615,	0382_QC300_220615							

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	18	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	18	**0.00**	**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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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 combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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.

CHAIN OF CUSTODY

(ALS) COC#: 38944 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: 0382

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 17/6/22	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0382_MW112_220615		15/06/2022 11:47 AM	Water	ALS: 3 Non ALS: 0	No	X		
002	0382_MW112P_220615		15/06/2022 01:51 PM	Water	ALS: 3 Non ALS: 0	No	X		
003	0382_MW113_220615		15/06/2022 01:54 PM	Water	ALS: 3 Non ALS: 0	No	X		
004	0382_MW115_220615		15/06/2022 01:08 PM	Water	ALS: 3 Non ALS: 0	No	X		
005	0382_MW119_220615		15/06/2022 12:17 PM	Water	ALS: 3 Non ALS: 0	No	X		
006	0382_MW119P_220615		15/06/2022 12:25 PM	Water	ALS: 3 Non ALS: 0	No	X		
007	0382_MW129_220615		15/06/2022 01:52 PM	Water	ALS: 3 Non ALS: 0	No	X		
008	0382_MW130_220615		15/06/2022 01:48 PM	Water	ALS: 3 Non ALS: 0	No	X		
009	0382_MW131_220615		15/06/2022 01:45 PM	Water	ALS: 3 Non ALS: 0	No	X		

Environmental Division Sydney

Work Order Reference

ES2221295

Telephone : +61-2-8784 8555

CHAIN OF CUSTODY

ALS COC#: 38944 ALS Laboratory: ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: 0382

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 17/6/22 3pm	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

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

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0382_MW133_220615		15/06/2022 09:54 AM	Water	ALS: 3 Non ALS: 0	No	X		
011	0382_MW134_220615		15/06/2022 12:45 PM	Water	ALS: 3 Non ALS: 0	No	X		
012	0382_MW136_220615		15/06/2022 10:12 AM	Water	ALS: 3 Non ALS: 0	No	X		
013	0382_SW001_220615		15/06/2022 11:57 AM	Water	ALS: 3 Non ALS: 0	No	X		
014	0382_SW059_220615		15/06/2022 11:07 AM	Water	ALS: 3 Non ALS: 0	No	X		
015	0382_SW111_220615		15/06/2022 01:53 PM	Water	ALS: 3 Non ALS: 0	No	X		
016	0382_QC100_220615		15/06/2022 09:38 AM	Water	ALS: 3 Non ALS: 0	No	X		
017	0382_QC101_220615		15/06/2022 11:07 AM	Water	ALS: 3 Non ALS: 0	No	X		
018	0382_QC300_220615		15/06/2022 03:53 PM	Water	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 38944 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: 0382

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 17/6/22	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0382_MW112_220615	HDPE (no PTFE)	20 mL	00350821041511	Grey	No	
001	0382_MW112_220615	HDPE (no PTFE)	20 mL	00350821019023	Grey	No	
001	0382_MW112_220615	HDPE (no PTFE)	20 mL	00350821018992	Grey	No	
002	0382_MW112P_220615	HDPE (no PTFE)	20 mL	00350821019044	Grey	No	
002	0382_MW112P_220615	HDPE (no PTFE)	20 mL	00350821017177	Grey	No	
002	0382_MW112P_220615	HDPE (no PTFE)	20 mL	00350821018935	Grey	No	
003	0382_MW113_220615	HDPE (no PTFE)	20 mL	00350821018983	Grey	No	
003	0382_MW113_220615	HDPE (no PTFE)	20 mL	00350821019029	Grey	No	
003	0382_MW113_220615	HDPE (no PTFE)	20 mL	00350821018821	Grey	No	
004	0382_MW115_220615	HDPE (no PTFE)	20 mL	00350821017290	Grey	No	
004	0382_MW115_220615	HDPE (no PTFE)	20 mL	00350821017202	Grey	No	
004	0382_MW115_220615	HDPE (no PTFE)	20 mL	00350821017296	Grey	No	
005	0382_MW119_220615	HDPE (no PTFE)	20 mL	00350821017386	Grey	No	
005	0382_MW119_220615	HDPE (no PTFE)	20 mL	00350821017023	Grey	No	
005	0382_MW119_220615	HDPE (no PTFE)	20 mL	00350821019074	Grey	No	
006	0382_MW119P_220615	HDPE (no PTFE)	20 mL	00350821018850	Grey	No	
006	0382_MW119P_220615	HDPE (no PTFE)	20 mL	00350821018860	Grey	No	
006	0382_MW119P_220615	HDPE (no PTFE)	20 mL	00350821018918	Grey	No	
007	0382_MW129_220615	HDPE (no PTFE)	20 mL	00350821018818	Grey	No	
007	0382_MW129_220615	HDPE (no PTFE)	20 mL	00350821018832	Grey	No	
007	0382_MW129_220615	HDPE (no PTFE)	20 mL	00350821018849	Grey	No	
008	0382_MW130_220615	HDPE (no PTFE)	20 mL	00350821018876	Grey	No	
008	0382_MW130_220615	HDPE (no PTFE)	20 mL	00350821018872	Grey	No	
008	0382_MW130_220615	HDPE (no PTFE)	20 mL	00350821018906	Grey	No	
009	0382_MW131_220615	HDPE (no PTFE)	20 mL	00350821018863	Grey	No	
009	0382_MW131_220615	HDPE (no PTFE)	20 mL	00350821019091	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 38944 ALS Laboratory: ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 17/6/22	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: 0382

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

009	0382_MW131_220615	HDPE (no PTFE)	20 mL	00350821019032	Grey	No	
010	0382_MW133_220615	HDPE (no PTFE)	20 mL	00350821018830	Grey	No	
010	0382_MW133_220615	HDPE (no PTFE)	20 mL	00350821018908	Grey	No	
010	0382_MW133_220615	HDPE (no PTFE)	20 mL	00350821018799	Grey	No	
011	0382_MW134_220615	HDPE (no PTFE)	20 mL	00350821019083	Grey	No	
011	0382_MW134_220615	HDPE (no PTFE)	20 mL	00350821018915	Grey	No	
011	0382_MW134_220615	HDPE (no PTFE)	20 mL	00350821018974	Grey	No	
012	0382_MW136_220615	HDPE (no PTFE)	20 mL	00350821018898	Grey	No	
012	0382_MW136_220615	HDPE (no PTFE)	20 mL	00350821018922	Grey	No	
012	0382_MW136_220615	HDPE (no PTFE)	20 mL	00350821018942	Grey	No	
013	0382_SW001_220615	HDPE (no PTFE)	20 mL	00350821017379	Grey	No	
013	0382_SW001_220615	HDPE (no PTFE)	20 mL	00350621041260	Grey	No	
013	0382_SW001_220615	HDPE (no PTFE)	20 mL	00350821041427	Grey	No	
014	0382_SW059_220615	HDPE (no PTFE)	20 mL	00350821018834	Grey	No	
014	0382_SW059_220615	HDPE (no PTFE)	20 mL	00350821018875	Grey	No	
014	0382_SW059_220615	HDPE (no PTFE)	20 mL	00350821019007	Grey	No	
015	0382_SW111_220615	HDPE (no PTFE)	20 mL	00350821018998	Grey	No	
015	0382_SW111_220615	HDPE (no PTFE)	20 mL	00350821018966	Grey	No	
015	0382_SW111_220615	HDPE (no PTFE)	20 mL	00350821018857	Grey	No	
016	0382_QC100_220615	HDPE (no PTFE)	20 mL	00350821018895	Grey	No	
016	0382_QC100_220615	HDPE (no PTFE)	20 mL	00350821019048	Grey	No	
016	0382_QC100_220615	HDPE (no PTFE)	20 mL	00350821018987	Grey	No	
017	0382_QC101_220615	HDPE (no PTFE)	20 mL	00350821019011	Grey	No	
017	0382_QC101_220615	HDPE (no PTFE)	20 mL	00350821018917	Grey	No	
017	0382_QC101_220615	HDPE (no PTFE)	20 mL	00350821018964	Grey	No	
018	0382_QC300_220615	HDPE (no PTFE)	20 mL	00350821018835	Grey	No	
018	0382_QC300_220615	HDPE (no PTFE)	20 mL	00350821018851	Grey	No	

CHAIN OF CUSTODY

(ALS) *COC#:* **38944** *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 17/6/22	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: 0382

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

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

018	0382_QC300_220615	HDPE (no PTFE)	20 mL	00350821018926	Grey	No	

Total Bottle Count: ALS: 54, Non ALS: 0

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	[redacted]

Sample Login Details

Your reference	60612562_6.1, NSW_0382_PFASOMP_20
Envirolab Reference	298106
Date Sample Received	16/06/2022
Date Instructions Received	16/06/2022
Date Results Expected to be Reported	23/06/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	2 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	5
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Received sample labelled as QC200 & QC201- assumed QC201 is sample #2 and typo error in COC

Please direct any queries to:

[redacted]

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	PFAS in Waters Extended
0382_QC200_220615	✓
0382_QC201_220615	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 298106

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	[redacted]
Address	PO Box Q410, QVB Post Office, Sydney, NSW, 1230

Sample Details

Your Reference	**60612562_6.1, NSW_0382_PFASOMP_20**
Number of Samples	2 Water
Date samples received	16/06/2022
Date completed instructions received	16/06/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	23/06/2022
Date of Issue	21/06/2022

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By

[redacted] Senior Chemist

Authorised By

[redacted]

[redacted] Laboratory Manager

PFAS in Waters Extended			
Our Reference		298106-1	298106-2
Your Reference	UNITS	0382_QC200_220615	0382_QC201_220615
Date Sampled		15/06/2022	15/06/2022
Type of sample		Water	Water
Date prepared	-	20/06/2022	20/06/2022
Date analysed	-	20/06/2022	20/06/2022
Perfluorobutanesulfonic acid	µg/L	0.13	0.01
Perfluoropentanesulfonic acid	µg/L	0.13	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.46	0.05
Perfluoroheptanesulfonic acid	µg/L	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.05	0.05
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02
Perfluorobutanoic acid	µg/L	0.03	<0.02
Perfluoropentanoic acid	µg/L	0.03	<0.02
Perfluorohexanoic acid	µg/L	0.12	0.02
Perfluoroheptanoic acid	µg/L	0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	0.02	0.02
Perfluorononanoic acid	µg/L	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02
10:2 FTS	µg/L	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	98	97
Surrogate $^{13}C_2$ *PFOA*	%	109	117
Extracted ISTD $^{13}C_3$ *PFBS*	%	91	94
Extracted ISTD $^{18}O_2$ *PFHxS*	%	107	106
Extracted ISTD $^{13}C_4$ *PFOS*	%	98	101

PFAS in Waters Extended			
Our Reference		298106-1	298106-2
Your Reference	UNITS	0382_QC200_220615	0382_QC201_220615
Date Sampled		15/06/2022	15/06/2022
Type of sample		Water	Water
Extracted ISTD $^{13}C_4$ *PFBA*	%	70	89
Extracted ISTD $^{13}C_3$ *PFPeA*	%	86	91
Extracted ISTD $^{13}C_2$ *PFHxA*	%	93	98
Extracted ISTD $^{13}C_4$ *PFHpA*	%	109	114
Extracted ISTD $^{13}C_4$ *PFOA*	%	90	90
Extracted ISTD $^{13}C_5$ *PFNA*	%	96	103
Extracted ISTD $^{13}C_2$ *PFDA*	%	108	111
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	109	118
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	92	93
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	81	70
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	98	95
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	91	87
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	99	110
Extracted ISTD $^{13}C_8$ *FOSA*	%	96	99
Extracted ISTD d_3 *N MeFOSA*	%	112	110
Extracted ISTD d_5 *N EtFOSA*	%	104	105
Extracted ISTD d_7 *N MeFOSE*	%	114	114
Extracted ISTD d_9 *N EtFOSE*	%	95	97
Extracted ISTD d_3 *N MeFOSAA*	%	77	80
Extracted ISTD d_5 *N EtFOSAA*	%	78	83
Total Positive PFHxS & PFOS	µg/L	0.51	0.1
Total Positive PFOA & PFOS	µg/L	0.07	0.06
Total Positive PFAS	µg/L	0.99	0.14

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.3 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/06/2022	[NT]	[NT]	[NT]	[NT]	20/06/2022	[NT]
Date analysed	-			20/06/2022	[NT]	[NT]	[NT]	[NT]	20/06/2022	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	120	[NT]
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	110	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	108	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	112	[NT]
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	90	[NT]
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	110	[NT]
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	111	[NT]
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	105	[NT]
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	115	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	110	[NT]
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	102	[NT]
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	110	[NT]
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	96	[NT]
4:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	97	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	105	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	113	[NT]
10:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	114	[NT]
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	110	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	135	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	110	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	113	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	93	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	106	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	104	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	113	[NT]	[NT]	[NT]	[NT]	111	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	105	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	108	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	130	[NT]	[NT]	[NT]	[NT]	120	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	110	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	123	[NT]	[NT]	[NT]	[NT]	119	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	131	[NT]	[NT]	[NT]	[NT]	124	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	129	[NT]	[NT]	[NT]	[NT]	131	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	112	[NT]	[NT]	[NT]	[NT]	108	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	89	[NT]	[NT]	[NT]	[NT]	77	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	123	[NT]	[NT]	[NT]	[NT]	117	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	122	[NT]	[NT]	[NT]	[NT]	117	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	117	[NT]	[NT]	[NT]	[NT]	113	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	119	[NT]	[NT]	[NT]	[NT]	112	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	108	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

AECOM

Chain of Custody

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Sydney, NSW, 2000
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[redacted]

Laboratory Details

Lab. Name: Envirolab Services
Lab. Address: 12 Ashley St, Chatswood NSW 2067, Australia
Contact Name:
Lab. Ref:
Tel: 02 9449 0181
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No:

Sampled By: [redacted]

Project Name: NSW_0382_PFASOMP_20

AECOM Project #: 60612562_6.1

Purchase Order No:

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	
2. Fast TAT Guarantee Required? No	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

6. Report Format: • ESdat

7. Project Manager: Geoff Tredinnick

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	PFAS Extended Suite
1	0382_QC200_220615	15/06/2022		x				x		3	x
2	0382_QC201_220615	15/06/2022		x				x		3	x

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph (02) 9910 6200

Job No: 298106
Date Received: 16/6/2022
Time Received: 1300
Received by: TH/AW
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken

Comments: Please send ESdat files to DERP.labreports@esdat.com.au and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & invoice: [redacted]

Lab Report No: Esky ID:

Relinquished by: [redacted]	Signed: [redacted]	Date: 15/06/2022	Relinquished by:	Signed:	Date:
Received by:	Signed:	Date:	Received by: [redacted]	Signed: [redacted]	Date: 16.6.22

Prepared for
Department of Defence
ABN: 68706814312

AECOM

Sampling Event Factual Report, September 2022

PFAS OMP - Holsworthy Barracks

06-Dec-2022
Doc No. 20221206_OMP002_HOLS_SamplingEventFactualReport_Rev0

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Delivering a better world

Sampling Event Factual Report, September 2022

PFAS OMP - Holsworthy Barracks

Client: Department of Defence

ABN: 68706814312

Prepared by

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06-Dec-2022

Job No.: 60612562

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 and ISO45001.

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Verifier/s	[redacted]

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			Name/Position	Signature
A	28-Oct-2022	Draft	[redacted] Project Manager	
B	25-Nov-2022	Draft	[redacted] Project Manager	
0	06-Dec-2022	Draft	[redacted] Project Manager	[redacted]

Table of Contents

List of Tables (in Text)

List of Acronyms

Acronym	Term
ADWG	Australian Drinking Water Guidelines
AECOM	AECOM Australia Pty Ltd
AHD	Australian Height Datum
AIR	Annual Interpretive Report
ASC NEPM	Assessment of Site Contamination National Environment Protection Measure
BOM	Bureau of Meteorology
DCMM	Defence Contamination Management Manual
Defence	Department of Defence
DO	Dissolved Oxygen
DoH	Department of Health
DQI	Data Quality Indicator
DQO	Data Quality Objective
EC	Electrical conductivity
EPA	Environment Protection Authority
FSANZ	Food Standards Australia New Zealand
HEPA	Heads of Environment Protection Authority
LOR	Limit of Reporting
MW	Monitoring Well
NEMP	National Environmental Management Plan
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NSW	New South Wales
OMP	Ongoing Monitoring Plan
ORP	Oxidation Reduction Potential
PFAS	Per- and poly-fluoroalkyl substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PMAP	PFAS Management Area Plan
QA/QC	Quality Assurance and Quality Control
RPD	Relative Percentage Difference
SAQP	Sample and Analysis Quality Plan
STP	Sewage Treatment Plant
SW	Surface Water

Acronym	Term
SWL	Standing Water Level

List of Units

Units	Term
µg/L	Micrograms per Litre
g	Grams
km	Kilometre
L	Litre
m	Metre
mAHD	Metres Australian Height Datum
mbgl	Metres below ground level
mbTOC	Metres below Top of Casing
mg/kg	Milligrams per kilogram
mg/L	Milligrams per Litre

1.0 Introduction

1.1 General

AECOM Australia Pty Ltd (AECOM) has been engaged by the Department of Defence (Defence) to implement the per- and poly-fluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP) at the Holsworthy Barracks (the 'Site') in the NSW and Jervis Bay Region. The location of the Site is shown in **Figure F1** in **Appendix A**.

The OMP (Defence, 2020a) outlines the sampling requirements for the Site and off-Site areas.

Following each sampling event, factual sampling event reports will be prepared. Annual interpretive reports will be prepared following the completion of each 12-month sampling period.

This Sampling Event Factual Report has been prepared to report the results of the September 2022 biannual sampling event, specifically highlighting first-time detections and/or new exceedances of human health or ecological screening criteria for PFOS+PFHxS, PFOS and/or PFOA.

This report has been prepared in accordance with the Defence *PFAS OMP Factual Report Guidance (Version 0.2)* issued in May 2021 (Defence, 2021).

1.2 Objectives

The objectives were to:

- implement the OMP (Defence, 2020a) prepared as part of the Detailed Site Investigation (DSI)
- collect data that will enable Defence to maintain an up to date understanding of the changes in distribution, concentration, transport and transformation of PFAS and assess the data against appropriate guideline values in order to provide:
    - an evidence base for targeted and effective risk management of PFAS contamination to protect human health and environmental receptors
    - an early warning that additional management of PFAS contamination may be warranted in areas not currently affected by PFAS.

The data will assist in the timely identification of risks and inform Defence's approach to the management of PFAS, including updates and revisions to the PFAS Management Area Plan (PMAP) (Defence, 2020b).

The objective of this phase of works was to implement the scope of works for the September 2022 biannual sampling event in accordance with the Sampling and Analysis Quality Plan (SAQP) (AECOM, 2022).

2.0 Scope of Work

The scope of works was completed generally in accordance with the SAQP (AECOM, 2022), as follows:

- obtain permission (where required) to conduct works at the Site, off-site publicly accessible areas and commercial properties
- gauging of groundwater level in monitoring wells prior to collection of samples
- groundwater sampling and collection of water quality parameters at all 24 scheduled groundwater wells (refer to **Table 1** below and **Figure F2** in **Appendix A** for specific locations)
- surface water sampling and collection of water quality parameters at 16 of 17 scheduled surface water locations (refer to **Table 2** below and **Figure F3** in **Appendix A** for specific locations)
- collection of field duplicate samples at a rate of 1 in 10 primary samples
- analysis of samples for PFAS suite at the standard limit of reporting (LOR)
- data management of the OMP field and laboratory data in Defence ESdat database
- preparation of this Sampling Event Factual Report.

The deviations from the scope of works outlined in the SAQP (AECOM, 2022) are discussed in **Section 3.0**.

Note: due to privacy considerations, selected monitoring locations are unable to be shown on the figures in **Appendix A**.

Table 1 Groundwater Sampling Locations

Area	Description	Sampling Locations	Total
On-site	Cantonment and Driver Training Area	MW120, MW121, MW122, MW123, MW124, MW323, MW349	7
	Former 85 Transport Area	MW117, MW330	2
	Former STP Area	MW002, MW005, MW301	3
Off-site Road Reserve	Off-site road verges associated with Liverpool Fire Station	MW112, MW112P, MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136	10
Off-site Private Property	Liverpool Fire Station	MW113, MW115	2
Total			**24**

Table 2 Surface Water Sampling Locations

Area	Description	Sampling Locations	Total
On-site	Former 85 Transport Area	SW103, SW104, SW105	3
	Luscombe Airfield (Williams Creek and Harris Creek)	SW009, SW015, SW030*, SW038	4
	Former STP Area	SW011, SW012, SW014, SW017	4
Off-site	Georges River	SW025, SW062, SW063	3
	Liverpool Fire Station	SW001, SW059, SW111	3
Total			**17**
* Location not sampled			

3.0 Deviations from the SAQP

The September 2022 biannual sampling event was completed in general accordance with the SAQP (AECOM, 2022) with the exception of the deviations outlined in **Table 3** below.

Table 3 Deviations from SAQP (AECOM, 2022)

SAQP Deviation	Comment / Justification	Impact on Dataset
Samples were not collected at 1 of the 17 scheduled surface water locations.	Surface water location SW030 was not accessible and could not be sampled due to active military dog training exercise taking place in the area, over the period of the sampling event.	The lack of sampling data from SW030 is not considered to have a significant impact on the existing data or present a significant data gap, given representative samples from downstream locations were collected. It is understood that the water in drains at sample locations SW030 and SW038 flow from the Luscombe Airfield area and discharge into Williams Creek. Note that Williams Creek is sampled at the point of exit from the Site, at SW009. Both SW009 and SW038 were sampled during this sampling event.
Field parameters were not collected at 1 of the 17 scheduled surface water locations.	Due to bank instability and access conditions at surface water location SW014, geochemical parameters were unable to be collected.	The lack of geochemical parameters at this location is not considered to have a significant impact on the outcomes of the OMP, as geochemical parameters are not critical to the assessment and interpretation of PFAS concentrations at the location.

4.0 Methodology

4.1 Sampling Methodology

The methodology used for the September 2022 biannual sampling event was in accordance with the SAQP (AECOM, 2022) and is summarised in **Table 4** below.

Table 4 Sampling Methodology

Item	Details
Groundwater gauging	The depth to groundwater was measured in each monitoring well immediately prior to collection of groundwater samples using an interface probe.
Field parameters	Temperature, electrical conductivity (EC), dissolved oxygen (DO), oxidation-reduction potential (ORP), pH and observations of water quality were recorded for groundwater and surface water samples. Field parameters were unable to be correct at SW014 due to bank instability and access conditions. Field parameters were collected using a calibrated water quality meter (WQM). The equipment supplier and field calibration records are provided in **Appendix C**.
Sampling methodology	**Groundwater Monitoring Wells** Groundwater samples were collected from each monitoring well using HydraSleeves™, a no-purge sampling methodology. HydraSleeves™ were installed within the screened interval of the wells for a minimum of 24 hours prior to the sampling round, based on a review of the well construction log. For this event, all the HydraSleeves™ were installed during previous sampling rounds in March 2022 and June 2022. Once sampling was completed, new HydraSleeves™ were deployed in each of the monitoring wells, within the screened interval depth in preparation for the next sampling round. In the event that a HydraSleeve failed to deploy or had been removed inadvertently (i.e. by non-OMP project), the sample was collected using a dedicated, disposable bailer. During this sampling event, a bailer was used at location MW005, due to the absence of a HydraSleeves™ in the well. Groundwater locations MW301, MW002, and MW005 were sampled on an outgoing tide in accordance with the SAQP (AECOM, 2022). **Surface Water** Surface water samples were collected from immediately below the water surface (approximately 10 centimetres [cm] below the surface water level, where depth permitted) to minimise collection of sediment, surface film or floating materials in the samples. At each location, a new, laboratory supplied container was lowered into the water (either by hand or using a sampling pole) with the cap immediately applied once the container was full. Surface water locations SW011, SW012, SW017 and SW014 were sampled on an outgoing tide in accordance with the SAQP (AECOM, 2022).

Item	Details
QA/QC Samples	A QA/QC program was implemented for the sampling and analysis program in order to obtain representative data and assess the reliability of the data obtained. To facilitate the QA/QC program the following sample types were obtained during the sampling program: • *Intra-laboratory duplicates* collected at a rate of 1 in 10 primary samples. The relative percentage difference (RPD) should be less than 30%, or less than 50% if results are less than 20 times the limit of reporting (LOR). Higher RPDs may also be acceptable if results are less than 10 times the LOR. • *Inter-laboratory duplicates* collected at a rate of 1 in 10 primary samples. The relative percentage difference (RPD) should be less than 30%, or less than 50% if results are less than 20 times the limit of reporting (LOR). Higher RPDs may also be acceptable if results are less than 10 times the LOR. • *Rinsate blanks* collected at a frequency of one per set of sampling equipment per day where equipment was reused between locations. Analytical results should be below the laboratory limit of reporting (LOR). For this September 2022 biannual sampling event, the QA/QC samples included: • 4 x intra-laboratory duplicates (2 groundwater and 2 surface water), which met the target frequency • 4 x inter-laboratory duplicates, (2 groundwater and 2 surface water), which met the target frequency • 3 x rinsate blanks, which met the target frequency. The data validation assessment is presented in **Appendix D**.
Sample analysis	Samples were submitted to the primary and secondary laboratories for PFAS suite at the standard limit of reporting (LOR). ALS Environmental (ALS) Sydney, NSW was used as the primary laboratory. Envirolab Services (Envirolab) Sydney, NSW was used as the secondary laboratory. ALS and Envirolab methods for analyses were certified by the National Association of Testing Authorities (NATA). A summary of the laboratory results is presented in **Section 5.3** and the laboratory certificates are presented in **Appendix E**.

4.2 Adopted Screening Criteria

Adopted screening criteria reference the PFAS National Environmental Management Plan, Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance. Guidance documents used to assess the data set include the following:

- Heads of EPAs Australia and New Zealand (HEPA) 2020. *PFAS National Environmental Management Plan 2.0*. January 2020.
- Department of Health, 2017. *Health Based Guidance Values for PFAS for use in site investigations in Australia*. April 2017.
- FSANZ, 2017. *Supporting Document 1: Hazard assessment report – Perfluorooctane Sulfonate (PFOS), Perfluorooctanoic Acid (PFOA), Perfluorohexane Sulfonate (PFHxS).*
- National Health and Medical Research Council (NHMRC), 2019. *Guidance on PFAS in Recreational Water.* August 2019.
- National Environment Protection Council (NEPC), 2013. *Schedule B1. National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) Schedule B1 Guideline on Investigation Levels For Soil and Groundwater.*

The adopted PFAS screening criteria to assess the data generated as part of the OMP are presented in **Table 5**.

Table 5 Summary of Adopted Screening Criteria: Water

Pathway	Compound	Criteria	Comment/Reference
Human Health Receptors			
Drinking water – groundwater	PFOS + PFHxS	0.07 µg/L	The values presented in the PFAS NEMP (2020) are from the DoH (2017), which published final health-based guidance values for PFAS for use in site investigations in Australia. DoH utilised the Tolerable Daily Intake (TDI) for PFOS and PFOA from Food Standards Australia New Zealand (FSANZ) (2017) and the methodology described in Chapter 6.3.3 of the National Health and Medical Research Council's (NHMRC) of the Australian Drinking Water Guidelines (ADWG) (2022) to determine drinking water values. For PFHxS, DoH (2017) noted that '*FSANZ concluded that there was not enough toxicological and epidemiological information to justify establishing a tolerable daily intake. However, as a precaution, and for the purposes of site investigations, the PFOS tolerable daily intake should apply to PFHxS. In practice, this means that the level of PFHxS exposure should be added to the level of PFOS exposure; and this combined level be compared to the tolerable daily intake for PFOS*'. *All groundwater results were compared to these criteria.*
	PFOA	0.56 µg/L	
Recreational use – surface water	PFOS + PFHxS	2 µg/L	In August 2019, NHMRC released guidance on the assessment of PFAS in surface water. Rather than adopting an ingestion rate of 0.2 L of water per day (as per the ADWG formula), NHMRC adjusted this rate with consideration of an event frequency (150 events/year) to calculate an annual ingestion rate of 30 L per year. These values were adopted by the HEPA NEMP 2.0 (2020). *All surface water results were compared to these criteria.*
	PFOA	10 µg/L	
Ecological Receptors			
Freshwater and Marine	PFOS	0.13 µg/L	The values are from the PFAS NEMP (2020) which endorsed the Australian and New Zealand Guidelines for Fresh and Marine Water Quality. The 95% species protection level (for freshwater and interim marine) has been applied for slightly to moderately disturbed systems. *All groundwater and surface water results were compared to these criteria.*
	PFOA	220 µg/L	

4.3 Data Quality Objectives and Data Validation

The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2022). Data validation assessment is provided in **Appendix D**.

Data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported analytical results are representative of the sample locations and that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report.

Following the reporting of first-time detections of PFAS at MW117 and MW123, the primary laboratory was requested to repeat the analysis to confirm the reported concentrations, which were confirmed.

All data collected during this event has been reviewed and uploaded to the Defence ESdat database in accordance with Defence Contamination Management Manual (DCMM) requirements.

5.0 Field Observations and Results

5.1 General Observations

The weather conditions and general observations (including activities that may impact the monitoring program) recorded during the September 2022 biannual sampling event completed between 5 and 7 September 2022 are summarised in **Table 6** below.

Table 6 General Field Observations

Items	Observations
Weather Conditions	During the sampling event, the weather was observed to be mild, with maximum daily temperatures between 16.7˚C (6 September) and 19.5˚C (7 September). Rainfall was recorded on 5 September 2022 (1.6 mm) and 6 September 2022 (0.2 mm) at Holsworthy Army Barracks (Holsworthy Defence AWS, 068263) (Bureau of Meteorology, 2022).
Estate Management Works, Training Activities and/or Construction Works	Defence Training activities were observed at various times during the September 2022 sampling event. Check-ins at the Range Control office were arranged prior to commencing sampling, to ensure sampling was not conducted in areas with active training exercises for the day. No estate management works or construction works were observed during the sampling event, which would cause impact to sampling or sampling data.

5.2 Field Observations and Measurements

The observations and measurements recorded during the field activities for the September 2022 biannual sampling event are summarised in **Table 7**, below.

Table 7 Field Observations and Measurements

Item	Description
Monitoring Well Network Condition	All wells sampled were observed to be in good condition with the exception of the following: • MW005 and MW301 had no J-cap installed MW002, MW005 and MW301 have no monuments, leaving the casing exposed. The casing for MW005 was found to be slightly bent above ground level.
Water Contamination Observations	No visible indications of contamination were observed in groundwater and surface water during the sampling. An organic like odour was noted at one groundwater location (MW136). No other odours were observed.

Item	Description
Depth to Groundwater and Flow Direction	Depth to groundwater ranged from 1.021 (MW129) and 14.048 (MW117) metres below top of casing (mbTOC). Groundwater elevation ranged between 1.3556 (MW005) and 27.906 (MW323) metres Australian Height Datum (mAHD). Groundwater gauging data is presented in **Table T1** in **Appendix B**. Inferred groundwater contours and groundwater flow direction based on the current data are shown on **Figure F4** in **Appendix A**. The inferred local groundwater flow direction was predominantly to the northeast across the majority of the Site with flow to the northwest (towards Georges River) at the western boundary in the vicinity of the Former 85 Transport Area. Groundwater in the vicinity of the Liverpool Fire Station was generally flat with a slight trend down towards the east and north-east, which is generally consistent with the inferred groundwater flow direction described in the Detailed Site Investigation (CH2M Hill, 2018). It is noted that gauging data from five wells (MW112P, MW119P, MW133, MW134 and MW136) in the vicinity of the Fire Station were excluded from the groundwater elevation plan in **Figure F4** in **Appendix A** due to the wells being screened across discontinuous perched water.
Geochemical Parameters	Groundwater and surface water geochemical parameters were measured during the collection of water samples. The readings are presented in **Table T2** and **Table T3** in **Appendix B** and are summarised below: **Groundwater Geochemical Parameters** • Dissolved oxygen ranged from 0.62 mg/L (MW301) to 4.89 mg/L (MW119) indicating poor to well oxygenated conditions. • Electrical conductivity ranged from 192.7 µS/cm (MW113) to 8,155 µS/cm (MW323) indicating fresh water to brackish conditions. • pH ranged from 4.26 (MW130) to 7.11 (MW119) indicating acidic to neutral conditions. • Redox ranged from -40 mV (MW005) to 237.7 mV (MW330) indicating reducing to oxidising conditions. • **Surface Water Geochemical Parameters** • Dissolved oxygen ranged from 0.0 mg/L (SW105) to 7.54 mg/L (SW062) indicating poor to well oxygenated conditions. • Electrical conductivity ranged from 130.6 µS/cm (SW104) to 1,446 µS/cm (SW012) indicating fresh water conditions. • pH ranged from 5.95 (SW009) to 7.33 (SW001) indicating slightly acidic to neutral conditions. Redox ranged from 60.5 mV (SW009) to 219.6 mV (SW103) indicating reducing to oxidising conditions.

5.3 Summary of Analytical Results

5.3.1 Groundwater Analytical Results

The PFAS groundwater analytical results from this sampling event are presented in **Table T4** in **Appendix B**. In summary, 24 primary groundwater samples were analysed for PFAS compounds, with concentrations of:

- PFOS+PFHxS, PFOS and/or PFOA reported above laboratory LOR in 19 primary samples
- PFOS+PFHxS and/or PFOA exceeded the adopted human health screening criteria in 15 primary samples
- PFOS and/or PFOA exceeded the adopted ecological screening criteria in 10 primary samples.

Deviations from the historical dataset are reported in **Table 8** and graphically on **Figure F5** in **Appendix A**.

Table 8 Deviations from Historical Dataset: Groundwater

Deviation Type	Groundwater sampling location	Sum of PFOS+PFHxS (µg/L)		PFOA (µg/L)		PFOS (µg/L)	
		Sep 2022	Previous maximum	Sep 2022	Previous maximum	Sep 2022	Previous maximum
First-time detections of PFOS+PFHxS PFOS and/or PFOA in groundwater	MW117	There were no first-time detections in the dataset.		0.04	<LOR	There were no first-time detections in the dataset.	
	MW123	0.02	<LOR	There was no first-time detection in the dataset.		0.02	<LOR
New exceedance of the NEMP (HEPA, 2020) drinking water guidelines in groundwater	-	There were no new exceedances of the NEMP Human Health Screening Criteria in the dataset.		There were no new exceedances of the NEMP Human Health Screening Criteria in the dataset.		There are no applicable NEMP Human Health Screening Criteria.	
New exceedance of the NEMP (HEPA, 2020) Freshwater 99% guidelines in groundwater	-	There are no applicable NEMP Ecological Screening Criteria.		There were no new exceedances of the NEMP Ecological Screening Criteria in the dataset.		There were no new exceedances of the NEMP Ecological Screening Criteria in the dataset.	
Legend							
Blue Shading	Blue shading indicates sampling location with first-time detection of PFOS+PFHxS, PFOS and/or PFOA						
Yellow Shading	Yellow shading indicates sampling location with new exceedance of NEMP Human Health and/or Ecological Screening Criteria						

5.3.2 Surface Water Analytical Results

The PFAS surface water analytical results from this sampling event are presented in **Table T5** in **Appendix B**. In summary, 16 primary surface water samples were analysed for PFAS compounds, with concentrations of:

- PFOS+PFHxS, PFOS and/or PFOA reported above laboratory LOR in 16 primary samples
- PFOS+PFHxS and/or PFOA did not exceed the adopted human health screening criteria in any primary samples
- PFOS and/or PFOA exceeded the adopted ecological screening criteria in 2 primary samples.

There were no first-time detections, or new exceedances of the adopted human health or ecological screening criteria for PFOS+PFHxS, PFOS and/or PFOA, in the surface water samples analysed.

5.4 Historical Sampling Data

Historical groundwater and surface water sampling data are presented in **Tables T6** and **T7** (respectively) in **Appendix B**.

6.0 Summary and Next Sampling Events

6.1 Summary of Monitoring Event

The September 2022 biannual sampling event was completed between 5 and 7 September 2022.

The findings and the recommended actions are summarised in **Table 9** below.

Table 9 Summary of Sampling Event

Item	Comment	Recommended Action
Access to sampling locations	The following were accessed and able to be sampled: • 24 groundwater locations • 16 surface water locations.	Nil
Location unable to be located, inaccessible or dry	Surface water location SW030 was not accessible and could not be sampled, due to active military dog training exercise taking place in the area, over the period of the sampling event.	AECOM will continue to monitor this sampling location during next scheduled biannual sampling event (March 2023).
Monitoring well network condition	All monitoring wells were noted to be in good condition, with the exception of the following: • 3 wells with no monument • 2 wells with no J-cap installed. Monitoring well MW005 was noted to have damaged casing, slightly bent to one side.	AECOM will attempt to replace J-caps that were missing during the next scheduled sampling event. AECOM also recommends installing monuments at the 3 monitoring wells that have exposed casings (MW002, MW005 and MW301) to ensure integrity of the well network, during the next scheduled sampling event.
Analytical Results	24 groundwater primary samples and 16 surface water primary samples were analysed.	Locations will be sampled again during the next scheduled sampling events to continue to monitor concentrations over time.
First-time detections of PFOS+PFHxS, PFOS and/or PFOA	2 monitoring wells out of the 24 sampled (MW117 and MW123) reported first-time detections of PFOS+PFHxS, PFOS and/or PFOA. No surface water locations sampled reported first-time detections of PFOS+PFHxS, PFOA and/or PFOS.	Locations will be sampled again during the next scheduled sampling events to continue to monitor concentrations over time.

Item	Comment	Recommended Action
New exceedance of adopted human health screening criteria	No monitoring wells or surface water locations reported new exceedances of the adopted human health screening criteria for PFOS+PFHxS and/or PFOA.	Locations will be sampled again during the next scheduled sampling events to continue to monitor concentrations over time.
New exceedance of adopted ecological screening criteria	No monitoring wells or surface water locations reported new exceedances of the adopted ecological screening criteria for PFOS and/or PFOA.	Locations will be sampled again during the next scheduled sampling events to continue to monitor concentrations over time.

6.2 Upcoming Sampling Events

The next OMP sampling event is scheduled for December 2022.

6.3 Upcoming Annual Interpretive Report

The next annual interpretive report is scheduled to be delivered in Q4 2022.

7.0 References

AECOM, 2022. *Holsworthy Barracks - Sampling and Analysis Quality Plan, PFAS OMP*. Revision H, 23 August 2022.

Australian and New Zealand Guidelines, 2018. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.*

CH2M Hill, 2018. *Holsworthy Barracks - PFAS Investigations - Detailed Site Investigation.* Revision 2.0, November 2018.

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Department of Defence, 2020a. *Ongoing Monitoring Plan - Holsworthy Barracks*. April 2020

Department of Defence, 2020b. *PFAS Management Area Plan - Holsworthy Barracks.* July 2020

Department of Defence, 2021. *PFAS OMP Factual Report Guidance (Version 0.2)*. May 2021.

Department of Health, 2017. *Health Based Guidance Values for PFAS for use in site investigations in Australia*. April 2017.

FSANZ, 2017. *Supporting Document 1: Hazard assessment report – Perfluorooctane Sulfonate (PFOS), Perfluorooctanoic Acid (PFOA), Perfluorohexane Sulfonate (PFHxS).*

Heads of EPAs Australia and New Zealand (HEPA) 2020. *PFAS National Environmental Management Plan 2.0*. January 2020.

National Health and Medical Research Council (NHMRC), 2011. *Australian Drinking Water Guidelines 6, 2011. Version 3.7 Updated January 2022*. January 2022.

National Health and Medical Research Council (NHMRC), 2019. *Guidance on PFAS in Recreational Water.* August 2019.

National Environment Protection Council (NEPC), 2013. *Schedule B1. National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) Schedule B1 Guideline on Investigation Levels For Soil and Groundwater.*

NEPC, 2013. *Schedule B2. National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) Schedule B2 Guideline on Site Characterisation*.

NEPC, 2013. *Schedule B4. National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) Schedule B4 Guideline on Site-Specific Health Risk Assessment Methodology*.

NEPC, 2013. *Schedule B7. National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) Schedule B7 Guideline on Derivation of Health-Based Investigation Levels*.

Standards Australia (AS 4482.1-2005) *Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds*

Standards Australia 1998. AS/NZ 5667:1998 *Water quality – sampling.*

Appendix A

Figures

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N 0 450 900 m

Legend

- Site Boundary
- Primary Source Area
- Study Area

FIGURE F1:
STUDY AREA

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

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N

0 230 460 m

Legend

- Site Boundary
- Primary Source Area
- Groundwater Location (sampled)

Due to privacy considerations, locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136 cannot be shown

FIGURE F2: GROUNDWATER SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

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N

0 380 760 m

Legend

- Site Boundary
- Primary Source Area
- Surface Water Location (sampled)
- Surface Water Location (not sampled)

FIGURE F3:
SURFACE WATER SAMPLING LOCATIONS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

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N

0 230 460 m

Legend

- 10m Contour
- Groundwater Contour (September 2022)
- Inferred Groundwater Flow Direction
- Groundwater Monitoring Well
- 27.906 Groundwater Elevation (mAHD)

Due to privacy considerations, locations MW119, MW119P, MW129, MW130, MW131, MW133, MW134, MW136 cannot be shown

(*) Groundwater elevation data excluded from contouring

FIGURE F4: GROUNDWATER ELEVATION

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

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N

0 240 480 m

Legend

- Site Boundary
- Primary Source Area
- First time detection of PFOS+PFHxS and/or PFOA
- Sampled, no new detection or exceedance

Due to privacy considerations locations MW119, MW119P MW129, MW130, MW131 MW133, MW134, MW136 cannot be shown

FIGURE F5: GROUNDWATER ANALYTICAL RESULTS

PROJECT NAME:
PFAS OMP
REPORT NAME:
Sampling Event Factual Report
September 2022
Holsworthy Barracks (0382)
CLIENT NAME:
Department of Defence
PROJECT NUMBER:
60612562

Source:
Department of Finance, Services and Innovation, 2020
© Department of Customer Service 2020

Appendix B

Tables

Table T1 - Groundwater Gauging and Observations

Location Code	Alternative Name	Top of Casing (mAHD)	Top Screen (mbTOC)	Bottom Screen (mbTOC)	HydraSleeve Collar Depth (mbTOC)	Visit / Gauging Date Time	Water Depth (mbTOC)	Water Elevation (mAHD)	Depth to Base of Well (mbTOC)	Visit / Gauging Comment
MW002	MW02	3.530	Unknown	Unknown	3.20	06/09/2022 11:50	1.331	2.199	3.75	Good condition. No monument.
MW005	MW05	3.157	Unknown	Unknown	3.00	06/09/2022 11:30	1.801	1.356	3.99	No monument, J-cap or Hydrasleeve. Casing on angle, possibly pushed over during floods.
MW112	BH112	13.420	10.3	13.3	12.30	05/09/2022 11:56	4.088	9.332	13.31	Good condition.
MW112P	BH112_P	13.430	2	5	4.50	05/09/2022 12:20	1.821	11.609	5.1	Good condition.
MW113	BH113	13.460	10.9	14.9	14.00	05/09/2022 10:16	4.318	9.142	14.93	Good condition.
MW115	BH115	14.080	10.1	13.1	12.20	05/09/2022 10:00	4.637	9.443	13.34	Good condition.
MW117	BH117	18.130	13	17.5	16.80	07/09/2022 11:31	14.048	4.082	18.58	Good condition.
MW119	BH119	11.010	8	11	10.30	05/09/2022 14:19	2.274	8.736	11.21	Good condition. Well base sedimented.
MW119P	BH119_P, MW119S	11.120	2	5	4.15	05/09/2022 14:40	2.147	8.973	4.62	Good condition.
MW120	BH120	17.270	11.5	14.5	14.00	06/09/2022 14:18	2.477	14.793	15.2	Good condition.
MW121	BH121	16.470	15.3	18.3	16.10	06/09/2022 13:52	3.98	12.490	17.24	Good condition. Well base sedimented.
MW122	BH122	18.540	11.5	14.5	13.00	06/09/2022 15:25	6.999	11.541	15.42	Good condition.
MW123	BH123	7.070	2	6	5.50	06/09/2022 13:10	1.184	5.886	6.81	Good condition.
MW124	BH124	6.390	2	5	4.30	07/09/2022 10:29	3.506	2.884	5.83	Good condition. Ants nest present.
MW129		9.526	5	8	6.70	05/09/2022 13:50	1.021	8.505	7.7	Good condition.
MW130		12.986	6	9	7.70	05/09/2022 10:30	4.084	8.902	8.7	Good condition. Well base sedimented.
MW131		12.179	7	10	9.10	05/09/2022 11:10	3.455	8.724	10.02	Good condition.
MW133	MW133P	13.350	2	4	3.50	05/09/2022 10:46	2.809	10.541	4.88	Good condition.
MW134		13.210	1.9	3.9	3.40	05/09/2022 11:39	3.464	9.746	4.67	Good condition.
MW136	MW136P	11.860	2.25	4.25	3.75	05/09/2022 11:27	2.734	9.126	4.95	Good condition.
MW301	MW1	3.383	Unknown	Unknown	4.00	06/09/2022 10:01	1.151	2.232	4.56	No monument or J-cap. Well base sedimented.
MW323	BH345	36.380	Unknown	Unknown	14.00	07/09/2022 10:53	8.474	27.906	15.05	Good condition.
MW330	BH365	29.530	Unknown	Unknown	8.50	05/09/2022 15:57	5.624	23.906	9.95	Good condition.
MW349	BH612	18.420	3.9	8.2	6.70	06/09/2022 16:42	3.601	14.819	7.67	Good condition. Well base sedimented.

Notes

mbTOC	meters below Top of Casing
mAHD	meters Australian Height Datum

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Table T2 - Groundwater Geochemical Parameters and Observations

				Field Measurements					
Location Code	Alternative Name	Sampled Date Time	Sample Comment	Dissolved Oxygen	Temperature	Electrical Conductivity	pH	Redox Potential Er	Redox Potential Eh (Corrected)
				mg/L	°C	µS/cm	pH_Units	mV	mV
MW002	MW02	06/09/2022 11:54	Brown/orange, high turbidity, no odour, no sheen. Suspended solids. Sampled during outgoing tide.	1.36	14.6	272.0	6.08	-19.9	185.9
MW005	MW05	06/09/2022 11:30	Clear, no turbidity, no odour, no sheen. Sampled with bailer. Sampled during outgoing tide.	2.13	14.5	2378.0	6.09	-40.0	165.8
MW112	BH112	05/09/2022 12:11	Clear, no turbidity, no odour, no sheen.	4.02	24.2	1194.0	6.26	141.0	346.8
MW112P	BH112_P	05/09/2022 12:21	Clear, no turbidity, no odour, no sheen.	2.48	17.7	237.9	4.98	177.3	383.1
MW113	BH113	05/09/2022 10:16	Ligh yellow, low turbidity, no odour, no sheen.	1.61	19.6	192.7	5.36	151.9	357.7
MW115	BH115	05/09/2022 10:01	Clear, no turbidity, no odour, no sheen.	2.36	19.6	383.8	5.11	132.4	338.2
MW117	BH117	07/09/2022 11:32	Clear, no turbidity, no odour, no sheen.	1.42	18.0	634.0	5.26	182.5	388.3
MW119	BH119	05/09/2022 14:23	Clear, no turbidity, no odour, no sheen.	4.89	18.6	552.0	7.11	167.1	372.9
MW119P	BH119_P, MW119S	05/09/2022 14:42	Clear, no turbidity, no odour, no sheen.	3.62	16.7	611.0	4.46	230.3	436.1
MW120	BH120	06/09/2022 14:22	Clear, low turbidity, no odour, no sheen.	2.18	17.7	6089.0	6.49	-8.8	197.0
MW121	BH121	06/09/2022 14:01	Clear, low turbidity, no odour, no sheen.	2.92	17.7	817.0	6.42	125.4	331.2
MW122	BH122	06/09/2022 15:28	Clear, no turbidity, no odour, no sheen.	4.26	17.4	375.1	5.58	175.0	380.8
MW123	BH123	06/09/2022 13:13	Light brown, low turbidity, no odour, no sheen.	1.22	14.5	7960.0	6.08	139.5	345.3
MW124	BH124	07/09/2022 10:32	Light brown, low turbidity, no odour, no sheen.	1.43	16.2	4714.0	5.62	136.3	342.1
MW129		05/09/2022 13:54	Light brown, low turbidity, no odour, no sheen. Dark orange staining on Hydrasleeve.	2.94	16.8	1685.0	5.56	180.5	386.3
MW130		05/09/2022 10:36	Light brown, medium turbidity, no odour, no sheen.	1.98	19.2	917.0	4.26	180.0	385.8
MW131		05/09/2022 11:14	Clear, no turbidity, no odour, no sheen.	3.21	19.4	599.0	6.38	144.5	350.3
MW133	MW133P	05/09/2022 10:51	Clear, no turbidity, no odour, no sheen.	2.86	19.9	213.8	4.99	207.5	413.3
MW134		05/09/2022 11:41	Light brown, high turbidity, no odour, no sheen.	1.69	19.3	489.2	5.80	109.4	315.2
MW136	MW136P	05/09/2022 11:27	Dark grey, high turbidity, organic odour, no sheen.	0.78	19.0	596.0	6.07	-35.0	170.8
MW301	MW1	06/09/2022 10:01	Brown/orange, high turbidity, no odour, no sheen. Orange staining on Hydrasleeve. Sampled during outgoing tide.	0.62	14.7	1282.0	6.14	47.9	253.7
MW323	BH345	07/09/2022 10:56	Clear, no turbidity, no odour, no sheen.	2.40	18.7	8155.0	6.35	-4.0	201.8
MW330	BH365	05/09/2022 15:58	Light brown, low turbidity, no odour, no sheen.	3.85	19.0	461.3	4.82	237.7	443.5
MW349	BH612	06/09/2022 16:44	Clear, low turbidity, no odour, no sheen.	2.71	16.1	1907.0	5.41	74.5	280.3

Notes

mg/L	milligrams per Litre
°C	degrees Celsius
µS/cm	microSiemens per centimetre
mV	milliVolts

Corrected field Redox measurement Eh = Er + 205.8

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Table T3 - Surface Water Geochemical Parameters and Observations

				Field Measurements					
				Dissolved Oxygen	Temperature	Electrical Conductivity	pH	Redox Potential Er	Redox Potential Eh (Corrected)
Location Code	**Sampled Date Time**	**Location Comments**	**Sample Comment**	mg/L	°C	µS/cm	pH_Units	mV	mV
SW001	05/09/2022 14:06	Small drainage channel surrounded by reeds. Water body width (approx.): 1 m, water body depth (approx.): 0.05 m. Water flow not observed.	Brown/orange, high turbidity, no odour, biosheen. Unable to mesure NTU. Suspended orange solids.	5.55	14.6	178.7	7.33	148.3	354.1
SW009	07/09/2022 09:37	Creek with trees, shrubs and grasses on banks. Water body width (approx.): 12 m, unknown depth. Water flow not observed.	Clear, no turbidity, no odour, no sheen.	6.62	13.4	199.5	5.95	60.5	266.3
SW011	06/09/2022 10:14	Large creek with trees and shrubs on banks. Water body width (approx.): 20 m, unknown depth. Water flow observed.	Light brown, low turbidity, no odour, no sheen. Sampled during outgoing tide.	6.74	15.3	1105.0	6.55	71.2	277.0
SW012	06/09/2022 11:16	Large creek with trees, shrubs and grasses on banks. Water body width (approx.): 20 m, unknown depth. Water flow observed.	Light brown, no turbidity, no odour, no sheen. Sampled during outgoing tide.	6.31	15.2	1446.0	6.56	114.2	320.0
SW014	07/09/2022 09:05	Large creek with trees, shrubs and grasses on banks. Water body width (approx.): 30 m, unknown depth. Water flow observed.	Light brown, low turbidity, no odour, no sheen. Sampled with sampling pole. Water quality parameters unable to be collected, unstable banks. Sampled during outgoing tide.	-	-	-	-	-	-
SW015	07/09/2022 10:03	Small drainage channel with grasses, shrubs and trees on banks. Water body width (approx.): 1.5 m, water body depth (approx.): 0.4 m. Water flow observed.	Light brown, no turbidity, no odour, no sheen.	6.10	14.2	159.1	6.17	86.3	292.1
SW017	06/09/2022 10:49	Small creek with trees and shrubs on banks. Water body width (approx.): 4 m, water body depth (approx.): 0.5 m. Water flow observed.	Clear, no turbidity, no odour, no sheen.	6.42	14.9	252.6	6.16	97.8	303.6
SW025	05/09/2022 15:08	River with shrubs and reeds on banks. Water body width (approx.): 20 m, water body depth (approx.): 2 m deep. Water flow observed.	Clear, low turbidity, no odour, no sheen.	7.31	16.0	270.0	7.10	204.5	410.3
SW030	n/a	Unable to access sampling location. Active military dog training exercise in area.	n/a	-	-	-	-	-	-
SW038	07/09/2022 13:28	Small creek surrounded by shrubs and trees. Water body width (approx.): 1 m, water body depth (approx.): 0.2 m. Water flow observed.	Clear, no turbidity, no odour, biosheen.	5.85	16.8	257.4	6.94	65.2	271.0
SW059	05/09/2022 13:40	Small channel with grasses and trees on banks. Water body width (approx.): 1 m, water body depth (approx.): 0.2 m. Water flow observed.	Clear, no turbidity, no odour, no sheen.	5.64	17.3	199.7	6.57	169.4	375.2
SW062	05/09/2022 15:27	Rives with trees on banks. Water body width (approx.): 30m, water body depth (approx.): 2 m. Water flow observed.	Clear, low turbidity, no odour, no sheen.	7.54	15.7	246.8	7.26	179.7	385.5
SW063	07/09/2022 11:43	River with trees, shrubs and grasses on banks. Water body width (approx.): 40 m, unknown depth. Water flow observed.	Light brown, low turbidity, no odour, no sheen.	6.62	15.2	328.1	7.03	146.4	352.2
SW103	05/09/2022 16:06	Small drainage grate, concrete with grasses in surrounding area . Width (approx.): 0.5 m wide, length (approx.): 4 m. Water flow not observed.	Green, low turbidity, no odour, no sheen.	3.30	14.7	209.6	6.95	219.6	425.4
SW104	05/09/2022 16:13	Drainage grate, concrete with grasses and trees in surrounding area. Width (approx.): 0.5 m wide, length (approx.): 4 m. Water flow not observed.	Green, low turbidity, no odour, no sheen.	0.11	13.5	130.6	6.79	204.0	409.8
SW105	05/09/2022 16:20	Drainage grate, concrete with grasses and trees in surrounding area. Width (approx.): 0.5 m wide, length (approx.): 2 m. Water flow not observed.	Green, low turbidity, no odour, no sheen.	0.00	13.8	146.2	6.90	189.4	395.2
SW111	05/09/2022 14:35	Creek with grasses and trees on banks. Water body width (approx.): 4 m, water body depth (approx.): 0.3 m. Water flow not observed.	Clear, no turbidity, no odour, no sheen.	6.20	17.5	187.5	6.95	146.8	352.6

Notes

mg/L	milligrams per Litre
°C	degrees Celsius
µS/cm	microSiemens per centimetre
mV	milliVolts
Corrected field Redox measurement Eh = Er + 205.8	
-	Not measured
n/a	Not applicable

Table T4
Groundwater Analytical Results

AECOM

						Per- and Poly-fluoroalkyl Substances																												
						Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	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)	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 (MFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum of PFAS
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.05	0.02	0.05	0.02	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01
PFAS NEMP 2020 Drinking Water						**0.56**			**0.07**																									
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																											
Location Code	**Sampled Date**	**Field ID**	**Sample Type**	**Lab Report #**																														
MW002	6/09/2022	0382_MW002_220906	Normal	ES2232110		0.17	0.07	0.04	**0.11**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	0.04	0.05	<0.02	<0.02	<0.02	0.05	<0.05	<0.02	<0.02	0.42
MW005	6/09/2022	0382_MW005_220906	Normal	ES2232110		0.02	0.11	0.05	**0.16**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.18
MW112	5/09/2022	0382_MW112_220905	Normal	ES2232110		**1.56**	*22*	32.4	**54.4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	2.02	0.4	<0.02	<0.02	<0.02	4.1	0.65	3.61	<0.02	<0.02	4	0.72	<0.05	<0.02	<0.02	71.5
MW112P	5/09/2022	0382_MW112P_220905	Normal	ES2232110		0.25	*24.3*	4.36	**28.7**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.16	0.2	<0.02	<0.02	<0.02	0.31	0.08	1.04	<0.02	<0.02	0.3	0.26	<0.05	<0.02	<0.02	31.3
MW113	5/09/2022	0382_MW113_220905	Normal	ES2232110		**14.2**	*336*	184	**520**	<0.05	<0.05	7.76	<0.05	<0.12[#1]	<0.05[#1]	<0.12[#1]	<0.12[#1]	<0.05[#1]	<0.12[#1]	21.7	4.2	0.17	<0.05[#1]	<0.05[#1]	21	6.24	34.1	0.42	<0.05[#1]	40.9	12.3	<0.12[#1]	<0.05[#1]	<0.05[#1]	683
MW113	5/09/2022	0382_QC200_2209	Interlab_D	305110		**13**	*260*	180	**440**	<0.02	<0.01	7.6	0.03	<0.1	<0.02	<0.5	<0.05	<0.02	<0.05	24	4.5	0.06	0.03	<0.05	13	6.8	36	0.29	<0.1	24	9.9	<0.5	<0.1	<0.02	580
MW115	5/09/2022	0382_MW115_220905	Normal	ES2232110		**12.7**	*341*	190	**531**	<0.05	<0.05	0.75	<0.05	<0.12[#1]	<0.05[#1]	<0.12[#1]	<0.12[#1]	<0.05[#1]	<0.12[#1]	14.2	3.2	<0.05[#1]	<0.05[#1]	<0.05[#1]	20.9	4.79	24.7	0.13	<0.05[#1]	32.1	5.46	<0.12[#1]	<0.05[#1]	<0.05[#1]	650
MW115	5/09/2022	0382_QC100_220905	Field_D	ES2232110		**12.4**	*336*	194	**530**	<0.05	<0.05	0.66	<0.05	<0.12[#1]	<0.05[#1]	<0.12[#1]	<0.12[#1]	<0.05[#1]	<0.12[#1]	15.1	3.1	<0.05[#1]	<0.05[#1]	<0.05[#1]	14.5	5.02	28.1	0.14	<0.05[#1]	26.6	5.72	<0.12[#1]	<0.05[#1]	<0.05[#1]	641
MW117	7/09/2022	0382_MW117_220907	Normal	ES2232110		0.04	*1.47*	0.48	**1.95**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	0.11	<0.02	0.03	<0.02	<0.02	0.03	<0.02	<0.05	<0.02	<0.02	2.16
MW119	5/09/2022	0382_MW119_220905	Normal	ES2232110		0.37	*21.3*	4.62	**25.9**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.49	0.9	<0.02	<0.02	<0.02	0.32	0.19	2	<0.02	<0.02	0.67	0.89	<0.05	<0.02	<0.02	31.8
MW119P	5/09/2022	0382_MW119P_220905	Normal	ES2232110		**14.6**	*191*	247	**438**	<0.05	<0.05	0.24	<0.05	<0.12[#1]	<0.05[#1]	<0.12[#1]	<0.12[#1]	<0.05[#1]	<0.12[#1]	13.7	1.1	<0.05[#1]	<0.05[#1]	<0.05[#1]	31.5	4.72	19	0.06	<0.05[#1]	36	2.68	<0.12[#1]	<0.05[#1]	<0.05[#1]	562
MW120	6/09/2022	0382_MW120_220906	Normal	ES2232110		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01
MW121	6/09/2022	0382_MW121_220906	Normal	ES2232110		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01
MW122	6/09/2022	0382_MW122_220906	Normal	ES2232110		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01
MW123	6/09/2022	0382_MW123_220906	Normal	ES2232110		<0.01	0.02	<0.01	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02
MW124	7/09/2022	0382_MW124_220907	Normal	ES2232110		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01
MW129	5/09/2022	0382_MW129_220905	Normal	ES2232110		<0.01	0.03	<0.01	0.03	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.13
MW130	5/09/2022	0382_MW130_220905	Normal	ES2232110		<0.01	0.02	0.04	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.06
MW130	5/09/2022	0382_QC101_220905	Field_D	ES2232110		<0.01	0.02	0.01	0.03	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03
MW131	5/09/2022	0382_MW131_220905	Normal	ES2232110		<0.01	0.05	0.02	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.07
MW131	5/09/2022	0382_QC201_2209	Interlab_D	305110		<0.01	0.03	0.01	0.05	<0.02	<0.01	<0.01	<0.02	<0.1	<0.02	<0.5	<0.05	<0.02	<0.05	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.02	<0.5	<0.1	<0.02	0.05
MW133	5/09/2022	0382_MW133_220905	Normal	ES2232110		**3.39**	*530*	31.3	**561**	<0.05	<0.05	<0.05	<0.05	<0.12[#1]	<0.05[#1]	<0.12[#1]	<0.12[#1]	<0.05[#1]	<0.12[#1]	1.32	1.2	<0.05[#1]	<0.05[#1]	<0.05[#1]	10.7	0.5	5.94	<0.05[#1]	<0.05[#1]	2.71	1.4	<0.12[#1]	<0.05[#1]	<0.05[#1]	588
MW134	5/09/2022	0382_MW134_220905	Normal	ES2232110		0.02	*0.36*	0.95	**1.31**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.22	0.3	<0.02	<0.02	<0.02	<0.02	<0.02	0.55	<0.02	<0.02	0.23	0.29	<0.05	<0.02	<0.02	2.92
MW136	5/09/2022	0382_MW136_220905	Normal	ES2232110		0.01	0.08	0.32	**0.4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	<0.02	<0.02	0.08	<0.02	<0.05	<0.02	<0.02	0.63
MW301	6/09/2022	0382_MW301_220906	Normal	ES2232110		<0.01	0.03	0.09	**0.12**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.12
MW323	7/09/2022	0382_MW323_220907	Normal	ES2232110		<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01
MW330	5/09/2022	0382_MW330_220905	Normal	ES2232110		**3.24**	*10.3*	26.8	**37.1**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.71	0.5	<0.02	<0.02	<0.02	2.74	0.64	7.3	<0.02	<0.02	3.13	1.1	<0.05	<0.02	<0.02	56.5
MW349	6/09/2022	0382_MW349_220906	Normal	ES2232110		<0.01	0.05	0.31	**0.36**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	0.07	<0.02	<0.05	<0.02	<0.02	0.52

Notes:

LOR	Limit of Reporting
Normal	Primary Sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
	Denotes first time detection above LOR
	Denotes first time exceedance of human health screening criteria
	Denotes first time exceedance of ecological screening criteria
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

#1 : Reported Analyte LOR is higher than Requested Analyte LOR. LOR values have been adjusted for samples that required dilution due to the presence of high level contamination.

Table T5
Surface Water Analytical Results

AECOM

					Per- and Poly-fluoroalkyl Substances																												
					Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	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)	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 (MFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum of PFAS
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR					0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.05	0.02	0.05	0.02	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01
PFAS NEMP 2020 Freshwater 95%					*220*	*0.13*																												
PFAS NEMP 2020 Recreational Water					**10**			**2**																										
Location Code	**Sampled Date**	**Field ID**	**Sample Type**	**Lab Report #**																														
SW001	5/09/2022	0382_SW001_220905	Normal	ES2232110	0.02	*0.87*	0.15	1.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	1.15
SW009	7/09/2022	0382_SW009_220907	Normal	ES2232110	0.01	0.09	0.09	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.21
SW011	6/09/2022	0382_SW011_220906	Normal	ES2232110	<0.01	0.12	0.1	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.25
SW012	6/09/2022	0382_SW012_220906	Normal	ES2232110	<0.01	0.12	0.1	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.25
SW014	7/09/2022	0382_SW014_220907	Normal	ES2232110	<0.01	0.09	0.06	0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.15
SW015	7/09/2022	0382_SW015_220907	Normal	ES2232110	<0.01	0.03	0.03	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.06
SW017	6/09/2022	0382_SW017_220906	Normal	ES2232110	<0.01	0.04	0.04	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.08
SW025	5/09/2022	0382_SW025_220905	Normal	ES2232110	<0.01	0.02	0.01	0.03	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03
SW025	5/09/2022	0382_QC103_220905	Field_D	ES2232110	<0.01	0.03	0.04	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.07
SW038	7/09/2022	0382_SW038_220907	Normal	ES2232110	0.02	*0.44*	0.46	0.9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.02	0.06	0.03	<0.05	<0.02	<0.02	1.16
SW059	5/09/2022	0382_SW059_220905	Normal	ES2232110	0.01	0.06	0.05	0.11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.14
SW059	5/09/2022	0382_QC102_220905	Field_D	ES2232110	0.01	0.06	0.04	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.11
SW062	5/09/2022	0382_SW062_220905	Normal	ES2232110	<0.01	0.01	<0.01	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.01
SW062	5/09/2022	0382_QC203_2209	Interlab_D	305110	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.1	<0.02	<0.5	<0.05	<0.02	<0.05	<0.01	<0.02	<0.02	<0.02	<0.05	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.02	<0.5	<0.1	<0.02	<0.01
SW063	7/09/2022	0382_SW063_220907	Normal	ES2232110	<0.01	0.03	0.03	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.06
SW103	5/09/2022	0382_SW103_220905	Normal	ES2232110	<0.01	0.08	0.07	0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.15
SW104	5/09/2022	0382_SW104_220905	Normal	ES2232110	<0.01	0.08	0.04	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.12
SW105	5/09/2022	0382_SW105_220905	Normal	ES2232110	<0.01	0.09	0.04	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.13
SW111	5/09/2022	0382_SW111_220905	Normal	ES2232110	0.01	0.04	0.03	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.08
SW111	5/09/2022	0382_QC202_2209	Interlab_D	305110	0.01	0.04	0.03	0.07	<0.02	<0.01	<0.01	<0.02	<0.1	<0.02	<0.5	<0.05	<0.02	<0.05	<0.01	<0.02	<0.02	<0.02	<0.05	<0.01	<0.01	0.01	<0.01	<0.1	<0.01	<0.02	<0.5	<0.1	<0.02	0.1

Notes:

LOR	Limit of Reporting
Normal	Primary Sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
	Denotes first time detection above LOR
	Denotes first time exceedance of human health screening criteria
	Denotes first time exceedance of ecological screening criteria
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

Table T6
Historical Groundwater Analytical Results

AECOM

						PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						0.56			0.07																										
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																												
Location Code	Alt. Name	Date	Field ID	Sample Type	Project ID																														
MW002	MW02	20/02/2018	0382_MW02_180220	Normal	NSW_0382_PFAS	0.35	*0.16*	0.08	0.24	1.11	0.02	<0.01	<0.01	<0.01	0.05	0.10	0.14	0.10	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05
MW002	MW02	1/10/2020	0382_MW002_201001	Normal	NSW_0382_PFASOMP_20	0.20	0.04	0.05	0.09	0.85	0.28	<0.02	<0.02	<0.02	<0.1	0.08	0.16	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	MW02	1/10/2020	0382_QC102_201001	Field_D	NSW_0382_PFASOMP_20	0.17	0.03	0.04	0.07	0.43	<0.02	<0.02	<0.02	<0.02	<0.1	0.08	0.07	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	MW02	26/03/2021	0382_MW002_210326	Normal	NSW_0382_PFASOMP_20	0.05	0.03	0.02	0.05	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.03	<0.05	<0.05	0.03	<0.05
MW002	MW02	6/09/2021	0382_MW002_210906	Normal	NSW_0382_PFASOMP_20	0.14	0.04	0.03	0.07	0.31	<0.02	<0.02	<0.02	<0.02	<0.1	0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	MW02	21/03/2022	0382_MW002_220321	Normal	NSW_0382_PFASOMP_20	0.21	0.12	0.04	0.16	0.56	0.04	<0.02	<0.02	<0.02	<0.1	0.05	0.06	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW002	MW02	6/09/2022	0382_MW002_220906	Normal	NSW_0382_PFASOMP_20	0.17	0.07	0.04	0.11	0.42	<0.02	<0.02	<0.02	<0.02	<0.1	0.05	0.05	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW005	MW05	21/02/2018	0382_MW05_180221	Normal	NSW_0382_PFAS	0.03	0.11	0.11	0.22	0.34	0.01	0.01	<0.01	<0.01	<0.05	0.02	0.04	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW005	MW05	21/03/2022	0382_MW005_220321	Normal	NSW_0382_PFASOMP_20	0.01	0.04	0.03	0.07	0.20	0.12	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW005	MW05	6/09/2022	0382_MW005_220906	Normal	NSW_0382_PFASOMP_20	0.02	0.11	0.05	0.16	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	28/03/2018	0382_MW112_180328	Normal	NSW_0382_PFAS	4.3	*64*	58	122	162.2	6.7	12	3.3	<0.01	0.99	1.5	9.7	1.7	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW112	BH112	1/10/2020	0382_MW112_201001	Normal	NSW_0382_PFASOMP_20	4.75	*52.8*	70.4	123	167	6.32	10.3	6.01	<0.02	1.0	1.87	11.6	1.97	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	3/12/2020	0382_MW112_201203	Normal	NSW_0382_PFASOMP_20	3.03	*30.0*	42.4	72.4	100	3.86	6.31	2.92	<0.02	0.9	1.29	8.16	1.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	25/03/2021	0382_MW112_210325	Normal	NSW_0382_PFASOMP_20	3.76	*25.7*	47.4	73.1	104	5.13	6.30	2.92	<0.02	0.9	1.46	8.38	1.58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	7/06/2021	0382_MW112_210607	Normal	NSW_0382_PFASOMP_20	4.14	*37.9*	49.5	87.4	123	5.33	8.27	4.27	<0.02	0.9	1.53	9.40	1.58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	7/09/2021	0382_MW112_210907	Normal	NSW_0382_PFASOMP_20	3.12	*21.2*	44.0	65.2	93.8	4.61	6.47	3.01	<0.02	0.8	1.33	7.88	1.29	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	6/12/2021	0382_MW112_211206	Normal	NSW_0382_PFASOMP_20	2.43	*34.9*	46.8	81.7	111	5.31	5.51	3.65	<0.02	0.9	1.26	9.28	1.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	23/03/2022	0382_MW112_220323	Normal	NSW_0382_PFASOMP_20	3.25	*31.8*	48.8	80.6	109	5.01	6.00	3.21	<0.02	0.6	1.14	8.13	1.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112	BH112	15/06/2022	0382_MW112_220615	Normal	NSW_0382_PFASOMP_20	4.72	*45.6*	72.0	118	159	7.22	8.57	4.30	<0.05	1.2	1.77	11.6	2.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW112	BH112	5/09/2022	0382_MW112_220905	Normal	NSW_0382_PFASOMP_20	1.56	*22.0*	32.4	54.4	71.5	2.02	4.00	4.10	<0.02	0.4	0.72	3.61	0.65	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	28/03/2018	0382_MW112_P_180328	Normal	NSW_0382_PFAS	0.33	*50*	6.0	56	60.19	0.33	1.2	0.34	<0.01	0.16	0.30	1.4	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW112P	BH112_P, MW112_P	1/10/2020	0382_MW112_P_201001	Normal	NSW_0382_PFASOMP_20	0.40	*37.3*	8.10	45.4	49.8	0.33	0.64	0.52	<0.02	0.2	0.35	1.78	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	3/12/2020	0382_MW112_P_201203	Normal	NSW_0382_PFASOMP_20	0.22	*23.2*	4.43	27.6	30.2	0.20	0.38	0.29	<0.02	0.1	0.22	1.09	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	25/03/2021	0382_MW112_P_210325	Normal	NSW_0382_PFASOMP_20	0.25	*20.1*	4.75	24.8	27.7	0.19	0.28	0.24	<0.02	0.2	0.24	1.35	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	25/03/2021	0382_QC100_210325	Field_D	NSW_0382_PFASOMP_20	0.25	*22.5*	5.06	27.6	30.6	0.21	0.31	0.27	<0.02	0.2	0.26	1.45	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	7/06/2021	0382_MW112P_210607	Normal	NSW_0382_PFASOMP_20	0.33	*28.2*	5.56	33.8	37.0	0.24	0.40	0.36	<0.02	0.2	0.28	1.32	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	7/09/2021	0382_MW112P_210907	Normal	NSW_0382_PFASOMP_20	0.24	*19.1*	4.68	23.8	26.6	0.20	0.32	0.29	<0.02	0.2	0.23	1.26	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	6/12/2021	0382_MW112P_211206	Normal	NSW_0382_PFASOMP_20	0.19	*20.8*	3.90	24.7	27.2	0.18	0.24	0.23	<0.02	0.2	0.20	1.17	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	23/03/2022	0382_MW112P_220323	Normal	NSW_0382_PFASOMP_20	0.05	*7.08*	1.67	8.75	9.18	0.04	0.08	0.09	<0.02	<0.1	0.02	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	15/06/2022	0382_MW112P_220615	Normal	NSW_0382_PFASOMP_20	0.26	*30.6*	5.74	36.3	39.4	0.22	0.28	0.35	<0.02	0.2	0.30	1.31	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW112P	BH112_P, MW112_P	5/09/2022	0382_MW112P_220905	Normal	NSW_0382_PFASOMP_20	0.25	*24.3*	4.36	28.7	31.3	0.16	0.30	0.31	<0.02	0.2	0.26	1.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	28/03/2018	0382_MW113_180328	Normal	NSW_0382_PFAS	3.7	*46*	74	120	169.15	11	13	3.0	<0.01	1.2	2.1	13	1.9	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.24	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW113	BH113	1/10/2020	0382_MW113_201001	Normal	NSW_0382_PFASOMP_20	15.7	*194*	284	478	681	36.2	46.6	29.6	0.17	4.4	8.81	53.0	7.59	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	3/12/2020	0382_MW113_201203	Normal	NSW_0382_PFASOMP_20	11.8	*108*	162	270	413	27.3	38.9	9.70	0.05	4.2	6.48	38.0	6.05	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	3/12/2020	0382_QC100_201203	Field_D	NSW_0382_PFASOMP_20	12.4	*122*	165	287	437	29.0	40.5	10.6	0.05	4.2	6.40	39.8	6.11	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.64	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	3/12/2020	0382_QC200_201203	Interlab_D	NSW_0382_PFASOMP_20	8.2	*97*	180	-	-	22	21	6.2	<0.01	3.4	6.1	31	4.2	0.024	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	0.54	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW113	BH113	25/03/2021	0382_MW113_210325	Normal	NSW_0382_PFASOMP_20	7.56	*247*	89.0	336	417	10.4	12.5	5.91	0.54	3.7	9.56	20.8	3.77	0.56	0.06	<0.02	<0.02	<0.02	<0.05	<0.05	5.68	0.10	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	7/06/2021	0382_MW113_210607	Normal	NSW_0382_PFASOMP_20	17.8	*219*	269	488	711	38.4	51.1	26.6	0.16	4.8	10.0	63.0	9.13	0.16	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	1.70	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T6
Historical Groundwater Analytical Results

AECOM

							PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
							Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR							0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water							0.56			0.07																										
PFAS NEMP 2020 Freshwater 95%							*220*	*0.13*																												
Location Code	Alt. Name	Date	Field ID	Sample Type	Project ID																																
MW113	BH113	7/09/2021	0382_MW113_210907	Normal	NSW_0382_PFASOMP_20		10.0	*205*	252	457	650	36.0	56.4	22.7	0.07	4.9	8.76	46.4	7.12	0.10	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.83	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW113	BH113	6/12/2021	0382_MW113_211206	Normal	NSW_0382_PFASOMP_20		15.2	*183*	266	449	656	43.0	46.6	20.4	0.08	4.5	9.43	58.9	7.81	0.10	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	1.16	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW113	BH113	6/12/2021	0382_QC100_211206	Field_D	NSW_0382_PFASOMP_20		14.6	*182*	262	444	644	39.8	45.1	20.0	0.09	4.7	8.74	58.4	7.42	0.08	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	1.15	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW113	BH113	23/03/2022	0382_MW113_220323	Normal	NSW_0382_PFASOMP_20		10.6	*1240*	140	1380	1500	11.2	14.4	10.3	0.24	4.6	16.5	30.0	4.34	1.13	0.12	<0.04	<0.04	<0.04	<0.10	<0.05	17.8	0.09	<0.05	0.05	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW113	BH113	15/06/2022	0382_MW113_220615	Normal	NSW_0382_PFASOMP_20		14.9	*580*	200	780	946	20.3	27.0	17.8	0.32	5.2	16.8	38.7	6.66	1.07	0.08	<0.05	<0.05	<0.05	<0.12	<0.05	16.6	0.08	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW113	BH113	5/09/2022	0382_MW113_220905	Normal	NSW_0382_PFASOMP_20		14.2	*336*	184	520	683	21.7	40.9	21.0	0.17	4.2	12.3	34.1	6.24	0.42	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	7.76	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW113	BH113	5/09/2022	0382_QC200_2209	Interlab_D	NSW_0382_PFASOMP_20		13	*260*	180	440	580	24	24	13	0.06	4.5	9.9	36	6.8	0.29	0.03	<0.02	<0.05	<0.1	<0.5	<0.01	7.6	0.03	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW115	BH115	28/03/2018	0382_MW115_180328	Normal	NSW_0382_PFAS		13	*360*	180	540	663.1	21	30	14	<0.2	3.2	5.7	31	5.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
MW115	BH115	1/10/2020	0382_MW115_201001	Normal	NSW_0382_PFASOMP_20		16.1	*469*	218	687	850	20.1	38.4	28.2	<0.02	3.9	7.38	41.7	6.53	0.15	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.70	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	3/12/2020	0382_MW115_201203	Normal	NSW_0382_PFASOMP_20		12.0	*267*	133	400	505	16.0	20.9	13.4	<0.02	3.5	4.92	28.4	4.92	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.57	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	25/03/2021	0382_MW115_210325	Normal	NSW_0382_PFASOMP_20		9.06	*160*	113	273	356	13.0	16.2	8.63	<0.02	3.6	4.30	23.8	3.98	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.68	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	7/06/2021	0382_MW115_210607	Normal	NSW_0382_PFASOMP_20		14.4	*306*	178	484	611	17.0	28.1	17.5	<0.02	3.6	6.53	32.6	6.07	0.14	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.74	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	7/09/2021	0382_MW115_210907	Normal	NSW_0382_PFASOMP_20		8.78	*262*	162	424	538	17.5	27.6	14.9	<0.02	3.5	5.66	31.6	3.94	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.67	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW115	BH115	6/12/2021	0382_MW115_211206	Normal	NSW_0382_PFASOMP_20		10.4	*210*	133	343	445	15.9	18.2	10.8	<0.04	3.2	5.08	32.8	4.61	0.12	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.60	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW115	BH115	23/03/2022	0382_MW115_220323	Normal	NSW_0382_PFASOMP_20		11.2	*281*	160	441	562	19.4	21.9	14.8	<0.04	3.4	5.98	38.2	5.36	0.16	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.87	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW115	BH115	15/06/2022	0382_MW115_220615	Normal	NSW_0382_PFASOMP_20		15.7	*358*	203	561	701	19.4	30.4	17.7	<0.05	3.8	7.03	38.2	6.30	0.16	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.94	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW115	BH115	5/09/2022	0382_MW115_220905	Normal	NSW_0382_PFASOMP_20		12.7	*341*	190	531	650	14.2	32.1	20.9	<0.05	3.2	5.46	24.7	4.79	0.13	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.75	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW115	BH115	5/09/2022	0382_QC100_220905	Field_D	NSW_0382_PFASOMP_20		12.4	*336*	194	530	641	15.1	26.6	14.5	<0.05	3.1	5.72	28.1	5.02	0.14	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.66	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW117	BH117	1/05/2018	0382_MW117_180501	Normal	NSW_0382_PFAS		<0.01	0.06	0.02	0.08	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW117	BH117	1/05/2018	0382_QC101_180501	Field_D	NSW_0382_PFAS		<0.01	0.06	0.02	0.08	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW117	BH117	1/05/2018	0382_QC201_180501	Interlab_D	NSW_0382_PFAS		<0.01	0.04	<0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	BH117	26/03/2021	0382_MW117_210326	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	BH117	7/09/2021	0382_MW117_210907	Normal	NSW_0382_PFASOMP_20		<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	BH117	21/03/2022	0382_MW117_220321	Normal	NSW_0382_PFASOMP_20		<0.01	*0.14*	0.05	0.19	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW117	BH117	7/09/2022	0382_MW117_220907	Normal	NSW_0382_PFASOMP_20		0.04	*1.47*	0.48	1.95	2.16	<0.02	0.03	0.11	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	28/03/2018	0382_MW119_180328	Normal	NSW_0382_PFAS		0.08	*0.62*	1.9	2.52	4.26	0.42	0.58	0.03	<0.01	0.05	0.07	0.44	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119	BH119	28/03/2018	0382_QC102_180328	Field_D	NSW_0382_PFAS		0.08	*0.62*	2.2	2.82	4.51	0.43	0.49	0.04	<0.01	0.05	0.07	0.46	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119	BH119	1/10/2020	0382_MW119_201001	Normal	NSW_0382_PFASOMP_20		0.36	*18.6*	5.17	23.8	26.8	0.62	0.62	0.37	<0.02	<0.1	0.16	0.80	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	3/12/2020	0382_MW119_201203	Normal	NSW_0382_PFASOMP_20		0.10	*2.03*	1.04	3.07	3.98	0.19	0.19	0.06	<0.02	<0.1	0.06	0.27	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	25/03/2021	0382_MW119_210325	Normal	NSW_0382_PFASOMP_20		0.39	*24.0*	5.78	29.8	34.3	0.78	0.56	0.32	<0.02	0.4	0.43	1.53	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	7/06/2021	0382_MW119_210607	Normal	NSW_0382_PFASOMP_20		0.40	*8.80*	3.59	12.4	16.8	0.81	0.55	0.15	<0.02	0.4	0.47	1.53	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	7/06/2021	0382_QC100_210607	Field_D	NSW_0382_PFASOMP_20		0.40	*7.53*	3.41	10.9	15.3	0.78	0.53	0.14	<0.02	0.4	0.49	1.47	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	7/09/2021	0382_MW119_210907	Normal	NSW_0382_PFASOMP_20		0.55	*8.84*	6.17	15.0	21.6	1.12	1.08	0.31	<0.02	0.46	0.59	2.28	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	6/12/2021	0382_MW119_211206	Normal	NSW_0382_PFASOMP_20		0.39	*7.43*	5.36	12.8	18.9	1.07	0.89	0.25	<0.02	0.4	0.46	2.40	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	23/03/2022	0382_MW119_220323	Normal	NSW_0382_PFASOMP_20		0.55	*32.8*	4.60	37.4	46.7	0.84	0.53	0.35	<0.02	2.2	1.63	3.00	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	15/06/2022	0382_MW119_220615	Normal	NSW_0382_PFASOMP_20		0.63	*27.3*	6.50	33.8	42.2	0.77	0.70	0.42	<0.02	1.4	1.31	2.91	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119	BH119	5/09/2022	0382_MW119_220905	Normal	NSW_0382_PFASOMP_20		0.37	*21.3*	4.62	25.9	31.8	0.49	0.67	0.32	<0.02	0.9	0.89	2.00	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P, MW119S	28/03/2018	0382_MW119_P_180328	Normal	NSW_0382_PFAS		1.6	*30*	16	46	60.25	2.2	3.9	2.0	<0.01	0.33	0.48	3.3	0.44	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW119P	BH119_P, MW119_P, MW119S	1/10/2020	0382_MW119_P_201001	Normal	NSW_0382_PFASOMP_20		1.22	*4.32*	34.8	39.1	65.1	4.00	5.55	1.26	<0.02	0.7	1.73	10.4	1.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P, MW119S	3/12/2020	0382_MW119_P_201203	Normal	NSW_0382_PFASOMP_20		0.40	*2.65*	10.3	13.0	22.5	1.53	2.76	0.30	<0.02	0.4	0.59	3.16	0.43	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P, MW119S	25/03/2021	0382_MW119_P_210325	Normal	NSW_0382_PFASOMP_20		0.40	*1.89*	10.3	12.2	20.5	1.61	1.93	0.27	<0.02	0.3	0.51	2.95	0.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P, MW119S	7/06/2021	0382_MW119P_210607	Normal	NSW_0382_PFASOMP_20		5.40	*51.6*	114	166	277	16.3	26.0	6.42	<0.02	1.8	6.24	44.4	4.09	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.38	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW119P	BH119_P, MW119_P, MW119S	7/09/2021	0382_MW119P_210907	Normal	NSW_0382_PFASOMP_20		6.40	*69.5*	156	226	316	13.4	23.8	6.64	<0.02	1.35	4.32	29.5	4.64	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.42	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T6
Historical Groundwater Analytical Results

AECOM

							PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
							Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR							0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water							0.56			0.07																										
PFAS NEMP 2020 Freshwater 95%							*220*	*0.13*																												
Location Code	Alt. Name	Date	Field ID	Sample Type	Project ID																																
MW119P	BH119_P, MW119_P, MW119S	6/12/2021	0382_MW119P_211206	Normal	NSW_0382_PFASOMP_20		6.06	*52.5*	130	182	250	9.30	15.4	7.23	<0.04	1.0	2.60	22.6	3.18	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.44	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW119P	BH119_P, MW119_P, MW119S	23/03/2022	0382_MW119P_220323	Normal	NSW_0382_PFASOMP_20		9.02	*156*	176	332	418	13.2	18.3	14.3	<0.04	1.0	2.48	23.9	3.58	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	0.40	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW119P	BH119_P, MW119_P, MW119S	15/06/2022	0382_MW119P_220615	Normal	NSW_0382_PFASOMP_20		13.4	*200*	257	457	584	16.2	33.4	24.0	<0.05	1.6	3.54	28.8	5.28	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.32	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW119P	BH119_P, MW119_P, MW119S	5/09/2022	0382_MW119P_220905	Normal	NSW_0382_PFASOMP_20		14.6	*191*	247	438	562	13.7	36.0	31.5	<0.05	1.1	2.68	19.0	4.72	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.24	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW120	BH120	14/03/2018	0382_MW120_180314	Normal	NSW_0382_PFAS		<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW120	BH120	1/10/2020	0382_MW120_201001	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	BH120	25/03/2021	0382_MW120_210325	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	BH120	6/09/2021	0382_MW120_210906	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	BH120	21/03/2022	0382_MW120_220321	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW120	BH120	6/09/2022	0382_MW120_220906	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	14/03/2018	0382_MW121_180314	Normal	NSW_0382_PFAS		<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW121	BH121	14/03/2018	0382_QC101_180314	Field_D	NSW_0382_PFAS		<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW121	BH121	14/03/2018	0382_QC201_180314	Interlab_D	NSW_0382_PFAS		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	1/10/2020	0382_MW121_201001	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	1/10/2020	0382_QC202_201001	Interlab_D	NSW_0382_PFASOMP_20		<0.01	<0.02	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW121	BH121	25/03/2021	0382_MW121_210325	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	6/09/2021	0382_MW121_210906	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	21/03/2022	0382_MW121_220321	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW121	BH121	6/09/2022	0382_MW121_220906	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW122	BH122	14/03/2018	0382_MW122_180314	Normal	NSW_0382_PFAS		<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW122	BH122	1/10/2020	0382_MW122_201001	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW122	BH122	26/03/2021	0382_MW122_210326	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW122	BH122	6/09/2022	0382_MW122_220906	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	15/03/2018	0382_MW123_180315	Normal	NSW_0382_PFAS		<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW123	BH123	1/10/2020	0382_MW123_201001	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	24/03/2021	0382_MW123_210324	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	6/09/2021	0382_MW123_210906	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	6/09/2021	0382_QC201_210906	Interlab_D	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW123	BH123	22/03/2022	0382_MW123_220322	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	22/03/2022	0382_QC102_220322	Field_D	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW123	BH123	6/09/2022	0382_MW123_220906	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	<0.01	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	15/03/2018	0382_MW124_180315	Normal	NSW_0382_PFAS		<0.01	<0.01	0.02	0.02	<0.1	<0.01	0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW124	BH124	1/10/2020	0382_MW124_201001	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	0.02	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	24/03/2021	0382_MW124_210324	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	0.02	0.02	0.06	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	6/09/2021	0382_MW124_210906	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	6/09/2021	0382_QC200_210906	Interlab_D	NSW_0382_PFASOMP_20		<0.01	<0.01	0.01	0.01	0.05	0.03	<0.01	<0.01	<0.02	<0.02	<0.02	0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW124	BH124	22/03/2022	0382_MW124_220322	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW124	BH124	7/09/2022	0382_MW124_220907	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		17/07/2018	0382_MW129_180717	Normal	NSW_0382_PFAS		<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW129		1/10/2020	0382_MW129_201001	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	<0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		3/12/2020	0382_MW129_201203	Normal	NSW_0382_PFASOMP_20		<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		25/03/2021	0382_MW129_210325	Normal	NSW_0382_PFASOMP_20		<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		7/06/2021	0382_MW129_210607	Normal	NSW_0382_PFASOMP_20		<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		7/09/2021	0382_MW129_210907	Normal	NSW_0382_PFASOMP_20		<0.01	0.04	0.02	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		6/12/2021	0382_MW129_211206	Normal	NSW_0382_PFASOMP_20		<0.01	0.02	0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T6
Historical Groundwater Analytical Results

AECOM

						PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						0.56			0.07																											
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																													
Location Code	Alt. Name	Date	Field ID	Sample Type	Project ID																															
MW129		23/03/2022	0382_MW129_220323	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		15/06/2022	0382_MW129_220615	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW129		5/09/2022	0382_MW129_220905	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.01	0.03	0.13	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		17/07/2018	0382_MW130_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	0.02	0.02	<0.1	0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW130		1/10/2020	0382_MW130_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		3/12/2020	0382_MW130_201203	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.03	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		25/03/2021	0382_MW130_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		7/06/2021	0382_MW130_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		7/09/2021	0382_MW130_210907	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		7/09/2021	0382_QC103_210907	Field_D	NSW_0382_PFASOMP_20	<0.01	<0.01	0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		6/12/2021	0382_MW130_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.11	0.07	0.18	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		23/03/2022	0382_MW130_220323	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		15/06/2022	0382_MW130_220615	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		15/06/2022	0382_QC100_220615	Field_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		5/09/2022	0382_MW130_220905	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.04	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW130		5/09/2022	0382_QC101_220905	Field_D	NSW_0382_PFASOMP_20	<0.01	0.02	0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		17/07/2018	0382_MW131_180717	Normal	NSW_0382_PFAS	<0.01	<0.01	0.01	0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW131		1/10/2020	0382_MW131_201001	Normal	NSW_0382_PFASOMP_20	<0.01	0.08	0.03	0.11	0.11	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		3/12/2020	0382_MW131_201203	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		25/03/2021	0382_MW131_210325	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		7/06/2021	0382_MW131_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	<0.02	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		7/06/2021	0382_QC200_210607	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.078	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW131		7/09/2021	0382_MW131_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		6/12/2021	0382_MW131_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.01	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		6/12/2021	0382_QC200_211206	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.02	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW131		23/03/2022	0382_MW131_220323	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.02	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		15/06/2022	0382_MW131_220615	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	0.02	0.11	0.11	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		5/09/2022	0382_MW131_220905	Normal	NSW_0382_PFASOMP_20	<0.01	0.05	0.02	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW131		5/09/2022	0382_QC201_2209	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.03	0.01	0.05	0.05	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW133	MW133P	7/09/2021	0382_MW133_210907	Normal	NSW_0382_PFASOMP_20	0.05	*4.06*	1.58	5.64	9.19	0.41	0.12	0.07	<0.02	0.6	0.45	1.81	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW133	MW133P	6/12/2021	0382_MW133_211206	Normal	NSW_0382_PFASOMP_20	2.88	*168*	22.0	190	208	1.15	0.97	6.37	<0.04	1.0	0.92	4.82	0.36	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	<0.05	<0.05	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10
MW133	MW133P	23/03/2022	0382_MW133_220323	Normal	NSW_0382_PFASOMP_20	0.03	*2.59*	1.84	4.43	5.92	0.22	0.26	0.03	<0.02	0.1	0.29	0.53	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW133	MW133P	15/06/2022	0382_MW133_220615	Normal	NSW_0382_PFASOMP_20	4.80	*765*	42.7	808	848	2.58	3.78	12.7	<0.05	1.6	2.54	10.9	0.84	0.07	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW133	MW133P	5/09/2022	0382_MW133_220905	Normal	NSW_0382_PFASOMP_20	3.39	*530*	31.3	561	588	1.32	2.71	10.7	<0.05	1.2	1.40	5.94	0.50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12
MW134	MW134P	25/03/2021	0382_MW134P_210325	Normal	NSW_0382_PFASOMP_20	0.02	*0.41*	0.48	0.89	1.77	0.10	0.07	<0.02	0.07	0.2	0.16	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW134	MW134P	25/03/2021	0382_QC200_210325	Interlab_D	NSW_0382_PFASOMP_20	0.018	*0.35*	0.38	-	-	0.085	0.062	<0.01	<0.01	0.17	0.13	0.17	0.011	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
MW134	MW134P	7/06/2021	0382_MW134_210607	Normal	NSW_0382_PFASOMP_20	0.03	*0.44*	1.16	1.60	2.82	0.23	0.26	0.02	<0.02	0.1	0.16	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW134	MW134P	15/06/2022	0382_MW134_220615	Normal	NSW_0382_PFASOMP_20	0.02	*0.52*	1.04	1.56	3.29	0.31	0.24	<0.02	<0.02	0.3	0.28	0.56	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW134	MW134P	5/09/2022	0382_MW134_220905	Normal	NSW_0382_PFASOMP_20	0.02	*0.36*	0.95	1.31	2.92	0.22	0.23	<0.02	<0.02	0.3	0.29	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	MW136P	18/12/2020	0382_MW136_201218	Normal	NSW_0382_PFAS	<0.002	0.016	0.016	0.032	0.129	0.008	0.004	<0.002	<0.002	<0.01	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	0.082	<0.005	<0.005	<0.002	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005
MW136	MW136P	7/06/2021	0382_MW136_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.11	0.04	0.15	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	MW136P	7/09/2021	0382_MW136_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.11	0.15	0.29	0.06	0.03	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	MW136P	6/12/2021	0382_MW136_211206	Normal	NSW_0382_PFASOMP_20	<0.01	0.05	0.08	0.13	0.24	0.06	0.03	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	MW136P	23/03/2022	0382_MW136_220323	Normal	NSW_0382_PFASOMP_20	0.02	0.03	0.30	0.33	0.74	0.08	0.06	<0.02	<0.02	0.1	0.03	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	MW136P	15/06/2022	0382_MW136_220615	Normal	NSW_0382_PFASOMP_20	0.03	0.06	0.64	0.70	1.33	0.18	0.16	<0.02	<0.02	<0.1	0.05	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW136	MW136P	15/06/2022	0382_QC200_220615	Interlab_D	NSW_0382_PFASOMP_20	0.02	0.05	0.46	0.51	0.99	0.13	0.13	<0.01	<0.02	0.03	0.03	0.12	0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
MW136	MW136P	5/09/2022	0382_MW136_220905	Normal	NSW_0382_PFASOMP_20	0.01	0.08	0.32	0.40	0.63	0.07	0.08	<0.02	<0.02	<0.1	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	19/02/2018	0382_MW1_180219	Normal	NSW_0382_PFAS	0.02	0.10	0.72	0.82	0.96	0.03	0.04	<0.01	<0.01	<0.05	0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW301	MW1	1/10/2020	0382_MW301_201001	Normal	NSW_0382_PFASOMP_20	0.01	*0.16*	0.09	0.25	0.26	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T6
Historical Groundwater Analytical Results

AECOM

						PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.002	0.005	0.002	0.005	0.005	0.002	0.005
PFAS NEMP 2020 Drinking Water						0.56			0.07																										
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																												
Location Code	Alt. Name	Date	Field ID	Sample Type	Project ID																														
MW301	MW1	26/03/2021	0382_MW301_210326	Normal	NSW_0382_PFASOMP_20	0.01	0.08	0.06	0.14	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	6/09/2021	0382_MW301_210906	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.04	0.10	0.10	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	6/09/2021	0382_QC101_210906	Field_D	NSW_0382_PFASOMP_20	<0.01	0.07	0.05	0.12	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	21/03/2022	0382_MW301_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.12	0.16	0.16	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW301	MW1	6/09/2022	0382_MW301_220906	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.09	0.12	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	16/02/2018	0382_BH345_180216	Normal	NSW_0382_PFAS	<0.01	0.09	<0.01	0.09	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW323	BH345	16/02/2018	0382_QC101_180216	Field_D	NSW_0382_PFAS	<0.01	0.09	<0.01	0.09	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW323	BH345	16/02/2018	0382_QC201_180216	Interlab_D	NSW_0382_PFAS	<0.01	0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	1/10/2020	0382_MW323_201001	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	24/03/2021	0382_MW323_210324	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	6/09/2021	0382_MW323_210906	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	22/03/2022	0382_MW323_220322	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	22/03/2022	0382_QC101_220322	Field_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW323	BH345	7/09/2022	0382_MW323_220907	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW330	BH365	7/02/2018	0382_BH365_180207	Normal	NSW_0382_PFAS	0.98	0.05	44	44.05	82.22	3.4	7.7	0.49	<0.01	1.6	3.2	19	1.8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	BH365	27/02/2018	0382_BH365_180227	Normal	NSW_0382_PFAS	1.3	0.03	40	40.03	63.81	1.7	5.1	0.48	<0.01	1.1	1.9	11	1.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	BH365	27/02/2018	0382_QC101_180227	Field_D	NSW_0382_PFAS	1.3	0.03	39	39.03	62.2	1.7	4.6	0.47	<0.01	1.0	1.9	11	1.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
MW330	BH365	27/02/2018	0382_QC201_180227	Interlab_D	NSW_0382_PFAS	1.45	0.04	25.8	25.8	44.3	1.11	3.13	0.40	<0.02	<0.1	1.23	10.0	1.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
MW330	BH365	22/03/2022	0382_MW330_220322	Normal	NSW_0382_PFASOMP_20	3.90	*3.78*	57.9	61.7	103	2.62	6.27	2.20	<0.02	1.1	3.00	20.4	1.56	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
MW330	BH365	22/03/2022	0382_QC202_220322	Interlab_D	NSW_0382_PFASOMP_20	3.9	*4.2*	63	67	110	2.1	6.4	2.9	<0.02	1.5	2.6	17	1.6	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	<0.05
MW330	BH365	5/09/2022	0382_MW330_220905	Normal	NSW_0382_PFASOMP_20	3.24	*10.3*	26.8	37.1	56.5	0.71	3.13	2.74	<0.02	0.5	1.10	7.30	0.64	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
MW349	BH612	12/02/2018	0382_BH612_180212	Normal	NSW_0382_PFAS	0.01	0.1	0.2	0.3	0.41	0.02	0.03	0.02	<0.01	<0.05	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW349	BH612	1/10/2020	0382_MW349_201001	Normal	NSW_0382_PFASOMP_20	0.01	0.12	0.28	0.40	0.51	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	24/03/2021	0382_MW349_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.16	0.22	0.27	0.03	0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	6/09/2021	0382_MW349_210906	Normal	NSW_0382_PFASOMP_20	<0.01	0.10	0.23	0.33	0.42	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	22/03/2022	0382_MW349_220322	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.06	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
MW349	BH612	22/03/2022	0382_QC201_220322	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.03	0.06	0.09	0.12	0.01	0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	<0.05
MW349	BH612	6/09/2022	0382_MW349_220906	Normal	NSW_0382_PFASOMP_20	<0.01	0.05	0.31	0.36	0.52	0.06	0.07	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Notes:

LOR	Limit of Reporting
Normal	Primary Sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

Table T7
Historical Surface Water Analytical Results

AECOM

						PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																												
PFAS NEMP 2020 Recreational Water						10			2																										
Location Code	Alt. Name	Date	Field ID	Sample Type	Project ID																														
SW001		15/03/2018	0382_SW001_180315	Normal	NSW_0382_PFAS	0.86	*3.9*	6.9	10.8	18.04	0.36	1.0	0.36	0.04	0.41	0.92	2.7	0.45	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW001		25/03/2021	0382_SW001_210325	Normal	NSW_0382_PFASOMP_20	0.03	*0.65*	0.58	1.23	1.62	0.04	0.04	<0.02	<0.02	<0.1	0.09	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		7/06/2021	0382_SW001_210607	Normal	NSW_0382_PFASOMP_20	<0.01	0.13	0.06	0.19	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		7/09/2021	0382_SW001_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	0.04	0.13	0.13	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		6/12/2021	0382_SW001_211206	Normal	NSW_0382_PFASOMP_20	0.05	*0.76*	0.50	1.26	1.80	0.06	0.04	0.02	<0.02	<0.1	0.12	0.22	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		6/12/2021	0382_QC101_211206	Field_D	NSW_0382_PFASOMP_20	0.04	*0.72*	0.49	1.21	1.72	0.05	0.04	0.02	<0.02	<0.1	0.11	0.22	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		23/03/2022	0382_SW001_220323	Normal	NSW_0382_PFASOMP_20	0.02	*0.27*	0.15	0.42	0.49	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		15/06/2022	0382_SW001_220615	Normal	NSW_0382_PFASOMP_20	0.07	*2.06*	0.67	2.73	3.47	0.07	0.06	0.04	<0.02	<0.1	0.09	0.24	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW001		5/09/2022	0382_SW001_220905	Normal	NSW_0382_PFASOMP_20	0.02	*0.87*	0.15	1.02	1.15	<0.02	<0.02	<0.02	0.03	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		26/09/2017	0382_SW009_170926	Normal	NSW_0382_PFAS	<0.01	0.03	0.02	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW009		30/09/2020	0382_SW009_200930	Normal	NSW_0382_PFASOMP_20	0.01	*0.17*	0.25	0.42	0.57	0.04	0.04	<0.02	<0.02	<0.1	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		30/09/2020	0382_QC101_200930	Field_D	NSW_0382_PFASOMP_20	0.01	*0.20*	0.28	0.48	0.66	0.05	0.05	<0.02	<0.02	<0.1	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		26/03/2021	0382_SW009_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	0.12	0.21	0.25	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		6/09/2021	0382_SW009_210906	Normal	NSW_0382_PFASOMP_20	0.01	0.13	0.18	0.31	0.44	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		22/03/2022	0382_SW009_220322	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	0.07	0.16	0.16	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		22/03/2022	0382_QC103_220322	Field_D	NSW_0382_PFASOMP_20	<0.01	0.09	0.07	0.16	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW009		7/09/2022	0382_SW009_220907	Normal	NSW_0382_PFASOMP_20	0.01	0.09	0.09	0.18	0.21	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		27/09/2017	0382_SW011_170927	Normal	NSW_0382_PFAS	<0.01	0.04	0.03	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW011		30/09/2020	0382_SW011_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		26/03/2021	0382_SW011_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.08	0.08	0.16	0.20	0.04	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		8/09/2021	0382_SW011_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		21/03/2022	0382_SW011_220321	Normal	NSW_0382_PFASOMP_20	0.16	*0.24*	3.28	3.52	4.77	0.11	0.18	0.03	<0.02	<0.1	0.10	0.60	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW011		6/09/2022	0382_SW011_220906	Normal	NSW_0382_PFASOMP_20	<0.01	0.12	0.10	0.22	0.25	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012		27/09/2017	0382_SW012_170927	Normal	NSW_0382_PFAS	<0.01	0.02	0.02	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW012		30/09/2020	0382_SW012_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.04	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012		6/09/2021	0382_SW012_210906	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.04	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012		21/03/2022	0382_SW012_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.06	0.12	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW012		6/09/2022	0382_SW012_220906	Normal	NSW_0382_PFASOMP_20	<0.01	0.12	0.10	0.22	0.25	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		27/09/2017	0382_SW014_170927	Normal	NSW_0382_PFAS	<0.01	0.03	0.02	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW014		30/09/2020	0382_SW014_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.04	0.10	0.10	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		30/09/2020	0382_QC100_200930	Field_D	NSW_0382_PFASOMP_20	<0.01	0.04	0.03	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		26/03/2021	0382_SW014_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	0.07	0.03	<0.02	<0.02	<0.02	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		8/09/2021	0382_SW014_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		22/03/2022	0382_SW014_220322	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW014		7/09/2022	0382_SW014_220907	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	0.06	0.15	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		26/09/2017	0382_SW015_170926	Normal	NSW_0382_PFAS	0.01	0.07	0.08	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW015		30/09/2020	0382_SW015_200930	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		25/03/2021	0382_SW015_210325	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		25/03/2021	0382_QC101_210325	Field_D	NSW_0382_PFASOMP_20	<0.01	0.02	0.02	0.04	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		8/09/2021	0382_SW015_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		22/03/2022	0382_SW015_220322	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW015		22/03/2022	0382_QC203_220322	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.03	0.04	0.08	0.08	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW015		7/09/2022	0382_SW015_220907	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.03	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		27/09/2017	0382_SW017_170927	Normal	NSW_0382_PFAS	<0.01	0.03	0.02	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW017		30/09/2020	0382_SW017_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.11	0.04	0.15	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		26/03/2021	0382_SW017_210326	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.02	0.05	0.08	0.03	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		26/03/2021	0382_QC201_210326	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.02	0.02	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.05
SW017		8/09/2021	0382_SW017_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		21/03/2022	0382_SW017_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW017		6/09/2022	0382_SW017_220906	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.04	0.08	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	15/06/2016	HBK-QA01	Normal	ACTNSW_Hist_202009-2	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-
SW025	HBK_SW001	15/06/2016	HBK-SW001	Normal	ACTNSW_Hist_202009-2	<0.01	<0.01	<0.02	-	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW025	HBK_SW001	26/09/2017	0382_SW025_170926	Normal	NSW_0382_PFAS	<0.01	0.02	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Table T7
Historical Surface Water Analytical Results

AECOM

						PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																												
PFAS NEMP 2020 Recreational Water						10			2																										
Location Code	Alt. Name	Date	Field ID	Sample Type	Project ID																														
SW025	HBK_SW001	30/09/2020	0382_SW025_200930	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	25/03/2021	0382_SW025_210325	Normal	NSW_0382_PFASOMP_20	0.01	0.02	<0.02	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	8/09/2021	0382_SW025_210908	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	22/03/2022	0382_SW025_220322	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	5/09/2022	0382_SW025_220905	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	0.01	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW025	HBK_SW001	5/09/2022	0382_QC103_220905	Field_D	NSW_0382_PFASOMP_20	<0.01	0.03	0.04	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		9/03/2018	0382_SW030_180309	Normal	NSW_0382_PFAS	<0.01	0.03	0.07	0.1	0.16	0.01	0.01	<0.01	<0.01	<0.05	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW030		30/09/2020	0382_SW030_200930	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.11	0.14	0.14	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		24/03/2021	0382_SW030_210324	Normal	NSW_0382_PFASOMP_20	0.04	*0.78*	0.79	1.57	2.19	0.10	0.09	0.03	<0.02	<0.1	0.08	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		7/09/2021	0382_SW030_210907	Normal	NSW_0382_PFASOMP_20	0.07	*1.52*	2.66	4.18	5.45	0.29	0.40	0.10	<0.02	<0.1	0.04	0.33	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		7/09/2021	0382_QC102_210907	Field_D	NSW_0382_PFASOMP_20	0.07	*1.58*	2.72	4.30	5.59	0.31	0.40	0.11	<0.02	<0.1	0.03	0.33	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		22/03/2022	0382_SW030_220322	Normal	NSW_0382_PFASOMP_20	0.04	*0.74*	0.47	1.21	1.70	0.07	0.06	0.02	<0.02	<0.1	0.08	0.20	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW030		22/03/2022	0382_QC200_220322	Interlab_D	NSW_0382_PFASOMP_20	0.03	*0.83*	0.58	1.4	1.9	0.06	0.07	0.03	<0.02	0.05	0.06	0.20	0.02	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	
SW038		8/03/2018	0382_SW038_180308	Normal	NSW_0382_PFAS	0.01	*0.32*	0.22	0.54	0.65	0.02	0.03	<0.01	<0.01	<0.05	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW038		24/03/2021	0382_SW038_210324	Normal	NSW_0382_PFASOMP_20	0.03	*0.46*	0.53	0.99	1.42	0.06	0.05	0.02	<0.02	<0.1	0.12	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		6/09/2021	0382_SW038_210906	Normal	NSW_0382_PFASOMP_20	<0.01	*0.21*	0.26	0.47	0.58	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		6/09/2021	0382_QC100_210906	Field_D	NSW_0382_PFASOMP_20	<0.01	*0.19*	0.25	0.44	0.55	0.03	0.04	<0.02	<0.02	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		22/03/2022	0382_SW038_220322	Normal	NSW_0382_PFASOMP_20	0.01	*0.25*	0.16	0.41	0.53	0.02	0.02	<0.02	<0.02	<0.1	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		22/03/2022	0382_QC100_220322	Field_D	NSW_0382_PFASOMP_20	0.01	*0.20*	0.17	0.37	0.45	0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW038		7/09/2022	0382_SW038_220907	Normal	NSW_0382_PFASOMP_20	0.02	*0.44*	0.46	0.90	1.16	0.05	0.06	<0.02	<0.02	<0.1	0.03	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		1/03/2018	0382_SW059_180301	Normal	NSW_0382_PFAS	0.02	0.07	0.06	0.13	0.18	<0.01	<0.01	<0.01	<0.01	<0.05	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW059		30/09/2020	0382_SW059_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.11	0.07	0.18	0.22	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		3/12/2020	0382_SW059_201203	Normal	NSW_0382_PFASOMP_20	0.02	0.08	0.05	0.13	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		25/03/2021	0382_SW059_210325	Normal	NSW_0382_PFASOMP_20	0.01	0.11	0.07	0.18	0.22	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/06/2021	0382_SW059_210607	Normal	NSW_0382_PFASOMP_20	0.01	0.09	0.05	0.14	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/06/2021	0382_QC101_210607	Field_D	NSW_0382_PFASOMP_20	0.01	0.09	0.05	0.14	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/06/2021	0382_QC201_210607	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.069	0.044	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	
SW059		7/09/2021	0382_SW059_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.06	0.04	0.10	0.10	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		7/09/2021	0382_QC203_210907	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.05	0.04	0.09	0.09	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	
SW059		6/12/2021	0382_SW059_211206	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		6/12/2021	0382_QC201_211206	Interlab_D	NSW_0382_PFASOMP_20	<0.01	0.07	0.04	0.11	0.13	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	
SW059		23/03/2022	0382_SW059_220323	Normal	NSW_0382_PFASOMP_20	0.01	*0.15*	0.06	0.21	0.24	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		15/06/2022	0382_SW059_220615	Normal	NSW_0382_PFASOMP_20	0.02	*0.16*	0.16	0.32	0.42	<0.02	<0.02	<0.02	<0.02	<0.1	0.03	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		15/06/2022	0382_QC101_220615	Field_D	NSW_0382_PFASOMP_20	0.02	0.13	0.14	0.27	0.36	<0.02	<0.02	<0.02	<0.02	<0.1	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		5/09/2022	0382_SW059_220905	Normal	NSW_0382_PFASOMP_20	0.01	0.06	0.05	0.11	0.14	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW059		5/09/2022	0382_QC102_220905	Field_D	NSW_0382_PFASOMP_20	0.01	0.06	0.04	0.10	0.11	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062		5/03/2018	0382_SW062_180305	Normal	NSW_0382_PFAS	0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW062		30/09/2020	0382_SW062_200930	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062		8/09/2021	0382_SW062_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062		22/03/2022	0382_SW062_220322	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062		5/09/2022	0382_SW062_220905	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.01	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW062		5/09/2022	0382_QC203_2209	Interlab_D	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	
SW063		18/04/2018	0382_SW063_180418	Normal	NSW_0382_PFAS	<0.01	0.01	<0.01	0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW063		8/09/2021	0382_SW063_210908	Normal	NSW_0382_PFASOMP_20	<0.01	0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW063		21/03/2022	0382_SW063_220321	Normal	NSW_0382_PFASOMP_20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW063		7/09/2022	0382_SW063_220907	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.03	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		15/06/2018	0382_SW103_180615	Normal	NSW_0382_PFAS	<0.05	*0.21*	0.08	0.29	0.31	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	0.02	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW103		15/06/2018	0382_QC102_180615	Field_D	NSW_0382_PFAS	<0.01	*0.22*	0.07	0.29	0.31	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW103		15/06/2018	0382_QC202_180615	Interlab_D	NSW_0382_PFAS	<0.01	*0.16*	0.07	0.23	0.23	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		30/09/2020	0382_SW103_200930	Normal	NSW_0382_PFASOMP_20	0.02	*0.15*	0.03	0.18	0.56	<0.02	<0.02	<0.02	<0.02	<0.1	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.13	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		30/09/2020	0382_QC201_200930	Interlab_D	NSW_0382_PFASOMP_20	0.019	0.1	0.022	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	0.11	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	
SW103		24/03/2021	0382_SW103_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		7/09/2021	0382_SW103_210907	Normal	NSW_0382_PFASOMP_20	0.01	*0.15*	0.06	0.21	0.30	0.05	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Table T7
Historical Surface Water Analytical Results

AECOM

						PFAS					PFAS - Perfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS	Sum of PFAS	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05
PFAS NEMP 2020 Freshwater 95%						*220*	*0.13*																												
PFAS NEMP 2020 Recreational Water						10			2																										
Location Code	Alt. Name	Date	Field ID	Sample Type	Project ID																														
SW103		7/09/2021	0382_QC202_210907	Interlab_D	NSW_0382_PFASOMP_20	0.02	*0.15*	0.07	0.21	0.33	0.02	<0.01	<0.01	<0.02	<0.02	<0.02	0.03	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	0.04	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW103		21/03/2022	0382_SW103_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.04	0.02	0.06	0.06	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW103		5/09/2022	0382_SW103_220905	Normal	NSW_0382_PFASOMP_20	<0.01	0.08	0.07	0.15	0.15	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
SW104		15/06/2018	0382_SW104_180615	Normal	NSW_0382_PFAS	<0.05	*0.15*	0.07	0.22	0.23	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	0.01	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW104		30/09/2020	0382_SW104_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.08	0.02	0.10	0.27	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.15	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW104		24/03/2021	0382_SW104_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW104		7/09/2021	0382_SW104_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.07	0.03	0.10	0.10	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW104		21/03/2022	0382_SW104_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	0.02	0.05	0.05	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW104		5/09/2022	0382_SW104_220905	Normal	NSW_0382_PFASOMP_20	<0.01	0.08	0.04	0.12	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW105		15/06/2018	0382_SW105_180615	Normal	NSW_0382_PFAS	<0.05	*0.51*	0.13	0.64	0.7	0.01	<0.01	<0.05	<0.01	<0.05	0.02	0.03	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SW105		30/09/2020	0382_SW105_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.13	0.03	0.16	0.45	<0.02	<0.02	<0.02	<0.02	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.23	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW105		24/03/2021	0382_SW105_210324	Normal	NSW_0382_PFASOMP_20	<0.01	0.03	<0.02	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW105		7/09/2021	0382_SW105_210907	Normal	NSW_0382_PFASOMP_20	<0.01	0.12	0.04	0.16	0.20	0.04	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW105		21/03/2022	0382_SW105_220321	Normal	NSW_0382_PFASOMP_20	<0.01	0.05	0.02	0.07	0.07	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW105		5/09/2022	0382_SW105_220905	Normal	NSW_0382_PFASOMP_20	<0.01	0.09	0.04	0.13	0.13	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		30/09/2020	0382_SW111_200930	Normal	NSW_0382_PFASOMP_20	0.02	0.10	0.05	0.15	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		3/12/2020	0382_SW111_201203	Normal	NSW_0382_PFASOMP_20	0.02	0.07	0.05	0.12	0.17	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		3/12/2020	0382_QC101_201203	Field_D	NSW_0382_PFASOMP_20	0.02	0.08	0.05	0.13	0.18	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		3/12/2020	0382_QC201_201203	Interlab_D	NSW_0382_PFASOMP_20	0.018	0.084	0.05	-	-	<0.01	<0.01	<0.01	<0.01	<0.05	<0.02	0.022	0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05
SW111		25/03/2021	0382_SW111_210325	Normal	NSW_0382_PFASOMP_20	0.06	*1.42*	1.03	2.45	3.23	0.09	0.08	0.04	<0.02	<0.1	0.13	0.35	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		7/06/2021	0382_SW111_210607	Normal	NSW_0382_PFASOMP_20	0.07	*1.93*	0.90	2.83	3.41	0.06	0.08	0.04	<0.02	<0.1	0.05	0.20	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		7/09/2021	0382_SW111_210907	Normal	NSW_0382_PFASOMP_20	0.04	*1.01*	0.73	1.74	2.18	0.05	0.06	0.03	<0.02	<0.1	0.04	0.20	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		6/12/2021	0382_SW111_211206	Normal	NSW_0382_PFASOMP_20	0.01	0.06	0.03	0.09	0.12	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		23/03/2022	0382_SW111_220323	Normal	NSW_0382_PFASOMP_20	0.01	0.05	0.03	0.08	0.09	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		15/06/2022	0382_SW111_220615	Normal	NSW_0382_PFASOMP_20	0.02	0.08	0.06	0.14	0.19	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		15/06/2022	0382_QC201_220615	Interlab_D	NSW_0382_PFASOMP_20	0.02	0.05	0.05	0.1	0.14	0.01	<0.01	<0.01	<0.02	<0.02	<0.02	0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5
SW111		5/09/2022	0382_SW111_220905	Normal	NSW_0382_PFASOMP_20	0.01	0.04	0.03	0.07	0.08	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05
SW111		5/09/2022	0382_QC202_2209	Interlab_D	NSW_0382_PFASOMP_20	0.01	0.04	0.03	0.07	0.1	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5

Notes:

LOR	Limit of Reporting
Normal	Primary Sample
Field_D	Intra-laboratory duplicate sample
Interlab_D	Inter-laboratory duplicate sample
Bold	Denotes exceedance of adoped human health screening criteria
Italics	Denotes exceedance of adopted ecological screening criteria

Appendix C

Calibration Certificates

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration
Interface Meter
Heron H.Oil

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	[redacted]
Instrument	Heron H.Oil Interface Meter (30m)
Serial Number	01-8271
Client Name	[redacted] (AECOM Australia)
Project Number	60612562_6.1

Instrument Check			
Item	Test	Test Passed	Comments
9V Battery	Klein Tools MM300 Multimeter	✓	Battery voltage reading above 7.9V
Battery Box	Check	✓	No damage
Face and Back Plates	Check	✓	No damage
Thumb Screws	Check	✓	Rubber ends intact
Tape Hangar/Protector	Check	✓	No damage
On/Off Button	Operation	✓	Button is functional
Buzzer	Operation	✓	Intermittent tone in H_2O, solid tone in product
LED Signal Light	Operation	✓	LED light functional – green and red
Probe	Operation/Check	✓	Decontaminated, cleaned and tested
Tape	Condition/Check	✓	Decontaminated and cleaned, no damage
Connection	Check	✓	Probe and link connected correctly and tightly
PCB	Operation	✓	Unit is fully functional
Electronics Panel	Orientation	✓	Correctly aligned

Instrument Readings		
Product	Buzzer	LED Light
H_2O	Intermittent	Blinking – Red
Petroleum	Solid	Steady – Red

Declaration
WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The interface meter was decontaminated, cleaned and tested with a mixture of tap water and petrol, shielded from ambient light.

Checked By	[redacted]
Calibration Date	31/08/2022
Calibration Due	31/02/2023

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

WAM Scientific:
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WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration
Water Quality Meter
YSI Professional Plus

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	[redacted]
Instrument	YSI Professional Plus Water Quality Meter w/ 1m Quatro Cable
Serial Number	20B122031
Client Name	[redacted]AECOM Australia)
Project Number	60612562_6.1
Comments	-

Instrument Check

Item	Test	Test Passed	Comments
2 x Alkaline C-size Batteries	Klein Tools MM300 Multimeter	✓	Both batteries reading above 2.9V
Battery Saver Function	Operation	✓	Automatically turns off after 60 minutes if idle
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Connection Port and Cable	Condition/Check	✓	Clean, no damage
Monitor Housing	Condition/Check	✓	No damage
Firmware	Version	✓	4.0.0
pH Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
pH millivolts for pH 7.00	Calibration	✓	pH 7.00 calibration range between 0 mV ± 50 mV
pH millivolts for pH 4.00	Calibration	✓	pH 4 mV range +165 to +180 from 7 buffer mV value
pH slope	Calibration	✓	Range between 55 to 60 mV/pH (ideal value 59 mV)
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
ORP Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
ORP Reading	Calibration	✓	Within ± 80 mV of reference Zobell Reading
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
Conductivity/Temp Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
Conductivity Cell	Calibration	✓	Conductivity cell constant 5.0 ± 1.0 in GLP file
Clean Sensor Readings	Calibration	✓	Clean sensor reads less than 3 uS/cm in dry air
Dissolved Oxygen Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
DO Cap	Condition/Calibration	✓	1.25 mil PE membrane (yellow membrane)
DO Sensor in Use	Condition	✓	Polarographic DO sensor
DO Sensor Value	Calibration	✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA

Instrument Readings

Parameter	Standard Used	Reference No.	Calibration Value	Observed	Actual	Units
Temperature	Centre 370 Thermometer	Room Temp.	17.6	17.7	17.6	°C
pH	pH 4.00	386466	4.01	4.04	4.01	pH
pH	pH 7.00	387329	7.00	7.03	7.00	pH
Conductivity	2760 µs/cm at 25°C	388521	2760	2748	2760	µs/cm
ORP (Ref. check only)	Zobell A & B	380835/382785	241.6	241.3	241.6	mV
Zero Dissolved O_2	$NaSO_3$ in Distilled H_2O	389912	0.0	-0.1	0.0	%
100% Dissolved O_2	100% Air Saturated H_2O	Fresh Air	100.0	100.6	100.0	%

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using solutions of known values.

Calibrated By	[redacted]
Calibration Date	31/08/2022
Calibration Due	31/02/2023

WAM Scientific:
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WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration
Water Quality Meter
TPS WP-88 Turbidity Meter

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	[redacted]
Instrument	TPS WP-88 Turbidity Meter
Serial Number	T504381/0519919
Client Name	[redacted](AECOM Australia)
Project Number	60612562_6.1
Comments	-

Instrument Check			
Item	Test	Test Passed	Comments
Li-Ion Battery	Battery Menu	✓	Reading 90%+
Battery Saver Function	Operation	✓	Automatically turns off after 60 minutes if idle
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Connection Port and Cable	Condition/Check	✓	Clean, no damage
Monitor Housing	Condition/Check	✓	No damage

Instrument Readings						
Parameter	Standard Used	Reference No.	Calibration Value	Observed	Actual	Units
Temperature	Centre 370 Thermometer	Room Temp.	16.4	16.4	16.4	°C
Turbidity	Distilled Water (0 NTU)	1022001	0.00	0.10	0.00	NTU
Turbidity	90 NTU	11165	90.00	89.50	90.00	NTU
Turbidity	900 NTU	11164	900.00	903.00	900.00	NTU

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using solutions of known values.

Calibrated By	[redacted]
Calibration Date	31/08/2022
Calibration Due	31/02/2023

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AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	60612562_6.1 - PFAS OMP	**Project Number:**	60612562
Project Location:	Holsworthy	**Client:**	Department of Defence
PM Name:	[redacted]	**Fieldwork Staff Name:**	[redacted]

This calibration record is intended to prompt fieldwork staff to calibrate water quality meter (WQM) daily before the start of fieldworks.

INSTRUMENT DETAILS

Supplier:	YSI Pro Plus.
Make and Model:	~~Aumet~~ WAM
Serial Number:	20B122031

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	5/9/22 @ 0900				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	4.00		2470		
Calibration Reading:	4.00		2470		
Calibration Temperature:	19.3		19.6		

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	5/9/22 @ 0900				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	[illegible]	7		0	
Bump Test Reading:		6.99		0	
Bump Test Temperature:		19.5		19.6	

COMMENTS

Detail any equipment faults, minor maintenance performed, change of batteries or technical support provided.

Approval and Distribution

☑ Each individual instrument has been inspected and calibrated daily and bump tested as required by fieldwork staff.

[redacted]
Fieldwork Staff Signature

5/SEP/22
Date

Distribution: Project Central File

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	60612562_6.1	**Project Number:**	PFAS OMP
Project Location:	Holsworthy	**Client:**	Department of Defence
PM Name:	[redacted]	**Fieldwork Staff Name:**	[redacted]

This calibration record is intended to prompt fieldwork staff to calibrate water quality meter (WQM) daily before the start of fieldworks

INSTRUMENT DETAILS

Supplier:	WAM Scientific
Make and Model:	YSI Pro Plus
Serial Number:	20B122031

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	6/9/22 0900				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:			2127		
Calibration Reading:			2130		
Calibration Temperature:			13.3		

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	6/9/22 0900				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	ppm
Calibration Standard Concentration:	4	7	2127	0	
Bump Test Reading:	3.94	6.95	1697	0.04	
Bump Test Temperature:	13.3	13.0	13.3	13.4	

COMMENTS

Detail any equipment faults, minor maintenance performed, change of batteries or technical support provided.

Approval and Distribution

☑ Each individual instrument has been inspected and calibrated daily and bump tested as required by fieldwork staff.

[redacted] — Fieldwork Staff Signature

6/9/22 — Date

Distribution: Project Central File

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	60612562_6.1	**Project Number:**	
Project Location:	Holsworthy	**Client:**	Department of Defence
PM Name:	[redacted]	**Fieldwork Staff Name:**	[redacted]

This calibration record is intended to prompt fieldwork staff to calibrate water quality meter (WQM) daily before the start of fieldworks.

INSTRUMENT DETAILS

Supplier:	WAM Scientific
Make and Model:	YSI Pro Plus
Serial Number:	20B122031

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	7/9/22 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	4		2127		
Calibration Reading:	4		2132		
Calibration Temperature:	12.5		13.6		

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	7/9/22 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	ppm
Calibration Standard Concentration:	4	7	2127	0	
Bump Test Reading:	3.89	6.95	2510	0.6	
Bump Test Temperature:	12.5	12.6	13.2	13.0	

COMMENTS

Detail any equipment faults, minor maintenance performed, change of batteries or technical support provided.

Approval and Distribution

☐ Each individual instrument has been inspected and calibrated daily and bump tested as required by fieldwork staff.

[redacted] — Fieldwork Staff Signature

7/9/22 — Date

Distribution: Project Central File

Appendix D

Analytical Data Validation

DATA VALIDATION REPORT

Project number:	60612562	Validation by:	[redacted]	Date:	13/09/2022
Client:	Department of Defence	Data verified by:	[redacted]	Date:	20/09/2022
Site:	Holsworthy Barracks	Project Manager:	[redacted]		
Matrix type:	Groundwater and Surface Water				
Primary samples:	24 Groundwater samples, 16 Surface water samples				
Laboratory:	Primary: ALS, Secondary: Envirolab				
Lab reference:	ES2232110 (ALS), 305110 (Envirolab)				

Key Issues:	No QA/QC issues were identified in the field or laboratory datasets that could have a material implication to decision-making on the project.

Field Quality Assurance and Quality Control

Field DQOs and DQIs	The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2022).
Sampling personnel	Sampling was conducted by [redacted] between 05/09/2022 and 07/09/2022. Field personnel were both suitably qualified and experienced AECOM Environmental Scientists.
Sampling Methodology	Surface water samples were collected from directly beneath the surface to limit the infiltration of sediments into samples. Groundwater samples were collected from monitoring wells using a no-purge methodology (HydraSleeves™), with the exception of MW005, which was sampled using a disposable bailer. The HydraSleeves™ were installed at depths based on screen intervals, during the previous sampling events in March and/or June 2022. Once sampling was completed at each location, a new HydraSleeve™ was deployed at the screened interval depth in preparation for the next sampling round. Following sampling at each location, the water quality meter and interface probe were decontaminated using Liquinox and nitrile gloves disposed of, with a new pair used for each sampling location.
Chain of Custody (COC)	All samples collected were reported on the Chain of Custody documents (COC) and subsequent email amendments and analysed for requested analytes.
Rinsate Blank	Rinsate blanks were collected from the final rinse of the decontaminated interface probe (IP) at a rate of one rinsate blank per day (three rinsate blank samples were collected)
Frequency of field QC	Field duplicates (intra-laboratory duplicates) and triplicates (inter-laboratory duplicates) were collected at a frequency of one in ten primary samples. In total, four field intra-laboratory duplicates, and four inter-laboratory duplicates were analysed for water samples (two for surface water and two for groundwater), meeting the DQI.
Handling and preservation	All samples were received in appropriate containers and at a temperature of 1.1 °C (with ice present) by the primary laboratory and at a temperature of 4.0 °C (with ice present) by the secondary laboratory, within the recommended temperature range (4 ± 2°C).
Calibration of equipment	Measurements of water geochemical parameters were undertaken using the YSI WQM Professional Plus, which was calibrated by the supplier prior to use, in accordance with the manufacturer's instructions and daily by the field personnel. All calibration and service certificates are presented in Appendix C.

DATA VALIDATION REPORT

Laboratory QA/QC	
Laboratory DQOs and DQIs	The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2022).
Tests requested/reported	All surface water and groundwater samples were analysed for the PFAS extended suite. All sample requests for analysis are reported on the Chain of Custody (COC).
Holding time compliance	All samples were extracted and analysed by the laboratory within the recommended holding times.
Laboratory	The primary laboratory analysis was conducted by ALS Environmental Pty Ltd (Sydney) a National Association of Testing Authorities (NATA) accredited laboratory (Accreditation No. 825). The secondary samples were analysed at Envirolab Services, also a NATA accredited laboratory (accreditation number 2901).
Frequency of laboratory QC	The primary laboratory ALS reported a sufficient frequency of quality control samples to assess whether the results have been reported with acceptable accuracy and precision, with the exception of: Laboratory Duplicates • PFAS by LCMSMS: Actual Rate (%) 8.51, Expected Rate (%) 10.00 Matrix Spikes • PFAS by LCMSMS: Actual Rate (%) 4.26, Expected Rate (%) 10.00 The precision of the data can be assessed as acceptable based on the intra-laboratory duplicate RPDs which were mostly reported at the required frequencies and within control limits. The accuracy of the data can be assessed as acceptable based on method blanks, laboratory control spike and surrogate spike recoveries, which were reported at the required frequencies and within control limits, and the reported laboratory duplicates and matrix spikes which were within control limits.
Method Blank	All method blank concentrations were reported <LOR for the analytes tested. This is presented in the Quality Control Reports for both laboratories.
Laboratory duplicate RPDs	The reported laboratory duplicate's Relative Percentage Differences (RPDs) were within the laboratories control limits. The laboratory duplicate RPDs are presented in the primary laboratory's Quality Control Report.
LCS recovery	Laboratory control spike (LCS) recoveries were within control limits. This is presented in the Quality Control Reports for both laboratories.
Matrix spike recovery	Matrix spike (MS) recoveries were within control limits with the exception of: Non-determined MS recoveries • Perfluorohexane sulfonic acid (PFHxS), 0382_MW119_220905 • Perfluorooctane sulfonic acid (PFOS), 0382_MW119_220905 • Perfluorohexanoic acid (PFHxA), 0382_MW119_220905 These non-determinations, due to background levels being greater than or equal to four times spike levels, do not reflect method bias or affect data interpretation.
Surrogate spike recovery	The reported surrogate spike recoveries were within laboratory control limits. This is presented in the Quality Control Reports for both laboratories.

DATA VALIDATION REPORT

QA/QC Data Evaluation	
Comparison of Field Observations and Laboratory Results	No anomalies between field observations and analytical results were noted.
Anomalous data / Repeat Analysis	Following the reporting of first time detections of PFAS at MW117 and MW123, the primary laboratory was requested to repeat the analysis to confirm the reported concentrations. The repeat analysis confirmed the originally reported concentrations in all locations.
Data transcription	A check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and the tables generated by AECOM.
Limits of reporting	The Limit of Reporting (LOR) values were sufficiently low to enable assessment against adopted screening levels.
Rinsate Blank sample results	The concentrations of PFAS in the Rinsate Blank samples (Table D2) were below the limit of reporting (LOR), indicating decontamination procedures were adequate.
Intra-laboratory duplicate RPDs	Field duplicate RPDs were reported within acceptable limits (≤30%, or ≤50% for results 10-20 x LOR, or No Limit for results <10 x LOR), with the exception of: • MW115 / QC100: PFHpS (36%) It is noted that although the RPD is marginally above the acceptable limit, the concentrations between the duplicate pair were within the same order of magnitude, and therefore the exceedance is not considered to be significant. Additionally, there is no screening criteria for this analyte, therefore the elevated RPD is not considered to impact the interpretation of results against the guidelines. Where required for quantitative purposes, the highest concentration from the primary and duplicate pair will be used in the assessment.
Inter-laboratory duplicate RPDs	Field triplicate RPDs were reported within acceptable limits (≤30%, or ≤50% for results 10-20 x LOR, or No Limit for results <10 x LOR)), with the exception of: • MW113 / QC200: PFHpS (47%) • MW113 / QC200: PFNA (37%) • MW113 / QC200: PFPeS (52%) It is noted that although the RPDs are above the acceptable limit, the concentrations between the duplicate pair were within the same order of magnitude, and therefore the exceedances are not considered to be significant As these analytes with high RPDs had no screening criteria applied, the elevated RPDs are not considered to impact the interpretation of results against the guidelines. Where required for quantitative purposes, the highest concentrations from the primary and duplicate pair will be used in the assessment.
Overall Assessment	
	Data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported analytical results are representative of the sample locations and that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report.

Attached:

Table D1 – Water RPDs
Table D2 – Rinsate Blank Results

Table D1 Water RPDs

AECOM

	Lab Report Number	ES2232110	ES2232110		ES2232110	ES2232110		ES2232110	ES2232110		ES2232110	ES2232110	
	Field ID	0382_MW115_220905	0382_QC100_220905	RPD	0382_MW130_220905	0382_QC101_220905	RPD	0382_SW059_220905	0382_QC102_220905	RPD	0382_SW025_220905	0382_QC103_220905	RPD
	Sampled Date/Time	5/09/2022 10:06	5/09/2022 10:06		5/09/2022 10:38	5/09/2022 10:38		5/09/2022 13:44	5/09/2022 13:44		5/09/2022 15:12	5/09/2022 15:12	
ChemGroup	**ChemName**	**Units**	**LOR**										
Per- and Poly-fluoroalkyl Substances	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	0.75	0.66	13	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.1 (Interlab)	<0.12	<0.12	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.05	<0.05	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05 : 0.5 (Interlab)	<0.12	<0.12	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.12	<0.12	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.05	<0.05	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.12	<0.12	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	14.2	15.1	6	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.02 (Interlab)	3.2	3.1	3	<0.1	<0.1	nc	<0.1	<0.1	nc	<0.1	<0.1	nc
	Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.05	<0.05	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.05	<0.05	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.05 (Interlab)	<0.05	<0.05	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	**20.9**	**14.5**	**36**	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	4.79	5.02	5	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	24.7	28.1	13	<0.02	<0.02	nc	0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	0.13	0.14	7	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.1 (Interlab)	<0.05	<0.05	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	32.1	26.6	19	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02	5.46	5.72	5	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.5 (Interlab)	<0.12	<0.12	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02 : 0.1 (Interlab)	<0.05	<0.05	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.05	<0.05	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Sum of PFAS	µg/L	0.01	650	641	1	**0.06**	**0.03**	**67**	0.14	0.11	24	**0.03**	**0.07**	**80**
	Sum of PFHxS and PFOS	µg/L	0.01	531	530	0	**0.06**	**0.03**	**67**	0.11	0.1	10	**0.03**	**0.07**	**80**
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	341	336	1	0.02	0.02	0	0.06	0.06	0	**0.02**	**0.03**	**40**
	Perfluorooctanoic Acid (PFOA)	µg/L	0.01	12.7	12.4	2	<0.01	<0.01	nc	0.01	0.01	0	<0.01	<0.01	0
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	190	194	2	**0.04**	**0.01**	**120**	0.05	0.04	22	**0.01**	**0.04**	**120**

Notes
LOR = Limit of Reporting
µg/L = micrograms per Liter
nc = non calculable as concentrations in one or both samples are below the LOR
High RPDs (>30%) are highlighted in bold

Table D1 Water RPDs

AECOM

		Lab Report Number	ES2232110	305110		ES2232110	305110		ES2232110	305110		ES2232110	305110	
		Field ID	0382_MW113_220905	0382_QC200_2209	**RPD**	0382_MW131_220905	0382_QC201_2209	**RPD**	0382_SW111_220905	0382_QC202_2209	**RPD**	0382_SW062_220905	0382_QC203_2209	**RPD**
		Sampled Date/Time	5/09/2022 10:20	5/09/2022 10:20		5/09/2022 11:12	5/09/2022 11:12		5/09/2022 14:41	5/09/2022 14:41		5/09/2022 15:29	5/09/2022 15:29	
ChemGroup	**ChemName**	**Units**	**LOR**											
Per- and Poly-fluoroalkyl Substances	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	nc	<0.05	<0.02	nc	<0.05	<0.02	nc	<0.05	<0.02	nc
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	nc	<0.05	<0.01	nc	<0.05	<0.01	nc	<0.05	<0.01	nc
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	7.76	7.6	2	<0.05	<0.01	nc	<0.05	<0.01	nc	<0.05	<0.01	nc
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.02 (Interlab)	<0.05	0.03	nc	<0.05	<0.02	nc	<0.05	<0.02	nc	<0.05	<0.02	nc
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.1 (Interlab)	<0.12	<0.1	nc	<0.05	<0.1	nc	<0.05	<0.1	nc	<0.05	<0.1	nc
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.05	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05 : 0.5 (Interlab)	<0.12	<0.5	nc	<0.05	<0.5	nc	<0.05	<0.5	nc	<0.05	<0.5	nc
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.12	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.05	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.12	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc	<0.05	<0.05	nc
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	21.7	24	10	<0.02	<0.01	nc	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.02 (Interlab)	4.2	4.5	7	<0.1	<0.02	nc	<0.1	<0.02	nc	<0.1	<0.02	nc
	Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	**0.17**	**0.06**	**96**	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.05	0.03	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.05 (Interlab)	<0.05	<0.05	nc	<0.02	<0.05	nc	<0.02	<0.05	nc	<0.02	<0.05	nc
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	**21**	**13**	**47**	<0.02	<0.01	nc	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	6.24	6.8	9	<0.02	<0.01	nc	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	34.1	36	5	<0.02	<0.01	nc	<0.02	0.01	nc	<0.02	<0.01	nc
	Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	**0.42**	**0.29**	**37**	<0.02	<0.01	nc	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.1 (Interlab)	<0.05	<0.1	nc	<0.02	<0.1	nc	<0.02	<0.1	nc	<0.02	<0.1	nc
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	**40.9**	**24**	**52**	<0.02	<0.01	nc	<0.02	<0.01	nc	<0.02	<0.01	nc
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02	12.3	9.9	22	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.5 (Interlab)	<0.12	<0.5	nc	<0.05	<0.5	nc	<0.05	<0.5	nc	<0.05	<0.5	nc
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02 : 0.1 (Interlab)	<0.05	<0.1	nc	<0.02	<0.1	nc	<0.02	<0.1	nc	<0.02	<0.1	nc
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.05	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc	<0.02	<0.02	nc
	Sum of PFAS	µg/L	0.01	683	580	16	**0.07**	**0.05**	**33**	0.08	0.1	22	0.01	<0.01	nc
	Sum of PFHxS and PFOS	µg/L	0.01	520	440	17	**0.07**	**0.05**	**33**	0.07	0.07	0	0.01	<0.01	nc
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	336	260	26	**0.05**	**0.03**	**50**	0.04	0.04	0	0.01	<0.01	nc
	Perfluorooctanoic Acid (PFOA)	µg/L	0.01	14.2	13	9	<0.01	<0.01	nc	0.01	0.01	0	<0.01	<0.01	nc
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	184	180	2	**0.02**	**0.01**	**67**	0.03	0.03	0	<0.01	<0.01	nc

Notes
LOR = Limit of Reporting
µg/L = micrograms per Liter
nc = non calculable as concentrations in one or both samples are below the LOR
High RPDs (>30%) are highlighted in bold

Table D2 Rinsate Blank Results

AECOM

Lab Report Number	ES2232110	ES2232110	ES2232110
Field ID	0382_QC300_220905	0382_QC301_220906	0382_QC302_220907
Sampled_Date/Time	5/09/2022	6/09/2022	7/09/2022
Sample Type	Rinsate	Rinsate	Rinsate

ChemGroup	ChemName	Units	LOR			
Per- and Poly-fluoroalkyl Substances	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	<0.05
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05	<0.05
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05	<0.05	<0.05	<0.05
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	<0.05	<0.05	<0.05
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	<0.05
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	<0.02
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	<0.05
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	<0.05
	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.02	<0.02	<0.02
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	<0.05
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1	<0.1	<0.1
	Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.05	<0.05	<0.05
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02	<0.02
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	<0.02
	Sum of PFAS	µg/L	0.01	<0.01	<0.01	<0.01
	Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	<0.01
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	<0.01
	Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	<0.01
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	<0.01

Appendix E

Laboratory Certificates

CHAIN OF CUSTODY

(ALS) COC#: 41782 *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1652	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0382_MW002_220906		06/09/2022 11:55 AM	Water	ALS: 5 Non ALS: 0	No	X		
002	0382_MW005_220906		06/09/2022 11:33 AM	Water	ALS: 3 Non ALS: 0	No	X		
003	0382_MW112_220905		05/09/2022 12:09 PM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
004	0382_MW112P_220905		05/09/2022 12:24 PM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
005	0382_MW113_220905		05/09/2022 10:20 AM	Water	ALS: 3 Non ALS: 0	No	X		
006	0382_MW115_220905		05/09/2022 10:06 AM	Water	ALS: 3 Non ALS: 0	No	X		
007	0382_MW117_220907		07/09/2022 11:30 AM	Water	ALS: 3 Non ALS: 0	No	X		
008	0382_MW119_220905		05/09/2022 02:24 PM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
009	0382_MW119P_220905		05/09/2022 02:42 PM	Water	ALS: 3 Non ALS: 0	No	X		

Environmental Division
Sydney
Work Order Reference
ES2232110

Telephone : + 61-2-8784 8555

CHAIN OF CUSTODY

ALS COC#: 41782 ALS Laboratory: ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1652	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

LABORATORY USE ONLY (Circle)

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

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0382_MW120_220906		06/09/2022 02:17 PM	Water	ALS: 3 Non ALS: 0	No	X		
011	0382_MW121_220906		06/09/2022 02:05 PM	Water	ALS: 3 Non ALS: 0	No	X		
012	0382_MW122_220906		06/09/2022 03:32 PM	Water	ALS: 5 Non ALS: 0	No	X		
013	0382_MW123_220906		06/09/2022 01:08 PM	Water	ALS: 3 Non ALS: 0	No	X		
014	0382_MW124_220907		07/09/2022 10:32 AM	Water	ALS: 3 Non ALS: 0	No	X		
015	0382_MW129_220905		05/09/2022 01:57 PM	Water	ALS: 3 Non ALS: 0	No	X		
016	0382_MW130_220905		05/09/2022 10:38 AM	Water	ALS: 3 Non ALS: 0	No	X		
017	0382_MW131_220905		05/09/2022 11:12 AM	Water	ALS: 3 Non ALS: 0	No	X		
018	0382_MW133_220905		05/09/2022 11:02 AM	Water	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 41782 *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1652	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
019	0382_MW134_220905		05/09/2022 11:43 AM	Water	ALS: 3 Non ALS: 0	No	X		
020	0382_MW136_220905		05/09/2022 11:29 AM	Water	ALS: 3 Non ALS: 0	No	X		
021	0382_MW301_220906		06/09/2022 09:57 AM	Water	ALS: 3 Non ALS: 0	No	X		
022	0382_MW323_220907		07/09/2022 10:57 AM	Water	ALS: 3 Non ALS: 0	No	X		
023	0382_MW330_220905		05/09/2022 03:55 PM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
024	0382_MW349_220906		07/09/2022 08:23 AM	Water	ALS: 3 Non ALS: 0	No	X		
025	0382_SW001_220905		05/09/2022 02:12 PM	Water	ALS: 3 Non ALS: 0	No	X		
026	0382_SW009_220907		07/09/2022 09:40 AM	Water	ALS: 3 Non ALS: 0	No	X		
027	0382_SW011_220906		06/09/2022 10:31 AM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume

CHAIN OF CUSTODY

(ALS) COC#: 41782 *ALS Laboratory:* ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1652	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
028	0382_SW012_220906		06/09/2022 11:19 AM	Water	ALS: 3 Non ALS: 0	No	X		
029	0382_SW014_220907		07/09/2022 09:10 AM	Water	ALS: 3 Non ALS: 0	No	X		
030	0382_SW015_220907		07/09/2022 10:06 AM	Water	ALS: 3 Non ALS: 0	No	X		
031	0382_SW017_220906		06/09/2022 10:53 AM	Water	ALS: 3 Non ALS: 0	No	X		
032	0382_SW025_220905		05/09/2022 03:12 PM	Water	ALS: 3 Non ALS: 0	No	X		
033	0382_SW038_220907		07/09/2022 01:18 PM	Water	ALS: 3 Non ALS: 0	No	X		
034	0382_SW059_220905		05/09/2022 01:44 PM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
035	0382_SW062_220905		05/09/2022 03:29 PM	Water	ALS: 3 Non ALS: 0	No	X		
036	0382_SW063_220907		07/09/2022 11:47 AM	Water	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 41782 ALS Laboratory: ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1652	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
037	0382_SW103_220905		05/09/2022 04:11 PM	Water	ALS: 5 Non ALS: 0	No	X		Extra volume
038	0382_SW104_220905		05/09/2022 04:30 PM	Water	ALS: 3 Non ALS: 0	No	X		
039	0382_SW105_220905		05/09/2022 04:29 PM	Water	ALS: 3 Non ALS: 0	No	X		
040	0382_SW111_220905		05/09/2022 02:41 PM	Water	ALS: 3 Non ALS: 0	No	X		
041	0382_QC100_220905		05/09/2022 10:07 AM	Water	ALS: 3 Non ALS: 0	No	X		
042	0382_QC101_220905		05/09/2022 10:34 AM	Water	ALS: 3 Non ALS: 0	No	X		
043	0382_QC102_220905		05/09/2022 01:44 PM	Water	ALS: 3 Non ALS: 0	No	X		
044	0382_QC103_220905		05/09/2022 03:13 PM	Water	ALS: 3 Non ALS: 0	No	X		
045	0382_QC300_220905		06/09/2022 09:11 AM	Water	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 41782 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1652	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters - New Analysis WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
046	0382_QC301_220906		06/09/2022 09:11 AM	Water	ALS: 3 Non ALS: 0	No	X		
047	0382_QC302_220907		06/09/2022 09:12 AM	Water	ALS: 3 Non ALS: 0	No	X		
048	0382_QC104_220906		06/09/2022 01:07 PM	Water	ALS: 3 Non ALS: 0	Yes	-		

CHAIN OF CUSTODY

ALS COC#: 41782 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1652	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0382_MW002_220906	HDPE (no PTFE)	20 mL	00350621013943	Grey	No	
001	0382_MW002_220906	HDPE (no PTFE)	20 mL	00350621013937	Grey	No	
001	0382_MW002_220906	HDPE (no PTFE)	20 mL	00350621013951	Grey	No	
001	0382_MW002_220906	HDPE (no PTFE)	20 mL	00350621023510	Grey	No	
001	0382_MW002_220906	HDPE (no PTFE)	20 mL	00350621023348	Grey	No	
002	0382_MW005_220906	HDPE (no PTFE)	20 mL	00350621023252	Grey	No	
002	0382_MW005_220906	HDPE (no PTFE)	20 mL	00350621023308	Grey	No	
002	0382_MW005_220906	HDPE (no PTFE)	20 mL	00350621023481	Grey	No	
003	0382_MW112_220905	HDPE (no PTFE)	20 mL	00350621023361	Grey	No	
003	0382_MW112_220905	HDPE (no PTFE)	20 mL	00350621023488	Grey	No	
003	0382_MW112_220905	HDPE (no PTFE)	20 mL	00350621023441	Grey	No	
003	0382_MW112_220905	HDPE (no PTFE)	20 mL	00350621023417	Grey	No	
003	0382_MW112_220905	HDPE (no PTFE)	20 mL	00350621023305	Grey	No	
004	0382_MW112P_220905	HDPE (no PTFE)	20 mL	00350621023405	Grey	No	
004	0382_MW112P_220905	HDPE (no PTFE)	20 mL	00350621023271	Grey	No	
004	0382_MW112P_220905	HDPE (no PTFE)	20 mL	00350621023287	Grey	No	
004	0382_MW112P_220905	HDPE (no PTFE)	20 mL	00350621023393	Grey	No	
004	0382_MW112P_220905	HDPE (no PTFE)	20 mL	00350621023433	Grey	No	
005	0382_MW113_220905	HDPE (no PTFE)	20 mL	00350621023482	Grey	No	
005	0382_MW113_220905	HDPE (no PTFE)	20 mL	00350621023314	Grey	No	
005	0382_MW113_220905	HDPE (no PTFE)	20 mL	00350621023477	Grey	No	
006	0382_MW115_220905	HDPE (no PTFE)	20 mL	00350621023365	Grey	No	
006	0382_MW115_220905	HDPE (no PTFE)	20 mL	00350621023495	Grey	No	
006	0382_MW115_220905	HDPE (no PTFE)	20 mL	00350621023426	Grey	No	
007	0382_MW117_220907	HDPE (no PTFE)	20 mL	00350621023357	Grey	No	
007	0382_MW117_220907	HDPE (no PTFE)	20 mL	00350621023486	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 41782 ALS Laboratory: ES Sydney

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 7/09/22 1652	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

007	0382_MW117_220907	HDPE (no PTFE)	20 mL	00350621023264	Grey	No	
008	0382_MW119_220905	HDPE (no PTFE)	20 mL	00350621023281	Grey	No	
008	0382_MW119_220905	HDPE (no PTFE)	20 mL	00350621023332	Grey	No	
008	0382_MW119_220905	HDPE (no PTFE)	20 mL	00350621023353	Grey	No	
008	0382_MW119_220905	HDPE (no PTFE)	20 mL	00350621023403	Grey	No	
008	0382_MW119_220905	HDPE (no PTFE)	20 mL	00350621023404	Grey	No	
009	0382_MW119P_220905	HDPE (no PTFE)	20 mL	00350621023436	Grey	No	
009	0382_MW119P_220905	HDPE (no PTFE)	20 mL	00350621023420	Grey	No	
009	0382_MW119P_220905	HDPE (no PTFE)	20 mL	00350621023273	Grey	No	
010	0382_MW120_220906	HDPE (no PTFE)	20 mL	00350621023266	Grey	No	
010	0382_MW120_220906	HDPE (no PTFE)	20 mL	00350621023382	Grey	No	
010	0382_MW120_220906	HDPE (no PTFE)	20 mL	00350621023284	Grey	No	
011	0382_MW121_220906	HDPE (no PTFE)	20 mL	00350621023259	Grey	No	
011	0382_MW121_220906	HDPE (no PTFE)	20 mL	00350621023461	Grey	No	
011	0382_MW121_220906	HDPE (no PTFE)	20 mL	00350621023483	Grey	No	
012	0382_MW122_220906	HDPE (no PTFE)	20 mL	00350621023330	Grey	No	
012	0382_MW122_220906	HDPE (no PTFE)	20 mL	00350621014053	Grey	No	
012	0382_MW122_220906	HDPE (no PTFE)	20 mL	00350621023318	Grey	No	
012	0382_MW122_220906	HDPE (no PTFE)	20 mL	00350621023438	Grey	No	
012	0382_MW122_220906	HDPE (no PTFE)	20 mL	00350621023279	Grey	No	
013	0382_MW123_220906	HDPE (no PTFE)	20 mL	00350621023511	Grey	No	
013	0382_MW123_220906	HDPE (no PTFE)	20 mL	00350621023425	Grey	No	
013	0382_MW123_220906	HDPE (no PTFE)	20 mL	00350621023321	Grey	No	
014	0382_MW124_220907	HDPE (no PTFE)	20 mL	00350621023303	Grey	No	
014	0382_MW124_220907	HDPE (no PTFE)	20 mL	00350621023296	Grey	No	
014	0382_MW124_220907	HDPE (no PTFE)	20 mL	00350621023465	Grey	No	
015	0382_MW129_220905	HDPE (no PTFE)	20 mL	00350621023424	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 41782 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 7/09/22 1652	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

015	0382_MW129_220905	HDPE (no PTFE)	20 mL	00350621023267	Grey	No	
015	0382_MW129_220905	HDPE (no PTFE)	20 mL	00350621023494	Grey	No	
016	0382_MW130_220905	HDPE (no PTFE)	20 mL	00350621023301	Grey	No	
016	0382_MW130_220905	HDPE (no PTFE)	20 mL	00350621023421	Grey	No	
016	0382_MW130_220905	HDPE (no PTFE)	20 mL	00350621023516	Grey	No	
017	0382_MW131_220905	HDPE (no PTFE)	20 mL	00350621023385	Grey	No	
017	0382_MW131_220905	HDPE (no PTFE)	20 mL	00350621023376	Grey	No	
017	0382_MW131_220905	HDPE (no PTFE)	20 mL	00350621023485	Grey	No	
018	0382_MW133_220905	HDPE (no PTFE)	20 mL	00350621023350	Grey	No	
018	0382_MW133_220905	HDPE (no PTFE)	20 mL	00350621023269	Grey	No	
018	0382_MW133_220905	HDPE (no PTFE)	20 mL	00350621023484	Grey	No	
019	0382_MW134_220905	HDPE (no PTFE)	20 mL	00350621023512	Grey	No	
019	0382_MW134_220905	HDPE (no PTFE)	20 mL	00350621023375	Grey	No	
019	0382_MW134_220905	HDPE (no PTFE)	20 mL	00350621023254	Grey	No	
020	0382_MW136_220905	HDPE (no PTFE)	20 mL	00350621023467	Grey	No	
020	0382_MW136_220905	HDPE (no PTFE)	20 mL	00350621023459	Grey	No	
020	0382_MW136_220905	HDPE (no PTFE)	20 mL	00350621023256	Grey	No	
021	0382_MW301_220906	HDPE (no PTFE)	20 mL	00350621014133	Grey	No	
021	0382_MW301_220906	HDPE (no PTFE)	20 mL	00350621023360	Grey	No	
021	0382_MW301_220906	HDPE (no PTFE)	20 mL	00350621023351	Grey	No	
022	0382_MW323_220907	HDPE (no PTFE)	20 mL	00350621023343	Grey	No	
022	0382_MW323_220907	HDPE (no PTFE)	20 mL	00350621023470	Grey	No	
022	0382_MW323_220907	HDPE (no PTFE)	20 mL	00350621023416	Grey	No	
023	0382_MW330_220905	HDPE (no PTFE)	20 mL	00350621023295	Grey	No	
023	0382_MW330_220905	HDPE (no PTFE)	20 mL	00350621023451	Grey	No	
023	0382_MW330_220905	HDPE (no PTFE)	20 mL	00350621023388	Grey	No	
023	0382_MW330_220905	HDPE (no PTFE)	20 mL	00350621013291	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 41782 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1652	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

023	0382_MW330_220905	HDPE (no PTFE)	20 mL	00350621023431	Grey	No	
024	0382_MW349_220906	HDPE (no PTFE)	20 mL	00350621023328	Grey	No	
024	0382_MW349_220906	HDPE (no PTFE)	20 mL	00350621023457	Grey	No	
024	0382_MW349_220906	HDPE (no PTFE)	20 mL	00350621023498	Grey	No	
025	0382_SW001_220905	HDPE (no PTFE)	20 mL	00350621023370	Grey	No	
025	0382_SW001_220905	HDPE (no PTFE)	20 mL	00350621023327	Grey	No	
025	0382_SW001_220905	HDPE (no PTFE)	20 mL	00350621023356	Grey	No	
026	0382_SW009_220907	HDPE (no PTFE)	20 mL	00350621023331	Grey	No	
026	0382_SW009_220907	HDPE (no PTFE)	20 mL	00350621023262	Grey	No	
026	0382_SW009_220907	HDPE (no PTFE)	20 mL	00350621023442	Grey	No	
027	0382_SW011_220906	HDPE (no PTFE)	20 mL	00350621023473	Grey	No	
027	0382_SW011_220906	HDPE (no PTFE)	20 mL	00350621023245	Grey	No	
027	0382_SW011_220906	HDPE (no PTFE)	20 mL	00350621023319	Grey	No	
027	0382_SW011_220906	HDPE (no PTFE)	20 mL	00350621023291	Grey	No	
027	0382_SW011_220906	HDPE (no PTFE)	20 mL	00350621023299	Grey	No	
028	0382_SW012_220906	HDPE (no PTFE)	20 mL	00350621023437	Grey	No	
028	0382_SW012_220906	HDPE (no PTFE)	20 mL	00350621023247	Grey	No	
028	0382_SW012_220906	HDPE (no PTFE)	20 mL	00350621023251	Grey	No	
029	0382_SW014_220907	HDPE (no PTFE)	20 mL	00350621023453	Grey	No	
029	0382_SW014_220907	HDPE (no PTFE)	20 mL	00350621023490	Grey	No	
029	0382_SW014_220907	HDPE (no PTFE)	20 mL	00350621023435	Grey	No	
030	0382_SW015_220907	HDPE (no PTFE)	20 mL	00350621023306	Grey	No	
030	0382_SW015_220907	HDPE (no PTFE)	20 mL	00350621023474	Grey	No	
030	0382_SW015_220907	HDPE (no PTFE)	20 mL	00350621023450	Grey	No	
031	0382_SW017_220906	HDPE (no PTFE)	20 mL	00350621023347	Grey	No	
031	0382_SW017_220906	HDPE (no PTFE)	20 mL	00350621023515	Grey	No	
031	0382_SW017_220906	HDPE (no PTFE)	20 mL	00350621023270	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 41782 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1652	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

032	0382_SW025_220905	HDPE (no PTFE)	20 mL	00350621023326	Grey	No	
032	0382_SW025_220905	HDPE (no PTFE)	20 mL	00350621023293	Grey	No	
032	0382_SW025_220905	HDPE (no PTFE)	20 mL	00350621023288	Grey	No	
033	0382_SW038_220907	HDPE (no PTFE)	20 mL	00350621023302	Grey	No	
033	0382_SW038_220907	HDPE (no PTFE)	20 mL	00350621023509	Grey	No	
033	0382_SW038_220907	HDPE (no PTFE)	20 mL	00350621023339	Grey	No	
034	0382_SW059_220905	HDPE (no PTFE)	20 mL	00350621023282	Grey	No	
034	0382_SW059_220905	HDPE (no PTFE)	20 mL	00350621023458	Grey	No	
034	0382_SW059_220905	HDPE (no PTFE)	20 mL	00350621023390	Grey	No	
034	0382_SW059_220905	HDPE (no PTFE)	20 mL	00350621023352	Grey	No	
034	0382_SW059_220905	HDPE (no PTFE)	20 mL	00350621023313	Grey	No	
035	0382_SW062_220905	HDPE (no PTFE)	20 mL	00350621023323	Grey	No	
035	0382_SW062_220905	HDPE (no PTFE)	20 mL	00350621023397	Grey	No	
035	0382_SW062_220905	HDPE (no PTFE)	20 mL	00350621023406	Grey	No	
036	0382_SW063_220907	HDPE (no PTFE)	20 mL	00350621023268	Grey	No	
036	0382_SW063_220907	HDPE (no PTFE)	20 mL	00350621023427	Grey	No	
036	0382_SW063_220907	HDPE (no PTFE)	20 mL	00350621023297	Grey	No	
037	0382_SW103_220905	HDPE (no PTFE)	20 mL	00350621023471	Grey	No	
037	0382_SW103_220905	HDPE (no PTFE)	20 mL	00350621023413	Grey	No	
037	0382_SW103_220905	HDPE (no PTFE)	20 mL	00350621023456	Grey	No	
037	0382_SW103_220905	HDPE (no PTFE)	20 mL	00350621013916	Grey	No	
037	0382_SW103_220905	HDPE (no PTFE)	20 mL	00350621014017	Grey	No	
038	0382_SW104_220905	HDPE (no PTFE)	20 mL	00350621023414	Grey	No	
038	0382_SW104_220905	HDPE (no PTFE)	20 mL	00350621023513	Grey	No	
038	0382_SW104_220905	HDPE (no PTFE)	20 mL	00350621023346	Grey	No	
039	0382_SW105_220905	HDPE (no PTFE)	20 mL	00350621013332	Grey	No	
039	0382_SW105_220905	HDPE (no PTFE)	20 mL	00350621023500	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 41782 ALS Laboratory: ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1552	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

039	0382_SW105_220905	HDPE (no PTFE)	20 mL	00350621023418	Grey	No	
040	0382_SW111_220905	HDPE (no PTFE)	20 mL	00350621023320	Grey	No	
040	0382_SW111_220905	HDPE (no PTFE)	20 mL	00350621023432	Grey	No	
040	0382_SW111_220905	HDPE (no PTFE)	20 mL	00350621023342	Grey	No	
041	0382_QC100_220905	HDPE (no PTFE)	20 mL	00350621023462	Grey	No	
041	0382_QC100_220905	HDPE (no PTFE)	20 mL	00350621023369	Grey	No	
041	0382_QC100_220905	HDPE (no PTFE)	20 mL	00350621023501	Grey	No	
042	0382_QC101_220905	HDPE (no PTFE)	20 mL	00350621023341	Grey	No	
042	0382_QC101_220905	HDPE (no PTFE)	20 mL	00350621023325	Grey	No	
042	0382_QC101_220905	HDPE (no PTFE)	20 mL	00350621023448	Grey	No	
043	0382_QC102_220905	HDPE (no PTFE)	20 mL	00350621023415	Grey	No	
043	0382_QC102_220905	HDPE (no PTFE)	20 mL	00350621023464	Grey	No	
043	0382_QC102_220905	HDPE (no PTFE)	20 mL	00350621023257	Grey	No	
044	0382_QC103_220905	HDPE (no PTFE)	20 mL	00350621023258	Grey	No	
044	0382_QC103_220905	HDPE (no PTFE)	20 mL	00350621023278	Grey	No	
044	0382_QC103_220905	HDPE (no PTFE)	20 mL	00350621023411	Grey	No	
045	0382_QC300_220905	HDPE (no PTFE)	20 mL	00350621023307	Grey	No	
045	0382_QC300_220905	HDPE (no PTFE)	20 mL	00350621023367	Grey	No	
045	0382_QC300_220905	HDPE (no PTFE)	20 mL	00350621023496	Grey	No	
046	0382_QC301_220906	HDPE (no PTFE)	20 mL	00350621023275	Grey	No	
046	0382_QC301_220906	HDPE (no PTFE)	20 mL	00350621023492	Grey	No	
046	0382_QC301_220906	HDPE (no PTFE)	20 mL	00350621023491	Grey	No	
047	0382_QC302_220907	HDPE (no PTFE)	20 mL	00350821042688	Grey	No	
047	0382_QC302_220907	HDPE (no PTFE)	20 mL	00350621014715	Grey	No	
047	0382_QC302_220907	HDPE (no PTFE)	20 mL	00350821042788	Grey	No	
048	0382_QC104_220906	HDPE (no PTFE)	20 mL	00350621023344	Grey	No	
048	0382_QC104_220906	HDPE (no PTFE)	20 mL	00350621023439	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 41782 *ALS Laboratory:* ES Sydney

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NSW_0382_PFASOMP_20

SITE: Holsworthy

ORDER NO: 60612562_6.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612562_6.1 / ES2021AECOMAU0028

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 07/09/22 1652	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

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

048	0382_QC104_220906	HDPE (no PTFE)	20 mL	00350621023336	Grey	No	

Total Bottle Count: ALS: 162, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2232110**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: NSW_0382_PFASOMP_20	Page	: 1 of 4
Order number	: 60612562_6.1	Quote number	: ES2021AECOMAU0028 (SY/139/19 v4 60612562_6.1)
C-O-C number	: 41782	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Holsworthy		
Sampler	: [redacted]		

Dates

Date Samples Received	: 07-Sep-2022 16:52	Issue Date	: 12-Sep-2022
Client Requested Due Date	: 14-Sep-2022	Scheduled Reporting Date	: **14-Sep-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not intact.
No. of coolers/boxes	: 2	Temperature	: 1.1'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 48 / 47

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **12/09/2022: This is an updated SRN to reflect changes made to sample dates and times for Samples 3, 18, 24, 27 and 38 as per requested by [redacted]**
- **12/09/2022: This is an updated SRN to reflect changes made to sample dates and times for Samples 45-47 as per requested by [redacted]**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2232110-001	06-Sep-2022 11:55	0382_MW002_220906		✓
ES2232110-002	06-Sep-2022 11:33	0382_MW005_220906		✓
ES2232110-003	05-Sep-2022 11:54	0382_MW112_220905		✓
ES2232110-004	05-Sep-2022 12:24	0382_MW112P_220905		✓
ES2232110-005	05-Sep-2022 10:20	0382_MW113_220905		✓
ES2232110-006	05-Sep-2022 10:06	0382_MW115_220905		✓
ES2232110-007	07-Sep-2022 11:30	0382_MW117_220907		✓
ES2232110-008	05-Sep-2022 14:24	0382_MW119_220905		✓
ES2232110-009	05-Sep-2022 14:42	0382_MW119P_220905		✓
ES2232110-010	06-Sep-2022 14:17	0382_MW120_220906		✓
ES2232110-011	06-Sep-2022 14:05	0382_MW121_220906		✓
ES2232110-012	06-Sep-2022 15:32	0382_MW122_220906		✓
ES2232110-013	06-Sep-2022 13:08	0382_MW123_220906		✓
ES2232110-014	07-Sep-2022 10:32	0382_MW124_220907		✓
ES2232110-015	05-Sep-2022 13:57	0382_MW129_220905		✓
ES2232110-016	05-Sep-2022 10:38	0382_MW130_220905		✓
ES2232110-017	05-Sep-2022 11:12	0382_MW131_220905		✓
ES2232110-018	05-Sep-2022 10:54	0382_MW133_220905		✓
ES2232110-019	05-Sep-2022 11:43	0382_MW134_220905		✓
ES2232110-020	05-Sep-2022 11:29	0382_MW136_220905		✓
ES2232110-021	06-Sep-2022 09:57	0382_MW301_220906		✓
ES2232110-022	07-Sep-2022 10:57	0382_MW323_220907		✓
ES2232110-023	05-Sep-2022 15:55	0382_MW330_220905		✓
ES2232110-024	06-Sep-2022 16:41	0382_MW349_220906		✓
ES2232110-025	05-Sep-2022 14:12	0382_SW001_220905		✓
ES2232110-026	07-Sep-2022 09:40	0382_SW009_220907		✓
ES2232110-027	06-Sep-2022 10:14	0382_SW011_220906		✓
ES2232110-028	06-Sep-2022 11:19	0382_SW012_220906		✓
ES2232110-029	07-Sep-2022 09:10	0382_SW014_220907		✓
ES2232110-030	07-Sep-2022 10:06	0382_SW015_220907		✓
ES2232110-031	06-Sep-2022 10:53	0382_SW017_220906		✓
ES2232110-032	05-Sep-2022 15:12	0382_SW025_220905		✓
ES2232110-033	07-Sep-2022 13:18	0382_SW038_220907		✓
ES2232110-034	05-Sep-2022 13:44	0382_SW059_220905		✓
ES2232110-035	05-Sep-2022 15:29	0382_SW062_220905		✓

			(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2232110-036	07-Sep-2022 11:47	0382_SW063_220907		✓
ES2232110-037	05-Sep-2022 16:11	0382_SW103_220905		✓
ES2232110-038	05-Sep-2022 16:13	0382_SW104_220905		✓
ES2232110-039	05-Sep-2022 16:29	0382_SW105_220905		✓
ES2232110-040	05-Sep-2022 14:41	0382_SW111_220905		✓
ES2232110-041	05-Sep-2022 10:07	0382_QC100_220905		✓
ES2232110-042	05-Sep-2022 10:34	0382_QC101_220905		✓
ES2232110-043	05-Sep-2022 13:44	0382_QC102_220905		✓
ES2232110-044	05-Sep-2022 15:13	0382_QC103_220905		✓
ES2232110-045	05-Sep-2022 16:30	0382_QC300_220905		✓
ES2232110-046	06-Sep-2022 16:45	0382_QC301_220906		✓
ES2232110-047	07-Sep-2022 13:30	0382_QC302_220907		✓
ES2232110-048	06-Sep-2022 13:07	0382_QC104_220906	✓	

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT)	Email	derp.labreports@esdat.com.au

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	
- A4 - AU Tax Invoice (INV)	Email	
- Chain of Custody (CoC) (COC)	Email	
- EDI Format - ENMRG (ENMRG)	Email	
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	
- EDI Format - XTab (XTAB)	Email	
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2232110**	Page	: 1 of 25
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 07-Sep-2022 16:52
Order number	: 60612562_6.1	Date Analysis Commenced	: 09-Sep-2022
C-O-C number	: 41782	Issue Date	: 14-Sep-2022 17:13
Sampler	[redacted]		
Site	: Holsworthy		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 48		
No. of samples analysed	: 47		

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*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Some samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231X: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW002_220906	0382_MW005_220906	0382_MW112_220905	0382_MW112P_220905	0382_MW113_220905
				Sampling date / time	06-Sep-2022 11:55	06-Sep-2022 11:33	05-Sep-2022 11:54	05-Sep-2022 12:24	05-Sep-2022 10:20
					ES2232110-001	ES2232110-002	ES2232110-003	ES2232110-004	ES2232110-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**2.02**	**0.16**	**21.7**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**4.00**	**0.30**	**40.9**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.04**	**0.05**	**32.4**	**4.36**	**184**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**4.10**	**0.31**	**21.0**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.07**	**0.11**	**22.0**	**24.3**	**336**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.17**
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	**0.4**	**0.2**	**4.2**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.05**	<0.02	**0.72**	**0.26**	**12.3**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.05**	<0.02	**3.61**	**1.04**	**34.1**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.04**	<0.02	**0.65**	**0.08**	**6.24**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.17**	**0.02**	**1.56**	**0.25**	**14.2**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.42**
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.12
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.12

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW002_220906	0382_MW005_220906	0382_MW112_220905	0382_MW112P_220905	0382_MW113_220905
				Sampling date / time	06-Sep-2022 11:55	06-Sep-2022 11:33	05-Sep-2022 11:54	05-Sep-2022 12:24	05-Sep-2022 10:20
					ES2232110-001	ES2232110-002	ES2232110-003	ES2232110-004	ES2232110-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.12
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.12
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	**7.76**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.42**	**0.18**	**71.5**	**31.3**	**683**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.11**	**0.16**	**54.4**	**28.7**	**520**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.42**	**0.18**	**63.4**	**30.6**	**620**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**87.1**	**87.8**	**92.4**	**89.8**	**100**
13C8-PFOA	----	0.02	%		**89.4**	**91.4**	**89.3**	**90.9**	**101**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW115_220905	0382_MW117_220907	0382_MW119_220905	0382_MW119P_220905	0382_MW120_220906
				Sampling date / time	05-Sep-2022 10:06	07-Sep-2022 11:30	05-Sep-2022 14:24	05-Sep-2022 14:42	06-Sep-2022 14:17
					ES2232110-006	ES2232110-007	ES2232110-008	ES2232110-009	ES2232110-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**14.2**	<0.02	**0.49**	**13.7**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**32.1**	**0.03**	**0.67**	**36.0**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**190**	**0.48**	**4.62**	**247**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**20.9**	**0.11**	**0.32**	**31.5**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**341**	**1.47**	**21.3**	**191**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.05	<0.02	<0.02	<0.05	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**3.2**	<0.1	**0.9**	**1.1**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**5.46**	<0.02	**0.89**	**2.68**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**24.7**	**0.03**	**2.00**	**19.0**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**4.79**	<0.02	**0.19**	**4.72**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**12.7**	**0.04**	**0.37**	**14.6**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.13**	<0.02	<0.02	**0.06**	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.05	<0.02	<0.02	<0.05	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.05	<0.02	<0.02	<0.05	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.05	<0.02	<0.02	<0.05	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.05	<0.02	<0.02	<0.05	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.12	<0.05	<0.05	<0.12	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.05	<0.02	<0.02	<0.05	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.12	<0.05	<0.05	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.12	<0.05	<0.05	<0.12	<0.05

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW115_220905	0382_MW117_220907	0382_MW119_220905	0382_MW119P_220905	0382_MW120_220906
				Sampling date / time	05-Sep-2022 10:06	07-Sep-2022 11:30	05-Sep-2022 14:24	05-Sep-2022 14:42	06-Sep-2022 14:17
					ES2232110-006	ES2232110-007	ES2232110-008	ES2232110-009	ES2232110-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.12	<0.05	<0.05	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.12	<0.05	<0.05	<0.12	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.05	<0.02	<0.02	<0.05	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.05	<0.02	<0.02	<0.05	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.75**	<0.05	<0.05	**0.24**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**650**	**2.16**	**31.8**	**562**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**531**	**1.95**	**25.9**	**438**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**597**	**2.02**	**30.8**	**494**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.0**	**84.9**	**83.7**	**98.0**	**91.5**
13C8-PFOA	----	0.02	%		**97.0**	**90.2**	**84.3**	**100**	**86.1**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW121_220906	0382_MW122_220906	0382_MW123_220906	0382_MW124_220907	0382_MW129_220905
				Sampling date / time	06-Sep-2022 14:05	06-Sep-2022 15:32	06-Sep-2022 13:08	07-Sep-2022 10:32	05-Sep-2022 13:57
					ES2232110-011	ES2232110-012	ES2232110-013	ES2232110-014	ES2232110-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.02**	<0.01	**0.03**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	**0.1**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW121_220906	0382_MW122_220906	0382_MW123_220906	0382_MW124_220907	0382_MW129_220905
				Sampling date / time	06-Sep-2022 14:05	06-Sep-2022 15:32	06-Sep-2022 13:08	07-Sep-2022 10:32	05-Sep-2022 13:57
Compound	CAS Number	LOR	Unit		ES2232110-011	ES2232110-012	ES2232110-013	ES2232110-014	ES2232110-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	**0.02**	<0.01	**0.13**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.02**	<0.01	**0.03**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.02**	<0.01	**0.13**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**83.2**	**87.1**	**89.9**	**83.3**	**86.4**
13C8-PFOA	----	0.02	%		**88.4**	**88.0**	**88.5**	**81.7**	**85.2**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW130_220905	0382_MW131_220905	0382_MW133_220905	0382_MW134_220905	0382_MW136_220905
				Sampling date / time	05-Sep-2022 10:38	05-Sep-2022 11:12	05-Sep-2022 10:54	05-Sep-2022 11:43	05-Sep-2022 11:29
					ES2232110-016	ES2232110-017	ES2232110-018	ES2232110-019	ES2232110-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**1.32**	**0.22**	**0.07**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**2.71**	**0.23**	**0.08**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.04**	**0.02**	**31.3**	**0.95**	**0.32**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**10.7**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.02**	**0.05**	**530**	**0.36**	**0.08**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	**1.2**	**0.3**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	**1.40**	**0.29**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	**5.94**	**0.55**	**0.07**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.50**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	**3.39**	**0.02**	**0.01**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.12	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.12	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.12	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW130_220905	0382_MW131_220905	0382_MW133_220905	0382_MW134_220905	0382_MW136_220905
				Sampling date / time	05-Sep-2022 10:38	05-Sep-2022 11:12	05-Sep-2022 10:54	05-Sep-2022 11:43	05-Sep-2022 11:29
Compound	CAS Number	LOR	Unit		ES2232110-016	ES2232110-017	ES2232110-018	ES2232110-019	ES2232110-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.12	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.12	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.06**	**0.07**	**588**	**2.92**	**0.63**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.06**	**0.07**	**561**	**1.31**	**0.40**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.06**	**0.07**	**575**	**2.69**	**0.55**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**90.6**	**86.8**	**79.0**	**88.6**	**101**
13C8-PFOA	----	0.02	%		**85.5**	**84.8**	**99.0**	**87.5**	**90.9**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_MW301_220906	0382_MW323_220907	0382_MW330_220905	0382_MW349_220906	0382_QC100_220905
				Sampling date / time	06-Sep-2022 09:57	07-Sep-2022 10:57	05-Sep-2022 15:55	06-Sep-2022 16:41	05-Sep-2022 10:07
					ES2232110-021	ES2232110-022	ES2232110-023	ES2232110-024	ES2232110-041
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.71**	**0.06**	**15.1**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**3.13**	**0.07**	**26.6**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.09**	<0.01	**26.8**	**0.31**	**194**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**2.74**	<0.02	**14.5**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.03**	<0.01	**10.3**	**0.05**	**336**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	**0.5**	<0.1	**3.1**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	**1.10**	<0.02	**5.72**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	**7.30**	**0.03**	**28.1**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.64**	<0.02	**5.02**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	**3.24**	<0.01	**12.4**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.14**
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.12
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.12

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_MW301_220906	0382_MW323_220907	0382_MW330_220905	0382_MW349_220906	0382_QC100_220905
				Sampling date / time	06-Sep-2022 09:57	07-Sep-2022 10:57	05-Sep-2022 15:55	06-Sep-2022 16:41	05-Sep-2022 10:07
Compound	CAS Number	LOR	Unit		ES2232110-021	ES2232110-022	ES2232110-023	ES2232110-024	ES2232110-041
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.12
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.12
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	**0.66**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.12**	<0.01	**56.5**	**0.52**	**641**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.12**	<0.01	**37.1**	**0.36**	**530**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.12**	<0.01	**50.6**	**0.45**	**600**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**106**	**98.6**	**104**	**118**
13C8-PFOA	----	0.02	%		**90.6**	**94.0**	**98.7**	**98.0**	**99.0**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_QC101_220905	----	----	----	----
				Sampling date / time	05-Sep-2022 10:34	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2232110-042	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.01**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.02**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0382_QC101_220905	----	----	----	----
				Sampling date / time	05-Sep-2022 10:34	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2232110-042	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.03**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	----	----	----	----
13C8-PFOA	----	0.02	%		**94.7**	----	----	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0382_QC300_220905	0382_QC301_220906	0382_QC302_220907	----	----
				Sampling date / time	05-Sep-2022 16:30	06-Sep-2022 16:45	07-Sep-2022 13:30	----	----
Compound	CAS Number	LOR	Unit		ES2232110-045	ES2232110-046	ES2232110-047	--------	--------
					Result	Result	Result	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0382_QC300_220905	0382_QC301_220906	0382_QC302_220907	----	----
				Sampling date / time	05-Sep-2022 16:30	06-Sep-2022 16:45	07-Sep-2022 13:30	----	----
Compound	CAS Number	LOR	Unit		ES2232110-045	ES2232110-046	ES2232110-047	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	**105**	**105**	----	----
13C8-PFOA	----	0.02	%		**95.5**	**96.4**	**97.0**	----	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0382_SW001_220905	0382_SW009_220907	0382_SW011_220906	0382_SW012_220906	0382_SW014_220907
				Sampling date / time	05-Sep-2022 14:12	07-Sep-2022 09:40	06-Sep-2022 10:14	06-Sep-2022 11:19	07-Sep-2022 09:10
					ES2232110-025	ES2232110-026	ES2232110-027	ES2232110-028	ES2232110-029
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.15**	**0.09**	**0.10**	**0.10**	**0.06**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.87**	**0.09**	**0.12**	**0.12**	**0.09**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		**0.03**	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.04**	**0.02**	**0.03**	**0.03**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.01**	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		**0.04**	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW001_220905	0382_SW009_220907	0382_SW011_220906	0382_SW012_220906	0382_SW014_220907
				Sampling date / time	05-Sep-2022 14:12	07-Sep-2022 09:40	06-Sep-2022 10:14	06-Sep-2022 11:19	07-Sep-2022 09:10
Compound	CAS Number	LOR	Unit		ES2232110-025	ES2232110-026	ES2232110-027	ES2232110-028	ES2232110-029
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.15**	**0.21**	**0.25**	**0.25**	**0.15**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.02**	**0.18**	**0.22**	**0.22**	**0.15**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.08**	**0.21**	**0.25**	**0.25**	**0.15**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**110**	**101**	**111**	**99.2**	**103**
13C8-PFOA	----	0.02	%		**93.3**	**91.9**	**95.2**	**93.6**	**94.7**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW015_220907	0382_SW017_220906	0382_SW025_220905	0382_SW038_220907	0382_SW059_220905
				Sampling date / time	07-Sep-2022 10:06	06-Sep-2022 10:53	05-Sep-2022 15:12	07-Sep-2022 13:18	05-Sep-2022 13:44
Compound	CAS Number	LOR	Unit		ES2232110-030	ES2232110-031	ES2232110-032	ES2232110-033	ES2232110-034
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	**0.05**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	**0.06**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.03**	**0.04**	**0.01**	**0.46**	**0.05**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.03**	**0.04**	**0.02**	**0.44**	**0.06**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	**0.03**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	**0.10**	**0.02**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	**0.02**	**0.01**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW015_220907	0382_SW017_220906	0382_SW025_220905	0382_SW038_220907	0382_SW059_220905
				Sampling date / time	07-Sep-2022 10:06	06-Sep-2022 10:53	05-Sep-2022 15:12	07-Sep-2022 13:18	05-Sep-2022 13:44
Compound	CAS Number	LOR	Unit		ES2232110-030	ES2232110-031	ES2232110-032	ES2232110-033	ES2232110-034
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.06**	**0.08**	**0.03**	**1.16**	**0.14**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.06**	**0.08**	**0.03**	**0.90**	**0.11**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.06**	**0.08**	**0.03**	**1.10**	**0.14**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**109**	**99.5**	**104**	**98.7**	**111**
13C8-PFOA	----	0.02	%		**96.9**	**96.6**	**97.5**	**95.6**	**96.7**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW062_220905	0382_SW063_220907	0382_SW103_220905	0382_SW104_220905	0382_SW105_220905
				Sampling date / time	05-Sep-2022 15:29	07-Sep-2022 11:47	05-Sep-2022 16:11	05-Sep-2022 16:13	05-Sep-2022 16:29
Compound	CAS Number	LOR	Unit		ES2232110-035	ES2232110-036	ES2232110-037	ES2232110-038	ES2232110-039
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**0.03**	**0.07**	**0.04**	**0.04**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.01**	**0.03**	**0.08**	**0.08**	**0.09**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW062_220905	0382_SW063_220907	0382_SW103_220905	0382_SW104_220905	0382_SW105_220905
				Sampling date / time	05-Sep-2022 15:29	07-Sep-2022 11:47	05-Sep-2022 16:11	05-Sep-2022 16:13	05-Sep-2022 16:29
Compound	CAS Number	LOR	Unit		ES2232110-035	ES2232110-036	ES2232110-037	ES2232110-038	ES2232110-039
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.01**	**0.06**	**0.15**	**0.12**	**0.13**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.01**	**0.06**	**0.15**	**0.12**	**0.13**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.01**	**0.06**	**0.15**	**0.12**	**0.13**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	**99.6**	**95.2**	**107**	**106**
13C8-PFOA	----	0.02	%		**94.9**	**96.3**	**98.4**	**96.8**	**97.7**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW111_220905	0382_QC102_220905	0382_QC103_220905	----	----
				Sampling date / time	05-Sep-2022 14:41	05-Sep-2022 13:44	05-Sep-2022 15:13	----	----
Compound	CAS Number	LOR	Unit		ES2232110-040	ES2232110-043	ES2232110-044	--------	--------
					Result	Result	Result	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.03**	**0.04**	**0.04**	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.04**	**0.06**	**0.03**	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	**0.01**	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0382_SW111_220905	0382_QC102_220905	0382_QC103_220905	----	----
				Sampling date / time	05-Sep-2022 14:41	05-Sep-2022 13:44	05-Sep-2022 15:13	----	----
Compound	CAS Number	LOR	Unit		ES2232110-040	ES2232110-043	ES2232110-044	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.08**	**0.11**	**0.07**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.07**	**0.10**	**0.07**	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.08**	**0.11**	**0.07**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**112**	**102**	**101**	----	----
13C8-PFOA	----	0.02	%		**98.7**	**97.5**	**90.5**	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **RINSATE**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **SURFACE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2232110**	Page	: 1 of 12
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	[redacted]
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 07-Sep-2022
Order number	: 60612562_6.1	Date Analysis Commenced	: 09-Sep-2022
C-O-C number	: 41782	Issue Date	: 14-Sep-2022
Sampler	: A[redacted]		
Site	: Holsworthy		
Quote number	: SY/139/19 v4 60612562_6.1		
No. of samples received	: 48		
No. of samples analysed	: 47		

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*
[redacted]	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4569773)									
ES2232110-003	0382_MW112_220905	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	32.4	36.7	12.5	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	22.0	23.5	6.4	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	2.02	2.44	18.5	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	4.00	4.53	12.4	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	4.10	4.76	15.0	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2232110-012	0382_MW122_220906	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4574340)									
ES2232110-023	0382_MW330_220905	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	26.8	27.3	1.9	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	10.3	10.4	1.6	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.71	0.72	1.6	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	3.13	2.75	12.7	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	2.74	2.84	3.5	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2232110-034	0382_SW059_220905	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.05	0.04	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4574340) - continued									
ES2232110-034	0382_SW059_220905	EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4569773)									
ES2232110-003	0382_MW112_220905	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	1.56	1.80	14.5	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.72	0.83	15.1	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	3.61	4.13	13.6	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.65	0.74	12.7	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.4	0.6	25.6	No Limit
ES2232110-012	0382_MW122_220906	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4574340)									
ES2232110-023	0382_MW330_220905	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	3.24	3.12	3.8	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	1.10	1.09	1.0	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	7.30	7.34	0.6	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.64	0.62	2.8	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.5	0.5	0.0	No Limit
ES2232110-034	0382_SW059_220905	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.01	0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4574340) - continued									
ES2232110-034	0382_SW059_220905	EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4569773)									
ES2232110-003	0382_MW112_220905	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2232110-012	0382_MW122_220906	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4574340)									
ES2232110-023	0382_MW330_220905	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4574340) - continued									
ES2232110-023	0382_MW330_220905	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2232110-034	0382_SW059_220905	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4569773)									
ES2232110-003	0382_MW112_220905	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2232110-012	0382_MW122_220906	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4574340)									
ES2232110-023	0382_MW330_220905	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4574340) - continued									
ES2232110-023	0382_MW330_220905	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2232110-034	0382_SW059_220905	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4569773)									
ES2232110-003	0382_MW112_220905	EP231X: Sum of PFAS	----	0.01	µg/L	71.5	80.0	11.3	0% - 20%
ES2232110-012	0382_MW122_220906	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4574340)									
ES2232110-023	0382_MW330_220905	EP231X: Sum of PFAS	----	0.01	µg/L	56.5	56.7	0.4	0% - 20%
ES2232110-034	0382_SW059_220905	EP231X: Sum of PFAS	----	0.01	µg/L	0.14	0.11	24.0	0% - 50%

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4569773)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	84.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	113	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	95.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	92.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	80.8	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4574340)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	90.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	103	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	88.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	92.6	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	93.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	92.0	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4574712)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	101	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	86.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	87.8	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	95.4	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	81.2	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4569773)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	100	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	82.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	100	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	90.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	95.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	106	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	99.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	75.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	117	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4574340)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	97.2	73.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4574340) - continued								
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	110	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	96.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.6	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	113	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	111	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	100	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4574712)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	94.5	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	108	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	94.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	103	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	123	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	96.1	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4569773)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	84.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	108	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	118	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	100	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	114	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	117	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	112	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4574340)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	107	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	104	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	110	62.6	147

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4574340) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	96.7	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	104	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	106	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	97.4	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4574712)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	99.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	97.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	86.6	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	105	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	96.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	89.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4569773)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	103	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	107	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	101	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	124	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4574340)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	104	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	103	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	92.0	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	97.0	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4574712)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	95.0	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	91.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	87.0	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	90.2	71.4	144

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
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4569773)							
ES2232110-008	0382_MW119_220905	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	98.6	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	82.6	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	# Not Determined	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	123	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	113	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4574340)							
ES2232110-027	0382_SW011_220906	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	92.4	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	105	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	95.0	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	97.8	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	96.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	95.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4569773)							
ES2232110-008	0382_MW119_220905	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	128	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	105	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	108	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	108	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	77.4	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	73.8	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	85.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	119	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.6	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	98.1	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4574340)							
ES2232110-027	0382_SW011_220906	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	97.0	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	104	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	101	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	108	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	109	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	95.0	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	104	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	96.0	69.0	133

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4574340) - continued							
ES2232110-027	0382_SW011_220906	EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	92.8	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	98.6	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	114	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4569773)							
ES2232110-008	0382_MW119_220905	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	124	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	116	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	108	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	123	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	109	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	114	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4574340)							
ES2232110-027	0382_SW011_220906	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	102	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	101	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	108	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	90.0	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	104	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	108	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	96.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4569773)							
ES2232110-008	0382_MW119_220905	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	88.2	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	92.4	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	92.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	94.8	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4574340)							
ES2232110-027	0382_SW011_220906	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	100	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	97.0	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	86.4	67.0	138

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4574340) - continued							
ES2232110-027	0382_SW011_220906	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	94.0	71.4	144

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2232110**	Page	: 1 of 9
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: +61 2 8784 8555
Project	: NSW_0382_PFASOMP_20	Date Samples Received	: 07-Sep-2022
Site	: Holsworthy	Issue Date	: 14-Sep-2022
Sampler	: [redacted]	No. of samples received	: 48
Order number	: 60612562_6.1	No. of samples analysed	: 47

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	ES2232110--008	0382_MW119_220905	**Perfluorohexane sulfonic acid (PFHxS)**	355-46-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	ES2232110--008	0382_MW119_220905	**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	ES2232110--008	0382_MW119_220905	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	4	47	8.51	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	2	47	4.26	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method	***Sample Date***	*Extraction / Preparation*			*Analysis*		
Container / *Client Sample ID(s)*		***Date extracted***	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0382_MW112_220905, 0382_MW112P_220905, 0382_MW113_220905, 0382_MW115_220905, 0382_MW119_220905, 0382_MW119P_220905, 0382_MW129_220905, 0382_MW130_220905, 0382_MW131_220905, 0382_MW133_220905, 0382_MW134_220905, 0382_MW136_220905	**05-Sep-2022**	**09-Sep-2022**	04-Mar-2023	✓	**12-Sep-2022**	04-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW330_220905, 0382_SW001_220905, 0382_SW025_220905, 0382_SW059_220905, 0382_SW062_220905, 0382_SW103_220905, 0382_SW104_220905, 0382_SW105_220905, 0382_SW111_220905	**05-Sep-2022**	**12-Sep-2022**	04-Mar-2023	✓	**13-Sep-2022**	04-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_QC100_220905, 0382_QC101_220905, 0382_QC102_220905, 0382_QC103_220905, 0382_QC300_220905	**05-Sep-2022**	**13-Sep-2022**	04-Mar-2023	✓	**13-Sep-2022**	04-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW002_220906, 0382_MW005_220906, 0382_MW120_220906, 0382_MW121_220906, 0382_MW122_220906, 0382_MW123_220906	**06-Sep-2022**	**09-Sep-2022**	05-Mar-2023	✓	**12-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW301_220906, 0382_MW349_220906, 0382_SW011_220906, 0382_SW012_220906, 0382_SW017_220906	**06-Sep-2022**	**12-Sep-2022**	05-Mar-2023	✓	**13-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_QC301_220906	**06-Sep-2022**	**13-Sep-2022**	05-Mar-2023	✓	**13-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW117_220907, 0382_MW124_220907	**07-Sep-2022**	**09-Sep-2022**	06-Mar-2023	✓	**12-Sep-2022**	06-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW323_220907, 0382_SW009_220907, 0382_SW014_220907, 0382_SW015_220907, 0382_SW038_220907, 0382_SW063_220907	**07-Sep-2022**	**12-Sep-2022**	06-Mar-2023	✓	**13-Sep-2022**	06-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_QC302_220907	**07-Sep-2022**	**13-Sep-2022**	06-Mar-2023	✓	**13-Sep-2022**	06-Mar-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0382_MW112_220905,	0382_MW112P_220905,	**05-Sep-2022**	**09-Sep-2022**	04-Mar-2023	✓	**12-Sep-2022**	04-Mar-2023	✓
0382_MW113_220905,	0382_MW115_220905,							
0382_MW119_220905,	0382_MW119P_220905,							
0382_MW129_220905,	0382_MW130_220905,							
0382_MW131_220905,	0382_MW133_220905,							
0382_MW134_220905,	0382_MW136_220905							
HDPE (no PTFE) (EP231X)								
0382_MW330_220905,	0382_SW001_220905,	**05-Sep-2022**	**12-Sep-2022**	04-Mar-2023	✓	**13-Sep-2022**	04-Mar-2023	✓
0382_SW025_220905,	0382_SW059_220905,							
0382_SW062_220905,	0382_SW103_220905,							
0382_SW104_220905,	0382_SW105_220905,							
0382_SW111_220905								
HDPE (no PTFE) (EP231X)								
0382_QC100_220905,	0382_QC101_220905,	**05-Sep-2022**	**13-Sep-2022**	04-Mar-2023	✓	**13-Sep-2022**	04-Mar-2023	✓
0382_QC102_220905,	0382_QC103_220905,							
0382_QC300_220905								
HDPE (no PTFE) (EP231X)								
0382_MW002_220906,	0382_MW005_220906,	**06-Sep-2022**	**09-Sep-2022**	05-Mar-2023	✓	**12-Sep-2022**	05-Mar-2023	✓
0382_MW120_220906,	0382_MW121_220906,							
0382_MW122_220906,	0382_MW123_220906							
HDPE (no PTFE) (EP231X)								
0382_MW301_220906,	0382_MW349_220906,	**06-Sep-2022**	**12-Sep-2022**	05-Mar-2023	✓	**13-Sep-2022**	05-Mar-2023	✓
0382_SW011_220906,	0382_SW012_220906,							
0382_SW017_220906								
HDPE (no PTFE) (EP231X)								
0382_QC301_220906		**06-Sep-2022**	**13-Sep-2022**	05-Mar-2023	✓	**13-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X)								
0382_MW117_220907,	0382_MW124_220907	**07-Sep-2022**	**09-Sep-2022**	06-Mar-2023	✓	**12-Sep-2022**	06-Mar-2023	✓
HDPE (no PTFE) (EP231X)								
0382_MW323_220907,	0382_SW009_220907,	**07-Sep-2022**	**12-Sep-2022**	06-Mar-2023	✓	**13-Sep-2022**	06-Mar-2023	✓
0382_SW014_220907,	0382_SW015_220907,							
0382_SW038_220907,	0382_SW063_220907							
HDPE (no PTFE) (EP231X)								
0382_QC302_220907		**07-Sep-2022**	**13-Sep-2022**	06-Mar-2023	✓	**13-Sep-2022**	06-Mar-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0382_MW112_220905, 0382_MW112P_220905, 0382_MW113_220905, 0382_MW115_220905, 0382_MW119_220905, 0382_MW119P_220905, 0382_MW129_220905, 0382_MW130_220905, 0382_MW131_220905, 0382_MW133_220905, 0382_MW134_220905, 0382_MW136_220905	**05-Sep-2022**	**09-Sep-2022**	04-Mar-2023	✓	**12-Sep-2022**	04-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW330_220905, 0382_SW001_220905, 0382_SW025_220905, 0382_SW059_220905, 0382_SW062_220905, 0382_SW103_220905, 0382_SW104_220905, 0382_SW105_220905, 0382_SW111_220905	**05-Sep-2022**	**12-Sep-2022**	04-Mar-2023	✓	**13-Sep-2022**	04-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_QC100_220905, 0382_QC101_220905, 0382_QC102_220905, 0382_QC103_220905, 0382_QC300_220905	**05-Sep-2022**	**13-Sep-2022**	04-Mar-2023	✓	**13-Sep-2022**	04-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW002_220906, 0382_MW005_220906, 0382_MW120_220906, 0382_MW121_220906, 0382_MW122_220906, 0382_MW123_220906	**06-Sep-2022**	**09-Sep-2022**	05-Mar-2023	✓	**12-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW301_220906, 0382_MW349_220906, 0382_SW011_220906, 0382_SW012_220906, 0382_SW017_220906	**06-Sep-2022**	**12-Sep-2022**	05-Mar-2023	✓	**13-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_QC301_220906	**06-Sep-2022**	**13-Sep-2022**	05-Mar-2023	✓	**13-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW117_220907, 0382_MW124_220907	**07-Sep-2022**	**09-Sep-2022**	06-Mar-2023	✓	**12-Sep-2022**	06-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW323_220907, 0382_SW009_220907, 0382_SW014_220907, 0382_SW015_220907, 0382_SW038_220907, 0382_SW063_220907	**07-Sep-2022**	**12-Sep-2022**	06-Mar-2023	✓	**13-Sep-2022**	06-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_QC302_220907	**07-Sep-2022**	**13-Sep-2022**	06-Mar-2023	✓	**13-Sep-2022**	06-Mar-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0382_MW112_220905,	0382_MW112P_220905,	**05-Sep-2022**	**09-Sep-2022**	04-Mar-2023	✓	**12-Sep-2022**	04-Mar-2023	✓
0382_MW113_220905,	0382_MW115_220905,							
0382_MW119_220905,	0382_MW119P_220905,							
0382_MW129_220905,	0382_MW130_220905,							
0382_MW131_220905,	0382_MW133_220905,							
0382_MW134_220905,	0382_MW136_220905							
HDPE (no PTFE) (EP231X)								
0382_MW330_220905,	0382_SW001_220905,	**05-Sep-2022**	**12-Sep-2022**	04-Mar-2023	✓	**13-Sep-2022**	04-Mar-2023	✓
0382_SW025_220905,	0382_SW059_220905,							
0382_SW062_220905,	0382_SW103_220905,							
0382_SW104_220905,	0382_SW105_220905,							
0382_SW111_220905								
HDPE (no PTFE) (EP231X)								
0382_QC100_220905,	0382_QC101_220905,	**05-Sep-2022**	**13-Sep-2022**	04-Mar-2023	✓	**13-Sep-2022**	04-Mar-2023	✓
0382_QC102_220905,	0382_QC103_220905,							
0382_QC300_220905								
HDPE (no PTFE) (EP231X)								
0382_MW002_220906,	0382_MW005_220906,	**06-Sep-2022**	**09-Sep-2022**	05-Mar-2023	✓	**12-Sep-2022**	05-Mar-2023	✓
0382_MW120_220906,	0382_MW121_220906,							
0382_MW122_220906,	0382_MW123_220906							
HDPE (no PTFE) (EP231X)								
0382_MW301_220906,	0382_MW349_220906,	**06-Sep-2022**	**12-Sep-2022**	05-Mar-2023	✓	**13-Sep-2022**	05-Mar-2023	✓
0382_SW011_220906,	0382_SW012_220906,							
0382_SW017_220906								
HDPE (no PTFE) (EP231X)								
0382_QC301_220906		**06-Sep-2022**	**13-Sep-2022**	05-Mar-2023	✓	**13-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X)								
0382_MW117_220907,	0382_MW124_220907	**07-Sep-2022**	**09-Sep-2022**	06-Mar-2023	✓	**12-Sep-2022**	06-Mar-2023	✓
HDPE (no PTFE) (EP231X)								
0382_MW323_220907,	0382_SW009_220907,	**07-Sep-2022**	**12-Sep-2022**	06-Mar-2023	✓	**13-Sep-2022**	06-Mar-2023	✓
0382_SW014_220907,	0382_SW015_220907,							
0382_SW038_220907,	0382_SW063_220907							
HDPE (no PTFE) (EP231X)								
0382_QC302_220907		**07-Sep-2022**	**13-Sep-2022**	06-Mar-2023	✓	**13-Sep-2022**	06-Mar-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0382_MW112_220905, 0382_MW112P_220905, 0382_MW113_220905, 0382_MW115_220905, 0382_MW119_220905, 0382_MW119P_220905, 0382_MW129_220905, 0382_MW130_220905, 0382_MW131_220905, 0382_MW133_220905, 0382_MW134_220905, 0382_MW136_220905	**05-Sep-2022**	**09-Sep-2022**	04-Mar-2023	✓	**12-Sep-2022**	04-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW330_220905, 0382_SW001_220905, 0382_SW025_220905, 0382_SW059_220905, 0382_SW062_220905, 0382_SW103_220905, 0382_SW104_220905, 0382_SW105_220905, 0382_SW111_220905	**05-Sep-2022**	**12-Sep-2022**	04-Mar-2023	✓	**13-Sep-2022**	04-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_QC100_220905, 0382_QC101_220905, 0382_QC102_220905, 0382_QC103_220905, 0382_QC300_220905	**05-Sep-2022**	**13-Sep-2022**	04-Mar-2023	✓	**13-Sep-2022**	04-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW002_220906, 0382_MW005_220906, 0382_MW120_220906, 0382_MW121_220906, 0382_MW122_220906, 0382_MW123_220906	**06-Sep-2022**	**09-Sep-2022**	05-Mar-2023	✓	**12-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW301_220906, 0382_MW349_220906, 0382_SW011_220906, 0382_SW012_220906, 0382_SW017_220906	**06-Sep-2022**	**12-Sep-2022**	05-Mar-2023	✓	**13-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_QC301_220906	**06-Sep-2022**	**13-Sep-2022**	05-Mar-2023	✓	**13-Sep-2022**	05-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW117_220907, 0382_MW124_220907	**07-Sep-2022**	**09-Sep-2022**	06-Mar-2023	✓	**12-Sep-2022**	06-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_MW323_220907, 0382_SW009_220907, 0382_SW014_220907, 0382_SW015_220907, 0382_SW038_220907, 0382_SW063_220907	**07-Sep-2022**	**12-Sep-2022**	06-Mar-2023	✓	**13-Sep-2022**	06-Mar-2023	✓
HDPE (no PTFE) (EP231X) 0382_QC302_220907	**07-Sep-2022**	**13-Sep-2022**	06-Mar-2023	✓	**13-Sep-2022**	06-Mar-2023	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	47	**8.51**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	47	**6.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	47	**6.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	47	**4.26**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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 combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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.

AECOM

Chain of Custody

AECOM Australia Pty Ltd
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Sydney, NSW, 2000
PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 1000
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[redacted]

Laboratory Details

Lab. Name: Envirolab Tel: 02 8784 8555
Lab. Address: 12 Ashley St, Chaswood NSW 2067
Contact Name:
Lab. Ref: Lab Quote No:

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Sampled By: [redacted]

Project Name: NSW_0382_PFASOMP_20

AECOM Project #: 60612562_6.1

Purchase Order No:

Job No: 305110

Date Received: 7-9-22
Time Received: 1615
Received By: TJHAN
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

6. Report Format: ESdat
7. Project Manager:

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filtered	acid	ice	other	Container (No. & type)	Analysis Request: PFAS in Water Extended	HOLD	Notes
1	0382_QC200_2209	5 /09/2022		X				X		3x plastic 20mL	X		
2	0382_QC201_2209	5 /09/2022		X				X		3x plastic 20mL	X		
3	0382_QC202_2209	5 /09/2022		X				X		3x plastic 20mL	X		
4	0382_QC203_2209	5 /09/2022		X				X		3x plastic 20mL	X		
5	0382_QC204_2209	6 /09/2022		X				X		3x plastic 20mL	X	X	

Comments: Please send ESdat files to DERP.labreports@esdat.com.au and esdat.apac@aecom.com and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & invoice: [redacted]

Lab Report No: Esky ID:

Relinquished by: [redacted]	Signed:	Date: 7/9/22	Relinquished by:	Signed:	Date:
Received by:	Signed:	Date:	Received by: [redacted]	Signed:	Date: 7-9-22

1615

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	[redacted]

Sample Login Details

Your reference	60612562_6.1,NSW_0382_PFASOMP_20
Envirolab Reference	305110
Date Sample Received	07/09/2022
Date Instructions Received	07/09/2022
Date Results Expected to be Reported	15/09/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	5 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	4
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

[redacted]

Email: [redacted]	**Email:** [redacted]

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	PFAS in Waters Extended	On Hold
0382_QC200_2209	✓	
0382_QC201_2209	✓	
0382_QC202_2209	✓	
0382_QC203_2209	✓	
0382_QC204_2209		✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 305110

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	[redacted]
Address	PO Box Q410, QVB Post Office, Sydney, NSW, 1230

Sample Details

Your Reference	**60612562_6.1,NSW_0382_PFASOMP_20**
Number of Samples	5 Water
Date samples received	07/09/2022
Date completed instructions received	07/09/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	15/09/2022
Date of Issue	15/09/2022

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By

[redacted] Senior Chemist

Authorised By

[redacted]

[redacted] Laboratory Manager

PFAS in Waters Extended					
Our Reference		305110-1	305110-2	305110-3	305110-4
Your Reference	UNITS	0382_QC200_2209	0382_QC201_2209	0382_QC202_2209	0382_QC203_2209
Date Sampled		5/09/2022	5/09/2022	5/09/2022	5/09/2022
Type of sample		Water	Water	Water	Water
Date prepared	-	09/09/2022	09/09/2022	09/09/2022	09/09/2022
Date analysed	-	13/09/2022	13/09/2022	13/09/2022	13/09/2022
Perfluorobutanesulfonic acid	µg/L	24	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	µg/L	24	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	180	0.01	0.03	<0.01
Perfluoroheptanesulfonic acid	µg/L	13	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	260	0.03	0.04	<0.01
Perfluorodecanesulfonic acid	µg/L	0.06	<0.02	<0.02	<0.02
Perfluorobutanoic acid	µg/L	4.5	<0.02	<0.02	<0.02
Perfluoropentanoic acid	µg/L	9.9	<0.02	<0.02	<0.02
Perfluorohexanoic acid	µg/L	36	<0.01	0.01	<0.01
Perfluoroheptanoic acid	µg/L	6.8	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	13	<0.01	0.01	<0.01
Perfluorononanoic acid	µg/L	0.29	<0.01	<0.01	<0.01
Perfluorodecanoic acid	µg/L	0.03	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01
6:2 FTS	µg/L	7.6	<0.01	<0.01	<0.01
8:2 FTS	µg/L	0.03	<0.02	<0.02	<0.02
10:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	97	97	98	95
Surrogate $^{13}C_2$ *PFOA*	%	105	95	96	102
Extracted ISTD $^{13}C_3$ *PFBS*	%	96	101	102	98
Extracted ISTD $^{18}O_2$ *PFHxS*	%	105	106	108	104
Extracted ISTD $^{13}C_4$ *PFOS*	%	111	108	111	108
Extracted ISTD $^{13}C_4$ *PFBA*	%	107	100	101	97

PFAS in Waters Extended					
Our Reference		305110-1	305110-2	305110-3	305110-4
Your Reference	UNITS	0382_QC200_2209	0382_QC201_2209	0382_QC202_2209	0382_QC203_2209
Date Sampled		5/09/2022	5/09/2022	5/09/2022	5/09/2022
Type of sample		Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	101	103	104	101
Extracted ISTD $^{13}C_2$ *PFHxA*	%	100	105	106	105
Extracted ISTD $^{13}C_4$ *PFHpA*	%	66	116	116	115
Extracted ISTD $^{13}C_4$ *PFOA*	%	113	116	119	114
Extracted ISTD $^{13}C_5$ *PFNA*	%	70	128	122	125
Extracted ISTD $^{13}C_2$ *PFDA*	%	137	114	116	114
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	148	118	129	125
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	131	133	132	131
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	77	88	82	72
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	108	103	117	110
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	93	125	135	126
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	116	166	183	168
Extracted ISTD $^{13}C_8$ *FOSA*	%	108	123	124	121
Extracted ISTD d_3 *N MeFOSA*	%	108	110	108	102
Extracted ISTD d_5 *N EtFOSA*	%	123	111	108	103
Extracted ISTD d_7 *N MeFOSE*	%	119	109	109	110
Extracted ISTD d_9 *N EtFOSE*	%	138	102	96	93
Extracted ISTD d_3 *N MeFOSAA*	%	133	136	144	138
Extracted ISTD d_5 *N EtFOSAA*	%	126	134	142	143
Total Positive PFHxS & PFOS	µg/L	440	0.05	0.07	<0.01
Total Positive PFOA & PFOS	µg/L	270	0.03	0.05	<0.01
Total Positive PFAS	µg/L	580	0.05	0.1	<0.01

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.3 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			09/09/2022	[NT]	[NT]	[NT]	[NT]	09/09/2022	[NT]
Date analysed	-			13/09/2022	[NT]	[NT]	[NT]	[NT]	13/09/2022	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	94	[NT]
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	87	[NT]
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	94	[NT]
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	94	[NT]
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	92	[NT]
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	105	[NT]
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	94	[NT]
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	101	[NT]
4:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	98	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	92	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	93	[NT]
10:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	99	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	97	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	102	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	92	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	90	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	110	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	105	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	115	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	92	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	72	[NT]	[NT]	[NT]	[NT]	54	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	104	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	108	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	113	[NT]	[NT]	[NT]	[NT]	109	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	104	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	104	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	107	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).