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Ongoing Monitoring Interpretive Report - 2022

PFAS OMP - Army Aviation Centre Oakey

10-May-2024
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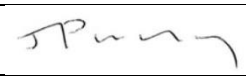
4	10-May-2024	Final	James Peachey Associate Director	

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Abbreviations

Abbreviation	
AACO	Army Aviation Centre Oakey
AECOM	AECOM Australia Pty Ltd
AFFF	Aqueous film forming foam
AHD	Australian height datum
ASC NEPM	Assessment of Site Contamination National Environment Protection Measure 1999 (as amended 2013)
BOM	Bureau of Meteorology
Brymaroo	Brymaroo Satellite Site
CSM	Conceptual site model
DCMM	Defence Contamination Management Manual
Defence	Department of Defence
DO	Dissolved oxygen
DOC	Dissolved organic carbon
DQIs	Data quality indicators
DQOs	Data quality objectives
DSI	Detailed Site Investigation
EC	Electrical conductivity
ERA	Ecological risk assessment
ESA	Environmental site assessment
FFTA	Former Fire Training Area
FTS	Fluorotelomer sulphonate
HBGV	Health based guidance values
HEPA	Heads of Environmental Protection Agencies
HHRA	Human health risk assessment
LOR	Limit of reporting
MA	Management area
mbgs	Metres below ground surface
MZ	Management zone
NEMP	National Environmental Management Plan
NEPC	National Environment Protection Council
NHMRC	National Health and Medical Research Council
OMIR	Ongong Monitoring Interpretive Report
OMP	Ongoing Monitoring Plan
ORP	Oxidation reduction potential
PFAS	Per- and poly-fluorinated alkyl substances
PFHxS	Perfluorohexane sulfonate

Abbreviation	
PFOA	Perflurooctanoic acid
PFOS	Perflurooctanesulfonic acid
PMAP	PFAS Management Area Plan
QA/QC	Quality assurance / quality control
SAQP	Sample analysis and quality plan
SILO	Scientific information for land owners
TDI	Tolerable Daily Intake
Temp	Temperature
TSS	Total suspended solids
UST	Underground storage tank

Units of Measurement			
L	Litres	m	Metres
mg	Milligram	ha	Hectares
kg	Kilogram	µg	Microgram
mV	Millivolts		

Executive Summary

Background

AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Defence (Defence) to implement the Ongoing Monitoring Plan (OMP) (Defence, 2019) for monitoring of per- and poly-fluorinated alkyl substances (PFAS) in surface water, sediment and groundwater at the Army Aviation Centre Oakey (AACO) (0207) (the 'Base') and Management Area. The off-Base portion of the Management Area is comprised of three separate Management Zones (1, 2 and 3). The OMP also included monitoring at Brymaroo Satellite Site (Brymaroo), located approximately 25 km northwest of AACO.

The objective of the monitoring is 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 a potentially elevated risk or potential future risk to a receptor.

This Ongoing Monitoring Interpretive Report (OMIR) provides commentary on observed trends, significant first-time detections of PFAS, noteworthy changes in concentrations, and any other observations that have been made with respect to the behaviour and movement of PFAS on the Base and in the Management Area.

Monitoring Program

AECOM completed periodic monitoring of groundwater, surface water and sediment in October 2021, March/April 2022 and October/November 2022 in accordance with the most current version of the sampling analysis and quality plan (SAQP) (AECOM, 2021e, 2022a,c). The monitoring included the collection of groundwater, surface water and sediment samples from selected locations on-Base and in surrounding off-Base areas including the AACO Management Area. The monitoring also included the collection of groundwater samples from selected locations at Brymaroo. The data collected during the monitoring period was generally consistent with historical results.

Interpretive Assessment

Monitoring results indicated that the concentrations of PFAS in groundwater were similar to previous sampling events. Some pertinent observations are provided below. All results refer to the sum of the compounds perfluorohexane sulfonate (PFHxS) and perfluorooctanesulfonic acid (PFOS), which are the primary PFAS contaminants at AACO and the Management Area:

- The highest groundwater concentrations were detected in, and close to, source areas on the Base where firefighting foams containing PFAS were used or stored. Concentrations in these areas were similar to previous monitoring events. Statistical trend analysis of the results indicated that with a couple of minor exceptions, all wells showed a stable or decreasing trend in PFHxS + PFOS. The two exceptions were for a monitoring well located in former fire station and foam training source areas and a well located along the southern Base boundary. As the level of the groundwater concentrations are consistent with results from nearby wells, the trends are considered to be of low significance.
- Reported PFAS concentrations in groundwater off-Base were generally consistent with historical data. The inferred area with PFAS in groundwater in the AACO Management Area is similar to that presented in the 2017 environmental site assessment (ESA) (AECOM, 2017a) and subsequent monitoring event reports (AECOM, 2018b, 2019a, 2019b, 2021c, 2022b). Mapping of the lateral extent of PFAS in groundwater to the west of the Base has been slightly updated, however, as there have been no new detections further down-gradient since 2017 and concentrations are consistent with 2017 results, the extent is considered to be unchanged. The conceptual site model presented in the 2017 ESA (AECOM, 2017a) identified that PFAS in groundwater south of AACO may be due to PFAS migrating in surface water in drainage channels, off-Base towards the south, followed by infiltration to groundwater. The former Council landfill and the SES training ground are present to the south of AACO and are off-Base sources of PFAS to groundwater. The presence of unidentified preferential pathways, such as paleochannels may also contribute to the presence of PFAS to the south and southwest of the Base.

- Statistical trend analysis of PFAS groundwater concentrations in off-Base monitoring wells indicated that the majority of wells have either a stable or decreasing trend in PFHxS + PFOS (i.e. sum of PFHxS and PFOS) concentration. Two wells reporting an increasing trend, which were both located down-hydraulic gradient of an off-Base source area, the former Council landfill. Detected concentrations in the monitoring period in these wells were close to, or within, the historical concentration range.
- Monitoring results indicated that the concentrations of PFAS in surface water and sediment in 2022 were lower compared to previous sampling events. Concentrations of PFAS in surface water samples from creek locations in April 2022 significantly decreased and were either close to, or less than, the limit of reporting (LOR). This may reflect higher flow conditions in the creeks and dilution of PFAS, due to the higher rainfall that occurred during the 2021/2022 wet season. PFAS concentrations in surface water from drainage channels were consistent with concentrations reported in 2020 and 2021. Decreases in concentrations since 2018 may also reflect reduction in PFAS being transported along the drainage channels following completion of remediation works along the on-Base drainage channels.
- Lower concentrations have been recorded in sediment samples collected from on-Base drainage channels between 2019 and 2022 compared to PFAS concentrations recorded between 2015 and 2018. The lower concentrations may be attributed to the excavation of sediment along the on-Base drainage channels in 2018 and the cessation of use of firefighting foams containing PFAS. No change in concentrations were observed in PFAS concentration in off-Base sediment.
- At Brymaroo, PFAS groundwater concentrations in April 2022 in down-hydraulic gradient locations were generally similar to concentrations reported in April 2021. Increases in PFAS concentrations were recorded for groundwater samples collected from monitoring wells located within the infrastructure area, where foam containing PFAS was previously used. A new maximum concentration was recorded for PFHxS + PFOS at MW003, located within the infrastructure area in April 2022. The changes in concentrations close to the source area may possibly reflect the higher-than-average rainfall and surface water infiltration during the 2021/2022 wet season mobilising PFAS in the soil above the groundwater table.

Conceptual Site Model and Risk Profile

The conceptual site models for AACO and Brymaroo were reviewed, and no changes were identified to source (a contaminant that has the potential to cause harm), pathway (a route by which a receptor could be affected by a contaminant) or receptors (something that can be adversely affected by a contaminant such as a person or an ecosystem).

The data collected during the Ongoing Monitoring Program over the monitoring period suggest that the risk profile to human health within the AACO Management Area and Brymaroo is unchanged.

Conclusions

Following a review of the data collected during the current monitoring period, there have been no significant changes to the understanding of risks associated with PFAS in the AACO Management Area or Brymaroo, spatial distribution of PFAS and the need for monitoring of additional media. Due to the number of sample locations that have reported PFAS concentrations consistent with historical results during the monitoring period, it is considered that there is scope to optimise the monitoring network and frequency by reducing the number of monitoring points in areas of the AACO Management Area where PFAS has not been detected. This triggers the requirement to complete a review of the OMP.

There are limited groundwater monitoring points further west and down-gradient of the leading edge of the plume, which is interpreted to be close to off-Base bore MW019, located approximately 2 km west of the southwestern corner of AACO. As the detections during the monitoring period are consistent with historical results from 2017, there is no change in lateral extent to the west. PFAS has not been detected to date in sentinel bores MW147 and MW151, screened in the Alluvium aquifer to the west of the current Management Area boundary. Solute transport modelling conducted in the 2017 ESA (AECOM, 2017a) predicted PFAS to migrate in flowing groundwater in a westerly direction over time. Additional monitoring points are likely to be required in the future to provide dedicated groundwater monitoring to the west of the current Management Area boundary. The southern extent of the area

impacted with PFAS has been reduced based on the non-detection of PFAS in groundwater samples from well MW285, located to the south of the Oakey township. Due to the lack of monitoring wells to the south of MW038, there is uncertainty in the extent of PFAS in groundwater. An additional monitoring well would be required to address this data gap.

Closing Summary

An ESA and risk assessment were completed by AECOM in 2017 (AECOM, 2017a,b,c). It found that the historical use of foam firefighting products at the Base resulted in widespread PFAS impacts to surface water and groundwater.

Defence completed remediation of the former fire training area (FFTA) in October 2021 and it is no longer a contributor to PFAS movement from the Base via surface water. Remediation works have also been completed at the former fire station and within the three stormwater drains that leave the Base. Other remaining source areas were characterised during the 2021 to 2022 period and four were identified as requiring remediation. A remediation action plan is being prepared for these areas. A mass flux study is ongoing to understand the significance of different transport mechanism for the migration of PFAS from source areas at the Base. Ongoing monitoring of the Base drains will measure the impact of recent remedial works at the FFTA. Further soil remedial works are planned in 2024. Groundwater treatment plant has been ongoing at the Base since 2018 targeting two of the source areas (fire station and current firefighting training ground).

Overall, this OMIR report has not identified any significant changes to the distribution of PFAS nor significant concentrations trends in the Management Area. However, the cessation of PFAS foam use and the remedial works (both planned and completed) will, over time, reduce the amount of PFAS that is available to migrate from the Base in surface water and groundwater. This will contribute to the long-term reduction of PFAS concentrations in the Management Area.

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) has been engaged by the Department of Defence (Defence) to implement the Ongoing Monitoring Plan (OMP) (Defence, 2019) for monitoring of per- and poly-fluoroalkyl substances (PFAS) at the Army Aviation Centre Oakey (AACO) (0207) (the 'Base') Management Area and Brymaroo Satellite Site (Brymaroo), located approximately 25 km northwest of AACO. The locations of the Base, Management Area and Brymaroo are shown in **Figure 1** and **Figure 2** in **Appendix A**.

The monitoring targeted PFAS in a range of environmental media at selected locations on-Base and in surrounding off-Base areas, including the AACO Management Area. The monitoring also included selected locations at Brymaroo.

To meet the objectives of the OMP, the monitoring was undertaken in accordance with the most current version of sample analysis and quality plan (SAQP). This Ongoing Monitoring Interpretive Report (OMIR) has been prepared in accordance with the Defence (2022) OMP Annual Interpretive Report Guidance.

1.1 Purpose and Objectives

The objective of the OMP is to set out a program of monitoring to continue to assess the 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 a potentially elevated risk to a receptor, or potential future risk to a receptor.

Assessing changes in the distribution, concentration, and transport (pathways and flow rates) of the contaminants against appropriate guideline values provides:

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

This data will be evaluated to determine environmental variability and significant trends in PFAS concentrations. This will inform any changes to the conceptual site model and the known risk profile and recommendations for triggers to review OMP, PFAS Management Area Plan (PMAP) (Defence, 2019), human health risk assessment (HHRA) (AECOM, 2017b) or ecological risk assessment (ERA) documentation, if required.

1.2 Scope of Work

The scope of works for this OMIR includes assessing changes to the distribution of PFAS over the period October 2021 to November 2022 and how this changes the understanding of the conceptual site model (CSM) and the risk profile with respect to PFAS impacts at the Base and surroundings. This included evaluation of data reported in the following factual reports as well as data from historical reports:

- *Sampling Event Factual Report - October 2021. Army Aviation Centre Oakey* (AECOM, 2021d)
- *Sampling Event Factual Report – March/April 2022. Army Aviation Centre Oakey* (AECOM, 2022d).
- *Sampling Event Factual Report – October/November 2022. Army Aviation Centre Oakey* (AECOM, 2023c).
- *Annual Interpretive Report – 2020, Army Aviation Centre Oakey* (AECOM, 2021c).
- *Annual Interpretive Report – 2021, Army Aviation Centre Oakey* (AECOM, 2022b).
- Data and other outcomes of the environmental site assessment at AACO (AECOM, 2017a), detailed site investigation (DSI) at Brymaroo (AECOM, 2018d), the HHRA for AACO (AECOM, 2017b), the ERA for AACO (AECOM, 2018a) and the PMAP for AACO (Defence, 2019).

- Data collected during historical sampling events completed since the environmental site assessment (ESA) (AECOM, 2018b, 2018d, 2019a, 2019b, 2020a, 2020b).
- Data collected as part of the PMAP delivery works including the source characterisation study (AECOM, 2022e), remediation action plan (AECOM, 2023a in draft) and mass flux study (AECOM, 2023b in draft).
- Data collected from soil remediation works (GHD, 2022).

To complete this scope of work AECOM completed periodic groundwater, surface water and sediment monitoring in accordance with the most current version of the SAQP. The October 2021 sampling event was conducted in accordance with Revision 2 (AECOM, 2021e), the March/April 2022 and October/November 2022 sampling events were conducted in accordance with Revisions 4 and 5, respectively (AECOM, 2022a,c), refer to **Appendix F**.

This report considers monitoring results in the context of the ongoing remediation activities at AACO. During the monitoring period, this included the operation of two groundwater treatment plants, which have extracted and treated contaminated groundwater from the area of the former fire station (decommissioned during 2022) and the area of the current fire training facility (currently active).

2.0 Site Setting

The subsections below describe the Base and environmental setting for AACO and Brymaroo.

2.1 AACO

2.1.1 Site Description

Table 1 summarises the Base identification and site setting presented in the PMAP (Defence, 2019) for AACO.

Table 1 AACO Identification and Setting Summary

Element	Description
Base ID	0207
Location	AACO is located at Orr Road, Oakey and is also bounded by Corfe Road, Oakey Cooyar Road, Wilthorne Kelvinhaugh Road and Oakey Kelvinhaugh Road. AACO is located approximately 2 km north-east of the Oakey township and occupies an area of 850 hectares, see **Figure 1**, **Appendix A**.
Regional Climate	Based on the Bureau of Meteorology (BOM) Oakey Aero station #41359 dataset, the average annual rainfall, from 1970 to 2022, is 614.7 mm/year. The wettest months occur during summer (November to March, known as the wet season) with relatively dry winter months (April to October, known as the dry season). Long-term Oakey scientific information for land owners (SILO) datasets (1970 to 2015) shows average evaporation peaks at 216 mm/month in December and January and is lowest at 69.2 mm/month in June. Potential evapotranspiration peaks at 170 mm/month in December and is lowest at 56.3 mm/month in June. The higher evaporation compared to rainfall indicates a negative climate balance across the Oakey area.
Topography	AACO is located on a relatively flat alluvial plain. The regional topography slopes to the west and southwest in the direction of the Oakey and Condamine Floodplains. The elevation of the Base is approximately 400 metres above Australian Height Datum (mAHD). On-Base, inclines have been constructed to grade the drainage system away from the runways. The Base drains to the south via a series of unlined drains discharging into Oakey Creek.
Geology and hydrogeology	Tectonically, AACO and surrounds are situated within the central eastern part of the Clarence-Moreton Basin, which contains sediments of the Late Triassic to Late Jurassic age. The sediments comprise sandstone, siltstone, mudstone, and coal. The Walloon Coal Measures is the uppermost formation of the Clarence-Moreton Basin. Overlying the Clarence-Moreton Basin are extensive areas of unconsolidated younger alluvial sediments such as the Oakey Creek Alluvium and Main Range Volcanics. The main receiving aquifer beneath AACO is the Oakey Creek Alluvium aquifer, the base of which is at least 50 metres below ground surface (mbgs). The available data indicates that groundwater occurs in the Oakey Creek Alluvium both as perched aquifers and as a more laterally extensive basal aquifer. As the alluvium consists of meandering discontinuous sequences of gravel, sands, silts and clays, the capacity of the alluvium to store and transmit groundwater is variable both vertically and laterally across its extent. These aquifers are unconfined to semi-confined in nature. Further information on the geology and hydrogeology is presented in the ESA (AECOM, 2017a).
Surface Water	Stormwater flow at AACO is principally from kerb and channel, piped systems, overland flow and open drains. All of AACO's drainage lines are ephemeral.

Element	Description
	AACO's stormwater drainage network consists of approximately 23 km of pipe typically ranging in diameter between 300 mm and 1,200 mm, and approximately 33 km of unlined open drainage lines. Stormwater infrastructure at the Base dates back to the 1970s (AECOM, 2017a). The hydrology of AACO is split between two major catchments: • Doctor Creek catchment – stormwater runoff in the northern part of the airfield is captured and diverted to Doctor Creek, which is a tributary of Oakey Creek and discharges into Oakey Creek, approximately 14 km downstream from the Base. • Oakey Creek catchment – all operational areas of the Base are located within the Oakey Creek catchment; therefore, all flows entering the stormwater drainage system are directed via the four main drains towards Oakey Creek, located approximately 1 km to the south of the Base. The four main drainage channels are as follows (refer to **Figure 3**, **Appendix A**): • Drainage channel 1: extends from the southwest corner of the airfield, running in a southerly direction, merging with the central drain before discharging to Oakey Creek • Drainage channel 2: aligned parallel to Orr Road, running in a southwesterly direction from the airfield across the Base and merging with the west drain before discharging to Oakey Creek • Drainage channel 3: aligned parallel to Swartz Road, running south from the southeastern corner of the airfield across the Base and discharging to Oakey Creek. A portion of stormwater flows from East Drain into a private farm dam, located about 800 m south of the Base. Overflow from the dam returns into the East Drain and discharges into Oakey Creek (AECOM, 2015) • Drainage channel 4: aligned parallel with the eastern Base boundary, running in a southerly direction from the airfield and discharging to Oakey Creek. A weir on Oakey Creek creates a semi-permanent water body that receives and retains runoff from the surface water drains discharging from the Base.
Current and Previous Land Use	The Base is currently used by the Defence Force for Army Aviation and has maintained a role as a military facility since the Base's inception in 1943. The Base currently operates as the Army's helicopter training school for pilots and aviation technicians and is also home to a Republic of Singapore Airforce helicopter squadron. Prior to 1943, the Base had an agricultural use. The northern part of the Base is the airfield, while the southern part of the Base comprises support services, buildings and infrastructure. Approximately 290 hectares of the Base are leased for agriculture (western portion of the Base).
Land uses surrounding the Base	The surrounding land use to the west, north and east is predominantly made up of rural allotments which are utilised for a range of pastoral and agricultural purposes (principally for grain cropping and limited livestock production). Some residential allotments are located immediately adjacent to the southern perimeter of the Base. The nearby township of Oakey comprises residential, light industrial and business/commercial zoned areas. The Warrego Highway and Western Railway Line are located approximately 3 km and 1 km to the south of the Base.

2.1.2 AACO Management Area

The AACO Management Area was established in 2017 and comprises three zones (see **Figure 2**, **Appendix A** and **Plate 1**). Defence has issued precautionary advice for residents within each management zone.

- **Management Zone (MZ) 1:** this zone is located immediately to the south and southwest of AACO. It has the highest perfluorooctanesulfonic acid (PFOS) + perfluorohexane sulfonate (PFHxS) concentrations in groundwater in the Management Area given its closer proximity to the AACO and potential downwards migration of PFAS from surface water in drainage channels 1 and 2.
- **Management Zone 2:** this zone is located further to the south and southwest of the AACO. It has higher PFHxS + PFOS concentrations in groundwater in comparison with MZ3 as a result of a combination of impacted groundwater flowing to the south and west from the Base together with downwards migration of PFAS-impacted surface water from the drains leaving the Base.
- **Management Zone 3:** located outside MZ1 and MZ2 and within the remainder of the Management Area. PFAS was not detected by the laboratory in the majority of groundwater samples collected from groundwater monitoring bores in this Management Zone.

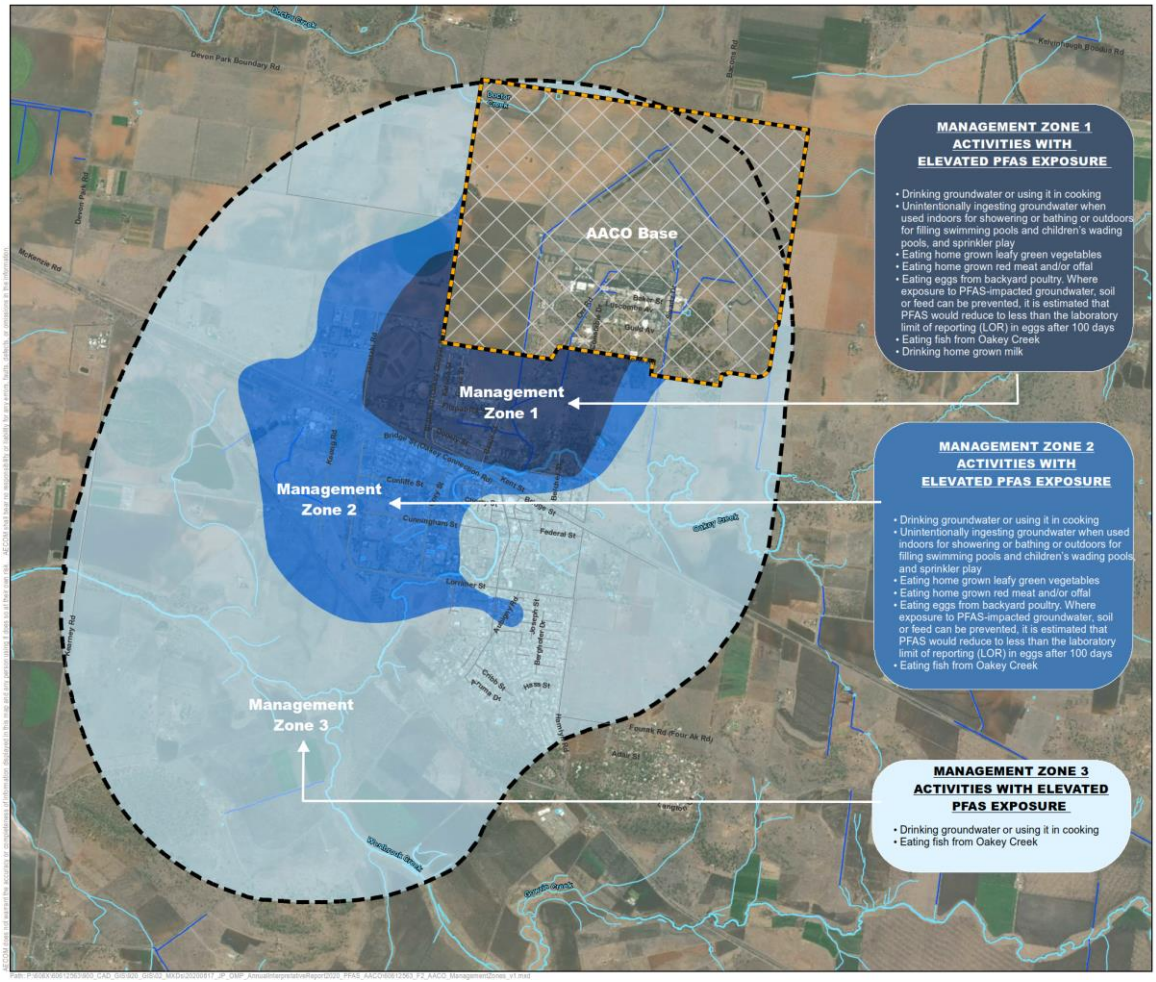


Plate 1 AACO Management Area and Management Zones

2.1.3 Source Areas

The PMAP (Defence, 2019) identifies the following locations as PFAS source areas.

- Former fire training area in Area North
- Former fire station and foam training area in Area B3
- Former fuel compound and hot refuelling point in Area F1
- Hot refuel area in Area A2
- Spent AFFF recovery underground storage tank in Area A2
- Spent AFFF recovery underground storage tank in Area S1
- Spent AFFF recovery underground storage tank in Area C1
- AFFF storage and decanting areas in Area D2
- Current fire training area in Area D2.

The locations of the source areas are presented in **Figure 3**, **Appendix A**. Ongoing PMAP delivery works including, source characterisation (AECOM, 2022e), development of the soil remediation action plan (AECOM, 2023a – in draft) and mass flux investigation may result in changes to the list of source areas.

The 2017 ESA (AECOM, 2017a) investigated other potential sources of PFAS outside of the Base, including the following:

- former landfill on Lorrimer Street
- use of PFAS-impacted water for irrigation
- areas inundated by PFAS-impacted flood waters.

It is considered that PFAS-impacted water used for irrigation could be contributing to the PFAS in the underlying groundwater. However, as seepage of PFAS-impacted surface water to the underlying aquifer from farm dams and drains also occurs in the Management Area, the relative contribution of all these processes to PFAS in the underlying groundwater is unclear. Current mass flux investigation works will improve the understanding of the relative contributions from on-Base sources.

Available groundwater data indicate a possible correlation between the areas that have been historically flooded and the extent of PFAS within the Oakey Creek Alluvium. The rate at which PFAS-impacted flood water could infiltrate to the underlying groundwater is controlled by a number of factors, including variability in the permeability of surface soils and sediments and the velocity of the flood waters. During a flood event, the coarse material is expected to be deposited on or immediately adjacent to Oakey Creek and finer grained sediments are transported further with the flood water.

2.2 Brymaroo Satellite Site

The subsections below provide summaries of the Brymaroo Base and environmental setting, environmental investigations and the CSM.

2.2.1 Base Description

Table 2 Brymaroo Identification and Setting Summary

Element	Description
Base ID	1435
Location	Brymaroo located 22 km northwest of AACO and 3.5 km southwest of the Brymaroo Township. It is approximately 266 hectares in size, see **Figure 1**, **Appendix A**.
Regional Climate	The nearest meteorological station is at AACO, see **Table 1**.
Topography, geology and hydrogeology	Brymaroo is approximately 400 mAHD, and slopes to the northeast towards Cain Creek, which is located beyond the northern boundary and flows from the east to the west. Brymaroo is directly underlain by Tertiary Main Range Volcanics that consists of alkali-olivine basalt, minor tuff, sandstone and mudstone.
Surface water	The nearest surface water body to Brymaroo is Cain Creek, located approximately 250 m to the northeast of the northeastern corner of Brymaroo. Cain Creek flows into Myall Creek, approximately 3 km to the north-west of Brymaroo. Myall Creek is a tributary of the Condamine River.
Current and Previous Land Use	Approximately 266 hectares in size and is used for training in emergency landings and fire hazard training. Historically, Brymaroo is thought to have been used for agricultural purposes including grazing and grain production prior to being used as a World War II airfield (AECOM 2018d).
Surrounding Land uses	The land surrounding the Base is used for agricultural purposes.

2.2.2 Source Areas

The DSI (AECOM, 2018d) identified the following potential sources of PFAS at Brymaroo:

- AFFF use at the refuelling concrete pads.
- Release from firefighting infrastructure, discharge events, response to incidents or training.

3.0 Sampling and Analytical Methodology

3.1 Sampling Locations

The sampling events conducted in October 2021, March/April 2022 and October/November 2022 included the collection of selected groundwater, surface water and sediment samples from across the Management Area and Brymaroo. On-Base and off-Base groundwater sampling locations at AACO are shown in **Figure 4** and **Figure 5** respectively in **Appendix A**. Surface water and sediment sampling locations in the AACO Management Area are shown in **Figure 6** in **Appendix A**. Groundwater sampling locations at Brymaroo are shown in **Figure 7**, **Appendix A**. Note that some off-Base sampling locations are not shown for privacy reasons.

3.2 Summary of OMP works October 2021- November 2022

A summary of the monitoring works implemented as per the most recent version of the SAQP (AECOM, 2021e, 2022a,c) between October 2021 and November 2022 is summarised in the subsections below:

3.2.1 October 2021 Sampling Event

- Monitoring works undertaken between 11 and 15 October 2021.
- On-Base sampling of groundwater from 34 monitoring wells in the Oakey Creek Alluvium aquifer.
- Off-Base sampling of 12 monitoring wells and residential bores monitoring the Oakey Creek Alluvium aquifer[1].
- Off-Base sampling of four residential bore installed in the Walloon Coal Measures.

3.2.2 March / April 2022 Sampling Event

- Monitoring works undertaken between 18 March and 21 April 2022.
- On-Base sampling of groundwater from 34 monitoring wells in the Oakey Creek Alluvium aquifer.
- Off-Base sampling of groundwater from 34 monitoring wells and residential bores monitoring the Oakey Creek Alluvium aquifer.
- Off-Base sampling of groundwater from 10 monitoring wells monitoring underlying aquifer units (Walloon Coal Measures or Main Range Volcanics) at locations across the Management Area.
- Surface water and sediment sampling at 22 locations including drainage channels, Oakey Creek, Doctor Creek and Westbrook Creek.
- Sampling of 13 monitoring wells in the Main Range Volcanics aquifer from Brymaroo.

3.2.3 October / November 2022 Sampling Event

- Monitoring works undertaken between 24 and 27 October 2022, on 2, 3 and 24 November 2022.
- On-Base sampling of groundwater from 34 monitoring wells in the Oakey Creek Alluvium aquifer.
- Off-Base sampling of ten monitoring wells and residential bores monitoring the Oakey Creek Alluvium aquifer.
- Off-Base sampling of one residential bore installed in the Walloon Coal Measures.

3.3 Sampling and Analysis Methodology

Refer to the SAQP (AECOM, 2021e, 2022a,c) (**Appendix F**) for the sampling methodology, data quality objectives (DQOs) including quality assurance (QA) and quality control (QC) parameters for field and

[1] Note that the privately-owned groundwater residential bores are likely to be screened in the Oakey Creek Alluvium rather than the Walloon Coal Measures aquifer due to the higher yield in this aquifer.

laboratory programs. Refer to the factual reports (**Appendix E**) for QA/QC discussion and fit for purpose data.

3.4 Deviations from SAQP

The works undertaken over the monitoring period complied with the most recent version of the SAQP, with some minor exceptions as detailed in the subsections below. Deviations from the sampling program specified in the OMP (Defence, 2019) and SAQP are documented in the SAQPs (AECOM, 2021e, 2022a,c).

3.4.1 October 2021 Sampling Event

A total of 46 of the 50 monitoring wells located on and off-Base identified in the SAQP (AECOM, 2021e) were sampled. Access to residential bore MW084 was declined and this was replaced by a nearby bore, MW056, which is located approximately 160m west-north-west of MW084. Residential bores MW022 and MW031 were not sampled as the property owners did not respond to the access request. Two on-Base monitoring wells (MW253 and MW254) were not sampled as they had been destroyed during remediation works.

There was insufficient groundwater in one monitoring well for HydraSleeve™ sampling (MW236). The groundwater sample at this location was collected by bailer.

3.4.2 March / April 2022 Sampling Event

AACO

A total of 78 out of the 81 groundwater samples specified in the SAQP (AECOM, 2022a) were collected.

- Groundwater samples from off-Base wells MW038, MW296, MW297 were unable to be collected as the stakeholders declined access permission.

Two additional wells were sampled during the sampling event:

- Off-base residential bore MW022 was not sampled in 2021 as the stakeholder did not respond to the access request and the bore was removed from the SAQP. During this sampling event, the stakeholder provided access permission and the bore was sampled.
- An additional on-Base monitoring well, MW207, which is not specified in the SAQP was inadvertently sampled.

Other deviations from the SAQP included the following:

- Due to an error on the electronic data capture system, some gauging data and field quality parameter measurements were lost. This included data from nine groundwater monitoring wells (MW223, MW229, MW267-MW271, MW295) and two surface water samples (SW057 and SW063).
- The groundwater sample from monitoring wells MW242, was collected via a grab sample using a bailer due to the damage to the monitoring well (missing monument).
- Two sediment samples were collected from location SD018. SD018_B was collected from the discharge point of the drain (the regular location), and SD018_A was collected from drainage channel 3 upstream of the discharge point.

Brymaroo

Two monitoring wells at Brymaroo were not located during the sampling event in 2021 and consequently were removed from the latest version of the SAQP (AECOM, 2022a). A further search during the March/April 2022 sampling event managed to locate these wells and therefore 13 monitoring wells were sampled at Brymaroo rather than 11.

3.4.3 October / November 2022 Sampling Event

A total of 44 of the 48 monitoring wells located on and off-Base identified in the SAQP (2022c) were sampled. Monitoring well MW206 was not accessible as it was in a construction site. In replacement, nearby well, MW207 was sampled. Off-Base monitoring wells MW255 and MW264 could not be located

due to flooding and the subsequent flora overgrowth. Off-Base groundwater bore MW147 was no longer functionable and was being replaced by the landowner.

Other changes from the SAQP included the following:

- There was insufficient groundwater in one monitoring well for HydraSleeve™ sampling (MW242). The groundwater sample at this location was collected by bailer.
- The groundwater parameter data for MW167 could not be collected due to the loss of sample volume.
- Triplicate samples were analysed by ALS in Sydney rather than NMI as there was insufficient volume for NMI to complete analysis (ALS requires lower volume).

3.5 Changes to the Monitoring Network

A summary of the findings related to the condition of and/or access to the monitoring network from the sampling events is provided below.

Physical maintenance

- The monument cover for MW242 was replaced in August 2022.
- Minor repairs required for the following monitoring wells:
    - MW255 – J cap not sealing well and requires repair.
    - MW257 – J cap not sealing well and requires repair.
    - MW276 – concrete collar and Gatic collar damaged and requires repair.
    - MW278 – concrete collar damaged and requires repair.
    - MW288 – monument lid broken and requires repair.
    - MW289 – monument lid broken and requires repair.
    - MW001 (Brymaroo) – concrete collar damaged and requires repair.
    - MW002 (Brymaroo) – concrete collar damaged and requires repair.
    - MW003 (Brymaroo) – Gatic lid, collar and casing damaged and requires repair.

The repairs to these well covers will be completed during 2023.

Access issues

- Four residential bores in Oakey (MW020, MW022, MW031 and MW160) were removed from the SAQP in March 2022 (SAQP, 2022a) as the property owners declined permission to access the bores in 2021.
- MW038, MW296 and MW297 were not sampled in March/April 2022 as the property owners declined sampling. Well MW038 was sampled during the October/November 2022 sampling event. Wells MW296 and MW297 were not scheduled for sampling in the targeted October 2022 sampling event.
- MW255 and MW264 were not accessible in October/November 2022 due to local flooding and vegetation overgrowth.
- Off-Base groundwater bore MW147 was not accessible as it was being replaced by the landowner.
- On-Base monitoring well MW206 was not accessible in October/November 2022 as it was in a construction site. MW207 was sampled in replacement.

Further details are provided in the sample event factual reports in **Appendix E**. Excluding the locations listed, there were no changes to the monitoring network condition or access. None of these changes are considered to have affected data integrity.

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 below:

- *Sampling Event Factual Report - October 2021. Army Aviation Centre Oakey* (AECOM, 2021d).
- *Sampling Event Factual Report – March/April 2022. Army Aviation Centre Oakey* (AECOM, 2022d).
- *Sampling Event Factual Report – October/November 2022. Army Aviation Centre Oakey* (AECOM, 2023c).

Data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported field and analytical results in the three sampling events were representative of the sample locations and that the overall quality of the analytical data produced is acceptably reliable for the purpose of the factual and interpretive reports.

All data collected from the three sampling events including the field parameter results, have been reviewed and uploaded to the Defence ESdat database in accordance with Defence Contamination Management Manual (DCMM) (Defence, 2018, amended 2021) requirements, in particular, Annex L Guidance on Data Management. Refer to the sampling event factual reports in **Appendix E** for further information.

5.0 Assessment Criteria

Adopted screening criteria references national guidance in the form of the PFAS National Environmental Management Plan (NEMP), (Heads of Environmental Protection Agencies (HEPA), 2020), Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance. At the time of preparing this report, several guidance documents were available in Australia including:

- PFAS NEMP, Version 2.0 (HEPA, 2020).
- Department of Health, 2019. Health Based Guidance Values for PFAS for use in site investigations in Australia. September 2019. (DoH, 2019).
- 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, 2013).

The adopted PFAS screening criteria used to assess the data generated as part of the Ongoing Monitoring Program are presented in **Table 3** below.

Table 3 Summary of Adopted Screening Criteria

Pathway	Compound	Criteria	Comment / Reference
Human Health Receptors			
Drinking water - groundwater	PFOS + PFHxS	0.07 µg/L	Health authorities have set health-based guideline values indicating the amount of a chemical intake a person can consume on a regular basis over a lifetime without any significant risk to health. The drinking water values are from the PFAS NEMP Version 2.0 (HEPA, 2020). The health-based guideline values for PFOS and PFOA were recommended by Food Standards Australia and New Zealand in the form of a tolerable daily intake (TDI) (FSANZ, 2017). The TDI was used to calculate the human health-based guidance values. As a precaution, the Australian Government Department of Health advised that the PFOS TDI should also be applied to PFHxS. This means the level of PFHxS exposure has been added to the level of PFOS exposure. The national methodologies used by health agencies in deriving the guideline values include a level of conservatism in the drinking water and recreational water health-based guideline values. The methods assume only a minor portion (10%) of the TDI is allocated to this source with 90% of intake from other exposure pathways. *All groundwater results were compared to these criteria.*
	PFOA	0.56 µg/L	
Recreational use – surface water	PFOS + PFHxS	2 µg/L	The values are from PFAS NEMP Version 2.0 (HEPA, 2020), which are based on revised values derived by NHMRC (2019). The revised numbers are based on changes in the assumption for the frequency and likelihood of exposure during recreational activities. *All surface water results were compared to these criteria.*
	PFOA	10 µg/L	

Pathway	Compound	Criteria	Comment / Reference
Ecological Receptors			
Freshwater (99% species protection values)	PFOS	0.00023 µg/L	The values are from the PFAS NEMP Version 2.0 (HEPA, 2020). The 99% level of protection has been applied for slightly to moderately disturbed ecosystems. This approach is generally adopted for chemicals that bioaccumulate and biomagnify in wildlife. For the purposes of preliminary screening of analytical water results, the laboratory LOR will be adopted rather than sole use of the criteria value. *All surface water and groundwater results were compared to these criteria.*
	PFOA	19 µg/L	

It is noted that at the time this report was prepared, no HEPA-endorsed criteria were available for PFAS in sediment.

6.0 Contextual and Ancillary Information

Defence is undertaking a range of management activities at AACO to remove PFAS from the environment and limit PFAS migration pathways. These are described in the subsections below based on information provided by Defence.

6.1 Historical Activities

6.1.1 Drain Excavation and Off-Base Disposal

In 2018 Defence excavated sediment from open drains at AACO to reduce the migration of PFAS contamination from the sediment to surface water and groundwater. Approximately 12,000 m^3 of sediment was excavated and disposed of in an off-Base disposal facility in accordance with Queensland guidelines. The sediment was replaced with new material. See **Figure 3**, **Appendix A** for the location of the drainage channels.

6.1.2 Soil Remediation at the Former Fire Station

Between 2018 and 2019 the area of the former fire station was redeveloped with a new Air Traffic Control Tower built. PFAS contaminated soil excavated during the construction of the foundations of the new building was treated prior to off-Base disposal in accordance with Queensland guidelines. The location of the former fire station is shown on **Figure 3**, **Appendix A**.

6.2 Current Activities

Two groundwater remediation projects and one soil remediation project took place at AACO during the monitoring period. These are described below. A review of groundwater treatment will be conducted in 2023 as part of the PMAP delivery works.

6.2.1 Former Fire Station Water Treatment Plant

Between September 2017 and March 2022, a water treatment plant operated at AACO extracting water from the Oakey Creek Alluvium aquifer in the area of the former fire station (see **Figure 3**, **Appendix A** for the location of the former fire station). The plant treated contaminated groundwater on the Base and reinjecting the treated water back into the aquifer to remove PFAS from the environment.

6.2.2 Fire Training Area Water Treatment Plant

Since mid-2019, a second water treatment plant has been operating to extract and treat groundwater from the Oakey Creek Alluvium aquifer near the current fire training facility (see **Figure 3**, **Appendix A** for the location of the fire training ground). This plant uses foam fractionation/separation technology which involves generating foam from affected groundwater. The foam, containing PFAS, is collected from the surface and treated. Following treatment, the water is irrigated for infiltration.

6.2.3 Soil Remediation at the Former Fire Training Area

Between April and November 2021 soil remediation activities were conducted at the former fire training area[2] in accordance with the remediation action plan (WSP, 2019). The objective of the remediation was to reduce to the extent practicable the mass of PFAS in soil at the former fire training area. The remediation works included the excavation of approximately 4,600 m^3 of PFAS contaminated soils from varying depths (between 0.3 and 1.5 metres below ground level) across the sources area followed by stabilisation and landfill disposal (GHD, 2022). The excavation was infilled with benign material that was compacted in a manner so that it acts as a low permeability layer that restricts rainfall infiltration into residual contamination in underlying soils.

[2] The former fire training area was referred to as a depleting source area in the ESA (AECOM, 2017a) to reflect the fact that AFFF was used during historical activities and this use was not ongoing. Source areas where AFFF use is currently occurring are referred to as active source areas. The AFFF currently in use in the active source areas does not contain PFOS, PFHxS and PFOA as active ingredients. The source area location map (Figure 3 in Appendix A) identifies the depleting and active source areas.

6.2.4 PMAP Delivery

A multi-year program of work commenced in late 2020 that will lead to the development of remediation action plans for soil and groundwater for the main source areas at AACO (other than the former fire training area). The program includes targeted soil investigation (AECOM, 2022e) at six source areas to characterise the nature and extent of contamination in soil at these locations and a mass flux study to assess the mass of PFAS leaving the Base through groundwater and surface water drainage channels. As of March 2023, a remedial action plan for remediating contaminated soil at four of the source areas is being drafted (AECOM, 2023a in draft). A PMAP implementation plan has been developed to guide the implementation of the remediation action plans. A mass flux study has been ongoing since 2021 to understand the significance of different transport pathways.

6.3 Current and Future Planned Activities

Construction projects that are currently occurring or are planned at AACO potentially requiring management of PFAS contaminated soil are identified in **Table 4** below. With the exception of the soil remediation project at the former fire training area, the construction projects are likely to have involved the management of very minor volumes of soil containing PFAS.

Table 4 Summary of Current and Planned Activities at AACO

Management	Projects	Details	Contractor	Dates
Capital Facilities and Infra-structure	EST02089 A9066 Mid Term Refresh	Construction phase. Various electrical and communications upgrade works across the base and demolition of redundant buildings.	KPMG	04/21 – 07/2023
	J0105 - Joint Health Command - Medical Centre Oakey 0207/B109	Construction of B109. Decanting of B036 to B109. Demolition of B036 was removed from the project.	Aurecon	09/21-10/22
	ESTL4503Ph1 - Oakey Apache	Not in design phase	RPS	To be announced
	1000983270 - 203140 -Oakey Defence Fuel Transformation Project	Construction phase completed. Included soil sampling and disposal off-Base.	Downer Defence	07/21-08/22
	EST04122 P1005 - Airfield Maintenance Works Program	Airfield maintenance works program.	Aurecon	08/22
PDS Support	ST06163 P0012 - Airfield Maintenance	Asphalt resurfacing and new drainage.	GHD	In design as of 05/22
	EST08212 - Oakey Roads & Carpark Resurfacing	Resurfacing of the remaining 50% of the main carpark. Refurbishment of the main base roads.	JLL Augility	Construction date 07/23
	EST08486 - Oakey D002 Refurbishment 0207/D002	End of life building refurbishment including asbestos remediation works	Aurecon	07/22- TBA
	B026 Refurb and Iroquois Shelter	Construction / refurbishment	JLL Augility	06/21 to 02/22
	Soil HRF Remediation (former fire training area)	PFAS soil remediation	GHD - Enviropacific	04/21 to 07/21

6.4 Weather Conditions

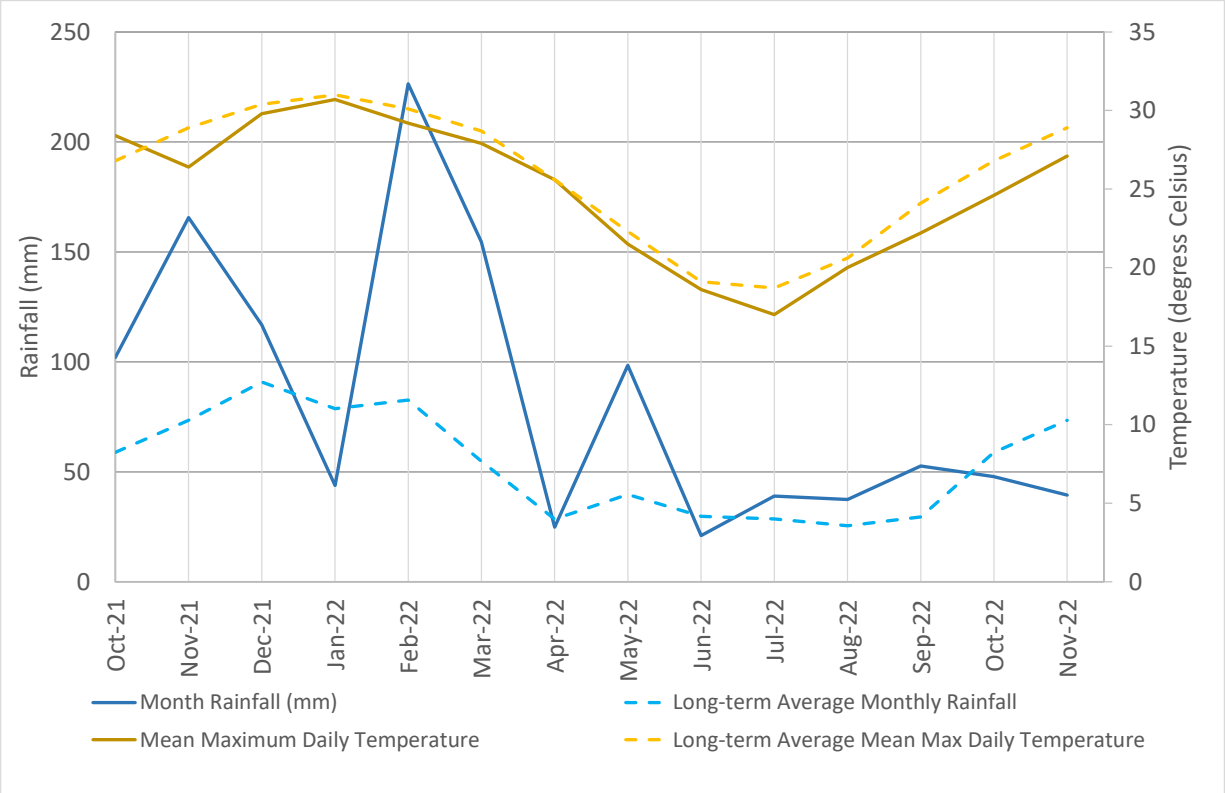
Table 5 summarises the rainfall received during the monitoring period (May 2021 to November 2022) compared to the average rainfall as recorded between 1973 and 2022 (BOM, 2023). This information is shown on **Chart 1**.

Table 5 Rainfall During Monitoring Period

Sampling Event	Rainfall recorded at Weather station 041359 (mm)	Average Rainfall 1973 to 2022 (mm)
May 2021	44.2	39.7
June 2021	47.2	29.8
July 2021	47.4	28.6
August 2021	9.6	25.5
September 2021	13.8	29.5
October 2021	102	58.8
November 2021	165.6	73.4
December 2021	116.8	90.8
January 2022	43.8	78.7
February 2022	226.4	82.6
March 2022	154.6	54.8
April 2022	24.8	28.5
May 2022	98.4	39.7
June 2022	21.0	29.8
July 2022	39.0	28.6
August 2022	37.4	25.5
September 2022	52.6	29.5
October 2022	47.8	58.8
November 2022	39.4	73.4
Total	850.0	620.7

The total rainfall during the monitoring period was approximately 40% higher than average. The wet season between October 2021 and March 2022 recorded almost twice the average rainfall (809 mm compared to an average of 439 mm). In particular, the rainfall in February 2022 was almost three times higher than average, which is likely to have resulted in an increase in the transport of PFAS in surface water along the drainage channels. The higher rainfall totals were due to the occurrence of a La Niña event between 2021 and 2022. La Niña is a phase of the natural climate cycle (El Nino-Southern Oscillation) and results in increased rainfall in Australia.

Chart 1 Monthly Rainfall and Mean Maximum Daily Temperature at AACO During the Monitoring Period



7.0 Monitoring Data Summary

7.1 Groundwater

7.1.1 Groundwater Elevations

Groundwater elevations recorded during monitoring well gauging for the sampling events are summarised in **Table 6** below with full results presented in **Table T1**, **Appendix B**. The range in groundwater elevations in the Oakey Creek Alluvium aquifer in all three sampling events were similar. As only one well screened in the Walloon Coal Measures was gauged in October 2021 and October/November 2022, there is insufficient data to evaluate temporal changes in the monitoring period. Likewise, gauging data for Main Range Volcanics at Brymaroo is only available for one sampling period so temporal changes in groundwater elevation cannot be evaluated.

Table 6 Depth to Groundwater and Groundwater Elevation

Base	Aquifer	Event	Range in hydraulic head (mAHD)	No of wells
AACO	Oakey Creek Alluvium	Oct-21	384.278 to 401.226	45
		Mar/Apr-22	385.269 to 408.806	58
		Oct/Nov-22	386.660 to 402.818	38
	Walloon Coal Measures	Oct-21	367.831	1
		Mar/Apr-22	340.287 to 387.589	6
		Oct/Nov-22	368.472	1
Brymaroo	Main Range Volcanics	Mar/Apr-22	404.235 to 411.382	13

7.1.2 Groundwater Flow Directions

7.1.2.1 AACO

Inferred groundwater contour maps for AACO (Oakey Creek Alluvium aquifer) for the monitoring periods were presented in the Sampling Event Factual Reports (AECOM, 2021d, AECOM, 2022d and AECOM, 2023c) and are presented as **Figure 8**, **Figure 9** and **Figure 10** in **Appendix A**[3]. The inferred groundwater contours for the Oakey Creek Alluvium aquifer for the monitoring periods were similar with the general groundwater flow direction from east to west across the Management Area. Groundwater in the Oakey Creek Alluvium aquifer is inferred to flow in a westerly direction across AACO, while in off-Base areas to the south, the flow direction is inferred to be in a north westerly direction. The groundwater flow directions are consistent with previous years (AECOM, 2021c, 2022b).

Based on the limited groundwater elevation data for the Walloon Coal Measures, the groundwater flow direction is inferred to be towards the west.

7.1.2.2 Brymaroo

The inferred groundwater contour map for the March/April 2022 sampling event at Brymaroo (**Figure 11**, **Appendix A**) indicated that groundwater flow is generally from the southwest to the northeast. This is consistent with previous years (AECOM, 2021c, 2022b). A groundwater mound is present at MW003, which may cause local flow directions in area of MW003 to be radial. The groundwater elevation at

[3] Note that a minor number of inconsistencies in the groundwater elevation datasets were not considered in the development of contours shown in these figures.

MW002 has not been considered in the contour interpolation as the groundwater elevation is relatively higher, more than 4 m higher than other wells, suggesting the presence of perched water.

7.1.3 Groundwater Quality Parameters Field Measurements

7.1.3.1 AACO

A summary of the water quality parameters in the different aquifer units measured during sample collection at AACO in October 2021, March/April 2022 and October/November 2022 are presented in **Table 7** and **Table 8**. The full results are presented in **Table T1**, **Appendix B** and in the Sampling Event Factual Reports in **Appendix E**.

Table 7 Groundwater Quality Parameter Field Measurements in Groundwater from the Oakey Creek Alluvium at AACO

Parameter	Event	No. of samples	Minimum	Maximum	Mean
DO (mg/L)	Oct-21	44	0.25	6.59	2.3
	Apr-22	70	0.23	4.4	1.57
	Oct-22	44	0.7	5.4	2.3
EC (µS/cm)	Oct-21	44	201	8,986	2,851
	Apr-22	70	278	5,518	1,976
	Oct-22	44	252.9	10,532	3,192
pH	Oct-21	44	6.4	9.7	7.2
	Apr-22	70	6.7	11.2	7.3
	Oct-22	44	6.44	9.96	7.2
ORP (mV)	Oct-21	44	21.7	335.9	237
	Apr-22	70	143	380	332
	Oct-22	44	142.7	367.7	296.9
Temp (°C)	Oct-21	44	21.8	27.7	23.8
	Apr-22	70	19.6	25.8	22.6
	Oct-22	44	16.1	28.1	23.1

Notes: DO is dissolved oxygen, EC is electrical conductivity, ORP is oxidation reduction potential, Temp is temperature.

Table 8 Groundwater Quality Parameter Field Measurements in Groundwater from the Walloon Coal Measures at AACO

Parameter	Event	No. of samples	Minimum	Maximum	Mean
DO (mg/L)	Oct-21	1	1.5	1.5	1.5
	Apr-22	4	0.57	2.03	0.97
	Oct-22	1	1.34	1.34	1.34
EC (µS/cm)	Oct-21	1	2,895	2,895	2,895
	Apr-22	4	863	3,270	1,336
	Oct-22	1	3,134	3,134	3,134
pH	Oct-21	1	11.8	11.8	11.8
	Apr-22	4	7.6	11.9	9.1
	Oct-22	1	12.13	12.13	12.13
ORP (mV)	Oct-21	1	-21.7	-21.7	-21.7
	Apr-22	4	197	303	258
	Oct-22	1	249.3	249.3	249.3
Temp (°C)	Oct-21	1	22.4	22.4	22.4
	Apr-22	4	17.5	22.3	19.9
	Oct-22	1	16.1	16.1	16.1

Based on the mean groundwater quality parameter results over the sampling period, the aquifer units at AACO can be characterised as follows:

- **Oakey Creek Alluvium** is near neutral, moderately oxygenated, mildly to moderately reducing and brackish.
- **Walloon Coal Measures** is alkaline, poorly oxygenated, moderately reducing and brackish.

The aquifer parameters recorded in these sampling events are consistent with previous results (AECOM, 2017a, 2018b, 2019a, 2019b, 2021c, 2022b). There were no visual or olfactory observations of contamination during the sampling of monitoring wells at AACO with the exception of LNAPL present in monitoring well MW193.

7.1.3.2 Brymaroo

The water quality parameter results in groundwater at Brymaroo in April 2022 is summarised in **Table 9** with the full results presented in **Appendix B,Table T1** .

Table 9 Groundwater Quality Parameter Field Measurements in Groundwater from the Main Range Volcanics at Brymaroo in April 2022

Parameter	No. of samples	Minimum	Maximum	Mean
DO (mg/L)	13	0.16	3.36	0.82
EC (µS/cm)	13	959	2095	1481
pH	13	6.7	10.9	7.6
ORP (mV)	13	263	377	342
Temp (°C)	13	21.2	23.4	23

Based on the mean groundwater parameter results, the Main Range Volcanics aquifer beneath Brymaroo can be characterised as near neutral, poorly oxygenated, moderately reducing and brackish. This is consistent with previous observations (AECOM 2018d, 2019b, 2021c). There were no visual or olfactory observations of contamination during the sampling of monitoring wells at Brymaroo.

7.2 Groundwater Analytical Results

A summary of analytical results from the Ongoing Monitoring Program works during the monitoring period is provided in **Table 10** below. Further information is presented in the OMP sampling event factual reports provided in **Appendix E**.

Groundwater laboratory PFAS analytical results collected at the Base since 2013 are presented in **Table T2** in **Appendix B** for AACO and **Table T3** in **Appendix B** for Brymaroo.

Table 10 Summary of PFAS in Groundwater During the Monitoring Period

Sampling Event	No. of Locations Analysed	Compound	Concentration Range (µg/L)	No. of Sample Locations with Concentration > LOR
October 2021 (AACO)	46	PFOS	<0.01 – 202	41
		PFOA	<0.01 – 9.33	36
		PFOS+PFHxS	<0.01 – 316	41
March / April 2022 (AACO)	86	PFOS	<0.01 – 475	58
		PFOA	<0.01 – 22.9	40
		PFOS+PFHxS	<0.01 – 575	60
April 2022 (Brymaroo)	13	PFOS	<0.01 – 18.0	5
		PFOA	<0.01 – 2.71	6
		PFOS+PFHxS	<0.01 – 38.5	6
October / November 2022 (AACO)	45	PFOS	<0.01 – 165	42
		PFOA	<0.01 – 21.6	33
		PFOS+PFHxS	<0.01 - 307	42

Table 11 presents details of the first-time detections of PFHxS + PFOS and PFOA or new exceedances of guidelines during the two sampling events and new maximum and new minimum concentrations.

Table 11 Summary of first-time detections and new guideline exceedances for PFHxS + PFOS and PFOA

Sampling Event	Compound	Groundwater			
		First-time detections	New exceedances of drinking water guidelines	New maximum concentrations	New minimum concentrations
October 2021	PFHxS + PFOS	None	None	*MW134 (0.27 µg/L)* MW179 (6.65 µg/L) MW249 (4.52 µg/L) *MW255 (0.01 µg/L)* *MW272 (0.76 µg/L)*	MW167 (8.04 µg/L) MW172 (0.36 µg/L)
	PFOA	None	None	*MW134 (0.01 µg/L)* MW179 (0.43 µg/L) MW223 (11 µg/L) MW249 (0.14 µg/L)	MW232 (5.73 µg/L)
March / April 2022	PFHxS + PFOS	MW562 (9.42 µg/L)	MW562 (9.42 µg/L)	*MW021 (6.33 µg/L)* *MW267 (9.62 µg/L)* *MW290 (0.42 µg/L)* *MW292 (0.34 µg/L)* *MW294 (1.66 µg/L)* MW299 (169 µg/L) MW562 (9.62 µg/L)	*MW032 (6.18 µg/L)* *MW056 (0.27 µg/L)* MW167 (6.82 µg/L) MW187 (0.61 µg/L) MW235 (10.7 µg/L) MW236 (2.8 µg/L) MW242 (0.05 µg/L MW252 (5.45 µg/L) *MW255 (0.04 µg/L)*

Sampling Event	Compound	Groundwater			
		First-time detections	New exceedances of drinking water guidelines	New maximum concentrations	New minimum concentrations
					MW257 (0.02 µg/L) *MW281 (3.36 µg/L)*
	PFOA	*MW267 (0.02 µg/L)* MW562 (0.55 µg/L)	None	*MW021 (0.13 µg/L)* MW172 (1.88 µg/L) *MW267 (0.02 µg/L)* MW562 (0.55 µg/L) MW299 (22.9 µg/L)	MW235 (0.18 µg/L) MW236 (0.23 µg/L) MW252 (0.10 µg/L)
October / November 2022	PFHxS + PFOS	MW563 (0.11 µg/L)	MW563 (0.11 µg/L)	*MW019 (0.13 µg/L)* MW179 (6.95 µg/L) MW205 (43.1 µg/L) MW207 (1.35 µg/L) MW299 (177 µg/L) MW563 (0.11 µg/L)	MW193 (24.3 µg/L) MW223 (0.74 µg/L) MW235 (14.3 µg/L) MW236 (1.42 µg/L) MW242 (0.02 µg/L) MW252 (2.73 µg/L)
	PFOA	MW563 (0.01 µg/L)	MW179 (0.62 µg/L)	MW179 (0.62 µg/L) MW207 (0.07 µg/L) MW563 (0.01 µg/L)	MW167 (0.28 µg/L) MW222 (1.7 µg/L) MW233 (<0.02 µg/L) MW236 (0.17 µg/L) MW252 (0.03 µg/L)

Notes: Off-Base results are shown in italics.

PFHxS + PFOS and PFOA were detected in MW562 and MW563, which were sampled for the first time in April 2022. These monitoring wells are located adjacent to the former fire training area at AACO and were installed in February 2022 to replace destroyed wells (MW253 and MW254). Both PFHxS + PFOS and PFOA exceeded the drinking water guideline value (HEPA, 2020) in the groundwater sample from these wells. The concentrations reported are consistent with the historical results for the previous monitoring wells, and the detections are not considered a deviation from the historical dataset.

The only first-time detection in an off-Base monitoring well was the first-time detection of PFOA at MW267 (0.02 µg/L) in April 2022, which was close to the LOR (0.01 µg/L). PFHxS + PFOS have been consistently detected in this monitoring well.

Although PFOA exceeded the drinking water guideline value at MW179 for the first-time in October / November 2022, previous concentrations of PFHxS + PFOS have consistently exceeded the drinking water guideline value. MW179 is located along the central southern Base boundary.

Overall, the October 2021, March/April 2022 and October/November 2022 datasets are consistent with historical data.

Groundwater sample results for PFHxS + PFOS and PFOA in groundwater are presented in the following figures in **Appendix A**:

- **Figure 12** –PFHxS + PFOS in Oakey Creek Alluvium and Main Range Volcanics at AACO in October 2021
- **Figure 13** – PFOA in Oakey Creek Alluvium and Main Range Volcanics at AACO in October 2021
- **Figure 14** –PFHxS + PFOS in Oakey Creek Alluvium at AACO in April 2022
- **Figure 15** – PFOA in Oakey Creek Alluvium at AACO in April 2022

- **Figure 16** – PFHxS + PFOS in Oakey Creek Alluvium and Main Range Volcanics at AACO in October 2022
- **Figure 17** – PFOA in Oakey Creek Alluvium and Main Range Volcanics at AACO in October 2022
- **Figure 18** – PFHxS + PFOS in Walloon Coal Measures at AACO in April 2022
- **Figure 19** – PFOA in Walloon Coal Measures at AACO in April 2022
- **Figure 20** – PFHxS + PFOS in Main Range Volcanics at Brymaroo in April 2022
- **Figure 21** – PFOA in Main Range Volcanics at Brymaroo in April 2022

Statistical analysis of PFOS, PFHxS + PFOS, and PFOA using the Mann-Kendall methodology has been conducted on the groundwater dataset for monitoring wells and residential bores included within the ongoing monitoring program, where data are suitable for evaluation. The results of the trend analyses are presented in **Appendix C**.

Historical groundwater concentrations of PFHxS + PFOS have been displayed graphically on temporal trend graphs by area of interest in **Appendix D** for the locations shown in **Table 12**.

Table 12 Temporal Trend Graph by Area of Interest

Graph ID	Area of Interest	Groundwater monitoring well
Chart D1	On-Base: Sources Areas	MW167, MW193, MW230, MW232, MW236, MW253, MW299, MW562
Chart D2	On-Base: Former Fire Station	MW185, MW201, MW202, MW203, MW204, MW205
Chart D3	Off-Base: < 1 km of Southern Base Boundary	MW020, MW031, MW032, MW132, MW268
Chart D4	Off-Base < 1 km Southwestern Corner of AACO	MW021, MW022, MW028, MW113, MW122, MW157, MW257, MW266, MW276, MW296
Chart D5	Off-Base: 1 – 2 km of Southwestern Corner of AACO	MW006, MW019, MW038, MW107, MW134, MW255, MW262, MW272
Chart D6 / D7	Brymaroo	MW001, MW002, MW003, MW004, MW005, MW006, MW007, MW008, MW009, MW010, MW011, MW012, MW013

7.3 Surface Water Results

7.3.1 Surface Water Quality Parameter Field Measurements at AACO

Surface water quality parameters field measurements were measured prior to collecting surface water samples. The readings from the March/April 2022 sampling event are presented in **Table T4**, **Appendix B** and in the sampling event factual report (**Appendix E**). A summary of the water quality parameters in the different creeks are presented in **Table 13**.

Table 13 Summary of Surface Water (Creeks) Quality Parameter Field Measurement Results

Parameter	Units	Oakey Creek (n = 10)		Doctor Creek (n = 1)	West-brook Creek (n= 1)	Drainage Channel Samples (n= 9)	
		Range	Mean	Result	Result	Range	Mean
pH	-	7.3 – 8.6	7.9	7.95	8.32	7.3 – 8.9	8.0
Temperature	ºC	19.7 – 25.2	22.4	29.0	21.1	18.1 – 28.9	25.0
Dissolved Oxygen	mg/L	2.0 – 8.6	4.6	6.74	8.94	0.7 – 14.8	5.9
Redox Potential	mV	208 – 337	308	208	302	106 – 288	205.9
Electrical Conductivity	µS/cm	366 – 1055	617	444	1016	95 – 350	186

Based on the averaged results the creek water can be characterised as near neutral to slightly alkaline, well oxygenated, mildly reducing and fresh. The drainage channel water can be characterised as slightly alkaline, well oxygenated, moderately reducing and fresh. These results are broadly consistent with previous results (AECOM, 2017a, 2018b, 2019a, 2019b, 2021c).

7.3.2 Surface Water Analytical Results

Surface water analytical results for March / April 2022 are included in **Table T5** in **Appendix B** and monitoring activities are summarised in the March / April 2022 sampling event factual report in **Appendix E**. A summary of surface water analytical results is provided in **Table 14** below. **Table 15** provides a summary of new maximum and minimum concentrations in surface water during the monitoring period.

Table 14 Summary of PFAS in Surface Water During the Monitoring Period

Sampling Event	No. of Locations Analysed	Compound	Concentration Range (µg/L)	No. of Sample Locations with Concentration > LOR
March / April 2022 (AACO)	22	PFOS	<0.01 – 1.30	15
		PFOA	<0.01 – 0.05	9
		PFOS+PFHxS	<0.01 – 1.52	15

Table 15 Summary of New Maximum and Minimum Concentrations in Surface Water during March / April 2022 sampling event

Sampling event	No. of locations analysed	Compound	First time detection / new exceedances	New maximum concentrations	New minimum concentrations
March/April 2022	22	PFOS	None	None	SW009 (0.52 µg/L) SW010 (0.02 µg/L) SW011 (<0.01 µg/L) SW013 (0.04 µg/L) SW056 (<0.01 µg/L)
		PFOA	None	None	SW021 (<0.01 µg/L)
		PFOS+PFHxS	None	None	SW009 (0.77 µg/L) SW011 (0.02 µg/L) SW013 (0.04 µg/L) SW021 (0.16 µg/L) SW056 (<0.01 µg/L)

There were no new exceedances or first-time detections of PFHxS + PFOS and PFOA in surface water samples during the monitoring period. New minimum concentrations were detected in six sampling locations. Surface water sample results from March / April 2022 are presented in **Figure 22** (PFHxS + PFOS) and **Figure 23** (PFOA) in **Appendix A**. Historical surface water concentrations of PFOS have been displayed graphically on temporal trend graphs, see **Chart D8** and **Chart D9** in **Appendix D**.

7.4 Sediment Analytical Results

Sediment samples were co-located and collected with surface water samples during the March / April 2022 sampling event. Sediment PFAS analytical results are presented in **Table T6** in **Appendix B** and **Figure 24** (PFHxS + PFOS) and **Figure 25** (PFOA) in **Appendix A**. Monitoring activities are summarised in the March / April 2022 sampling event factual report (AECOM, 2022d) in **Appendix E**. A summary of sediment analytical results is provided in **Table 16** below with a summary of first-time detections and new exceedances presented in **Table 17**.

Table 16 Summary of PFAS in Sediment During the Monitoring Period

Sampling Event	No. of Locations Analysed	Compound	Concentration Range (mg/kg)	No. of Sample Locations with Concentration > LOR
March / April 2022 (AACO)	22	PFOS	<0.0002 – 0.102	21
		PFOA	<0.0002 – 0.0013	4
		PFOS+PFHxS	<0.0002 – 0.106	21

Table 17 Summary of First-time Detections for PFHxS + PFOS, PFOA and PFOS in Sediment

Sampling Event	Compound	Sediment first-time detection	New maximum concentrations	New minimum concentrations
March / April 2022	PFOS	None	SD007 (0.0005 mg/kg) SD018 (0.0051 mg/kg) SD107 (0.0213 mg/kg)	SD010 (0.0093 mg/kg) SD036 (0.0002 mg/kg) SD105 (0.0022 mg/kg
	PFOA	None	SD106 (0.0013 mg/kg)	SD025 (<0.0005 mg/kg)
	PFHxS + PFOS	None	SD107 (0.0223 mg/kg)	SD010 (0.0098 mg/kg) SD017 (0.0082 mg/kg) SD036 (0.0002 mg/kg) SD105 (0.0022 mg/kg)

8.0 Discussion / Interpretive Analysis

8.1 Hydrogeology

The inferred groundwater flow directions for the Oakey Creek Alluvium aquifer at AACO Management Area as shown in **Figures 8** to **10**, **Appendix A**, are consistent with the regional groundwater flow direction (east to west) and the elevations observed in previous investigations (AECOM, 2016a, 2017a, 2018b, 2019a, 2019b, 2021c). Groundwater elevations increased during the monitoring period, between October 2021 and October 2022 with an average increase of 1.6 m. This is likely to reflect increased rainfall during the 2021 to 2022 wet season.

The inferred groundwater contour map for the March/April 2022 sampling event at Brymaroo (**Figure 11**, **Appendix A**) indicated that groundwater flow is generally from the southwest to the northeast. This is slightly different compared to the previous monitoring events in 2018 (AECOM, 2018c), 2019 (AECOM, 2019b), 2020 (AECOM, 2021c) and 2021 (AECOM, 2022b), which generally inferred flow to be radially directed from the infrastructure area to the west and northeast. The groundwater flow direction was inferred to be towards the west in the western portion of the infrastructure area and towards the northeast in the eastern portion of the infrastructure area. The reason for the change may relate to changes in groundwater elevation. Between April 2021 and April 2022 there was an average increase of 3.57 m in groundwater level.

8.2 Groundwater Results

8.2.1 PFAS in Groundwater at AACO

Groundwater results for PFHxS + PFOS and PFOA compared to assessment criteria for the Oakey Creek Alluvium / Main Range Volcanics and Walloon Coal Measures at AACO are presented in **Figure 12** to **Figure 19** in **Appendix A**.

PFAS concentrations were generally similar to previous historical results undertaken since the ESA (AECOM, 2017a). Temporal changes in PFHxS + PFOS and PFOA concentrations have been evaluated using Mann Kendall (refer to **Appendix C**) and in graphs that are presented in **Appendix D**. Where concentration were reported to be below the LOR, a value equal to 50% of the LOR has been used. As per the PFAS OMP Interpretive Report Guidance (Defence, 2022), statistical analysis has only been undertaken on datasets which have a minimum of eight data points and where more than 20% of results exceed the LOR.

Mann-Kendall results are summarised in **Table 18**.

Table 18 Summary of Mann-Kendall Statistical Analysis

Location ID	Analyte	Historical range	OMP events (current period)	Mann-Kendall Trend	
		Min – Max (µg/L)	Min – Max (µg/L)	Trend	Confidence factor
On-Base					
MW167	PFOS+PFHxS	11.8 – 16.0	6.82 – 12.1	*Decreasing*	*99.9%*
	PFOA	0.41 – 0.59	0.28 – 0.52	*Decreasing*	98.9%
MW172	PFOS+PFHxS	6.28 – 30.5	3.7 – 26.7	*Stable*	*50.0*
	PFOA	0.18 – 1.55	0.36 – 1.88	*No trend*	*67.6%*
MW173	PFOS+PFHxS	1.1 – 6.59	4.33 – 7.03	*Stable*	67.6%
	PFOA	<0.01 – 1.23	0.46 – 0.84	*Stable*	84.0%
MW174	PFOS+PFHxS	<0.01 – 0.59	0.06 – 0.33	*No trend*	66.8%
	PFOA	<0.01 – 0.01	<0.01 – 0.014	*No trend*	*55.4%*

Location ID	Analyte	Historical range	OMP events (current period)	Mann-Kendall Trend	
		Min – Max (µg/L)	Min – Max (µg/L)	Trend	Confidence factor
MW178	PFOS+PFHxS	<0.01 – 0.011	<0.01	*Stable*	54.0%
	PFOA	<0.01	<0.01	*Stable*	*47.3%*
MW179	PFOS+PFHxS	4.01 – 5.40	3.86 – 6.95	*Probably Increasing*	94.0%
	PFOA	0.04 – 0.37	0.27 – 0.62	*Increasing*	*>99.9%*
MW187	PFOS+PFHxS	0.838 – 2.18	0.61 – 1.04	*Decreasing*	*99.4%*
	PFOA	0.03 – 0.06	<0.01 – 0.03	*Decreasing*	*99.4%*
MW189	PFOS+PFHxS	0.07 – 0.18	0.13 – 0.2	*Stable*	50.0%
	PFOA	<0.01 – 0.003	<0.01	*No trend*	54.0%
MW193	PFOS+PFHxS	33.6 – 58.6	24.3 – 45.4	*Probably Decreasing*	*94.0%*
	PFOA	2.96 – 7.98	2.2 – 4.1	*Decreasing*	*99.3%*
MW198	PFOS+PFHxS	41.7 – 66.8	6.68 – 40.2	*Decreasing*	*99.8%*
	PFOA	1.64 – 3.87	0.21 – 1.67	*Decreasing*	*99.9%*
MW201	PFOS+PFHxS	35.2 – 54.9	101 - 210	*Increasing*	*99.8%*
	PFOA	1.63 – 2.51	4.36 – 9.2	*Increasing*	*99.8%*
MW202	PFOS+PFHxS	145 - 715	222 - 575	*No trend*	*50.0%*
	PFOA	7.13 – 21.8	4.45 – 9.33	*Probably Decreasing*	*94.0%*
MW203	PFOS+PFHxS	4.25 – 19.5	6.56 – 19.8	*Stable*	*54.0%*
	PFOA	0.16 – 0.93	0.17 – 1.14	*No trend*	*76.2%*
MW204	PFOS+PFHxS	243 – 1300	107 – 307	*Decreasing*	*97.7%*
	PFOA	10.1 – 44.2	5.9 – 21.6	*Probably Decreasing*	*94.6%*
MW205	PFOS+PFHxS	10.3 – 14.5	12.8 – 43.1	*No trend*	*58.0%*
	PFOA	0.56 – 0.66	0.54 – 0.66	*Stable*	*76.2%*
MW206	PFOS+PFHxS	4.46 – 12.35	8.35 – 11.9	*Stable*	*75.8%*
	PFOA	0.27 – 0.97	0.50 – 0.67	*Stable*	*83.2%*
MW221	PFOS+PFHxS	3.08 – 7.62	3.4 – 4.89	*Stable*	*81.0%*
	PFOA	0.248 – 0.82	0.37 – 0.42	*Stable*	*75.8%*
MW222	PFOS+PFHxS	25.9 – 42.9	17.4 – 38.0	*Stable*	*89.1%*
	PFOA	4.34 – 6.32	1.7 – 6.8	*No trend*	*59.0%*
MW223	PFOS+PFHxS	12.7 – 27.9	20.6 – 27.50	*No trend*	*61.9%*
	PFOA	6.07 – 9.8	8.4 – 11.0	*No trend*	*76.2%*
MW229	PFOS+PFHxS	21.6 – 69.2	26.2 – 40.8	*Stable*	*61.9%*
	PFOA	0.25 – 0.91	0.41 – 0.57	*Stable*	*87.3%*
MW230	PFOS+PFHxS	10.4 – 15.6	3.27 – 17.3	*Stable*	*76.2%*
	PFOA	3.72 – 6.1	0.4 – 7.44	*Stable*	*54.0%*

Location ID	Analyte	Historical range	OMP events (current period)	Mann-Kendall Trend	
		Min – Max (µg/L)	Min – Max (µg/L)	Trend	Confidence factor
MW232	PFOS+PFHxS	9.81 – 19.5	5.73 – 24.7	*No trend*	*75.8%*
	PFOA	0.58 – 1.1	0.59 – 1.56	*Increasing*	*98.9%*
MW235	PFOS+PFHxS	16.9 – 20.1	10.7 – 27.8	*Stable*	*50.0%*
	PFOA	0.26 – 0.91	0.18 – 1.04	*No trend*	*70.0%*
MW236	PFOS+PFHxS	22.9 – 24.9	1.42 – 25.9	*Decreasing*	*99.2%*
	PFOA	1.05 – 1.43	0.23 – 1.06	*Decreasing*	*99.5%*
MW241	PFOS+PFHxS	4.85 – 70.6	4.06 – 8.02	*No trend*	*61.9%*
	PFOA	0.15 – 1.45	0.11 – 0.17	*Probably Decreasing*	*90.5%*
MW242	PFOS+PFHxS	2.46 – 3.97	0.02 – 19.7	*Decreasing*	*100.0%*
	PFOA	0.09 – 0.13	<0.01 – 0.04	*Decreasing*	*99.6%*
MW245	PFOS+PFHxS	0.2 – 0.67	0.32 – 0.49	*Decreasing*	*98.7%*
	PFOA	<0.05 – 0.01	<0.05 – 0.01	*No trend*	*52.4%*
MW249	PFOS+PFHxS	2.43 – 3.82	2.69 – 4.52	*No trend*	*85.9%*
	PFOA	0.05 – 0.09	0.08 – 0.14	*No trend*	*87.5%*
MW252	PFOS+PFHxS	8.7 – 36.7	2.73 – 39.5	*Probably Decreasing*	*92.2%*
	PFOA	0.29 – 1.09	0.03 – 1.02	*Probably Decreasing*	*92.2%*
MW299	PFOS+PFHxS	21.1 - 109	24.4 - 177	*No trend*	*70.0%*
	PFOA	2.18 – 12.5	2.38 – 22.9	*No trend*	*70.0%*
MW300	PFOS+PFHxS	7.5 – 126.0	87 – 120.0	*Stable*	*56.9%*
	PFOA	0.36 – 16.4	8.0 – 9.03	*No trend*	*70.0%*
Off-Base					
MW019	PFOS+PFHxS	0.03 – 0.08	0.03 – 0.13	*No trend*	79.9%
	PFOA	<0.01	<0.01	*Stable*	47.6%
MW021	PFOS+PFHxS	3.9 – 6.22	6.1 – 6.33	*No trend*	80.1%
	PFOA	0.06 – 0.1	0.08 – 0.13	*Probably Increasing*	94.6%
MW038	PFOS+PFHxS	0.57 – 1.11	0.45 – 0.94	*No trend*	78.4%
	PFOA	0.02 – 0.6	0.02 – 0.04	*Stable*	61.9%
MW056	PFOS+PFHxS	0.34 – 0.47	0.27 – 0.45	*Stable*	68.3%
	PFOA	<0.01 – 0.02	<0.01 – 0.02	*No trend*	83.2%
MW134	PFOS+PFHxS	<0.01 – 0.01	0.04 – 0.27	*Increasing*	96.4%
	PFOA	<0.01	<0.01 – 0.01	*No trend*	66.2%
MW255	PFOS+PFHxS	0.14 – 0.19	0.04 – 0.22	*No trend*	70.0%
	PFOA	<0.01	<0.01	*Stable*	47.6%
MW257	PFOS+PFHxS	0.11 – 0.71	0.02 – 0.47	*Decreasing*	99.6%

Location ID	Analyte	Historical range	OMP events (current period)	Mann-Kendall Trend	
		Min – Max (µg/L)	Min – Max (µg/L)	Trend	Confidence factor
	PFOA	<0.01 – 0.01	<0.01 – 0.01	*Stable*	56.4%
MW262	PFOS+PFHxS	0.24 – 0.39	0.19 – 0.62	*Increasing*	95.7%
	PFOA	<0.01 – 0.01	0.01 – 0.03	*Increasing*	99.9%
MW264	PFOS+PFHxS	<0.01 – 0.03	<0.01	*No trend*	56.9%
	PFOA	<0.01	<0.01	*Stable*	47.6%
MW269	PFOS+PFHxS	<0.01 – 0.24	0.08 – 0.14	*Stable*	50.0%
	PFOA	<0.01 – 0.01	<0.01	*Stable*	81.6%
MW272	PFOS+PFHxS	0.34 – 0.43	0.34 – 0.76	*No trend*	81.1%
	PFOA	<0.01 – 0.01	<0.01 – 0.02	*No trend*	78.4%

Overall, the majority of wells show groundwater PFHxS + PFOS concentrations have either a stable trend, no trend or a decreasing trend, with four wells (MW134, MW179, MW201 and MW262) having an increasing, or probably increasing, trend. Wells with an increasing trend are discussed further in the following subsections. The statistical trend analysis for PFOA also indicated increasing trends for MW021, MW179, MW201, MW232 and MW262.

8.2.1.1 On-Base

The highest PFAS concentrations in the three sampling events were detected in monitoring wells located down-hydraulic gradient of the source areas identified during the previous investigations and suggest that the groundwater impacts are associated with these areas. The PFAS concentrations were consistent with previously reported concentrations. The maximum concentrations of PFHxS + PFOS in October / November 2022 at each source area were as follows:

- Former fire training area (in Area North): 14.8 µg/L (MW562)[4]
- Former fire station and foam training area (in Area B3): 307 µg/L (MW204)
- Former fuel compound and hot refuelling point (in Area F1): 14.3 µg/L (MW235)
- Hot refuel area (in Area A2) and Spent AFFF recovery underground storage tank (UST) (Asset A83 in Area A1): 24.1 µg/L (MW172)
- Spent AFFF recovery UST (Asset S12 in Area S1): 177 µg/L (MW299)
- Spent AFFF recovery UST (Asset C59 in Area C1): 25.1 µg/L (MW198)
- Active AFFF storage and decanting areas (in Area D2): 16.2 µg/L (MW232)
- Current fire training area (Asset D20 in Area D2): 17.4 µg/L (MW222).

The previous monitoring event reports (AECOM, 2018b, 2019a, 2019b, 2021c, 2022b) identified that PFAS concentrations in groundwater samples from monitoring well (MW229) located to the south and cross-gradient of potential source areas, recorded PFAS concentrations at similar magnitudes to the identified potential source areas (38.2 µg/L at MW229 for PFHxS + PFOS in October 2022). MW229 is located on the western side of Building C23, a laboratory/workshop used for non-destructive testing in the central southern portion of the Base. Historical results have been in the range 21.6 to 69.2 µg/L. This may indicate a localised source area at this location. The groundwater level at MW229 is noted to be much shallower (by approximately 8 m) compared to nearby bores potentially indicating perched

[4] Note that the former fire training area was remediated in 2021. The two groundwater monitoring wells (MW253 and MW254) were destroyed and have since been replaced with MW562 and MW563.

water at MW229. The nature of the shallow water is not known, however as perched water is localised to MW229, the extent is likely to be limited.

PFHxS + PFOS concentrations in groundwater in selected wells in close proximity to potential on-Base source areas are shown in **Chart D1** (multiple source areas) and **Chart D2** (former fire station) in **Appendix D**.

The dataset indicated variability in PFHxS + PFOS concentrations close to two of the source areas between 2016 and 2022 (spent AFFF recovery UST (Asset S12 in Area S1) and former fire training area (in Area North). The groundwater PFHxS + PFOS concentrations in the area of the spent AFFF tank in S1 (MW299) changed from 48 µg/L in October 2021 to 177 µg/L in October 2022. This change was not observed in nearby well MW300, which has shown stable concentrations. Ongoing monitoring will establish if the increase in MW299 is a short-lived spike.

Groundwater concentrations in the former firefighting training area ranging between 25 and 121 µg/L in MW253 between 2017 and 2021. A second well, MW254 recorded concentrations between 0.15 and 0.66 µg/L in the same period. This source area was remediation during 2021 (refer to **Section 6.1.2**), with two replacement monitoring wells installed in February 2022 (MW562 and MW563). Groundwater PFAS concentrations in these wells have reported relatively lower concentrations compared to MW253 with up to 14.8 µg/L PFHxS + PFOS detected in 2022 in MW562. The decrease in PFAS concentrations may be a result of the remediation actions.

Groundwater concentrations in samples from MW236, located close to the former fuel compound and hot refuel area in Area F1 have shown a decreasing trend with PFHxS + PFOS concentrations between 1.4 and 25.9 µg/L. Groundwater concentrations in two other nearby wells, MW235 and MW241 have shown a stable or no trend.

PFAS analytical results for groundwater samples collected from close to other source areas including the former fuel compound in F1 (MW236), current fire training area in D2 (MW230), spent UST in C1 (MW193) and AFFF storage area in D2 (MW232) have shown decreasing or stable concentrations, see **Chart D1** in **Appendix D**. No remediation or infrastructure works have occurred at these source areas.

Groundwater trends for PFHxS + PFOS at the former fire station and foam training area are presented in **Chart D2** in **Appendix D**. Due to the range in concentrations, results for this source area have been plotted on a logarithmic scale. Prior to 2020, some of the monitoring wells (e.g. MW202) showed variability with PFHxS + PFOS fluctuating by up to one or two orders of magnitude. Since 2020, concentrations have been more stable. Mann-Kendall analysis indicated an increasing trend in PFHxS + PFOS in MW201 with 44 µg/L in March 2017 and 210 µg/L reported in April 2022, refer to **Appendix C**. Extraction for groundwater treatment has been ongoing in this area since 2018 and may affect the concentrations detected. MW201 is located up-gradient of the extraction bore and is likely to be outside of the extraction zone of influence. Wells MW202, MW203 and MW204 had noticeable decreases in PFAS concentrations following commencement of the extraction and treatment operations. Statistical analysis indicates an overall decreasing trend in PFHxS + PFOS in groundwater in MW204, which is likely to be due to the groundwater remediation. Overall, since 2019, groundwater concentrations in MW202 and MW203 have shown stable trends.

Mann-Kendall statistical analysis (refer to **Appendix C**) indicated MW179, located adjacent to the southern base boundary was identified as having a PFHxS + PFOS trend that was ‘probably increasing’, with 6.95 µg/L recorded in April 2022 compared to 4.72 µg/L in March 2021. Ongoing monitoring will establish if there is an increasing trend at this location due to the transport of PFAS from up/cross gradient source areas. The well is located along the southern Base boundary and is at distance (>1 km) from source areas.

8.2.1.2 Off-Base

The inferred extent of PFAS impacts from 2022 are indicated to the west, southwest and south of the Base as shown in **Figure 26** (in **Appendix A**). Full analytical results are shown in **Table T2** in **Appendix B**. The groundwater concentrations in the wells and bores in the monitoring period are generally similar to the plume extents presented in the 2017 ESA (AECOM, 2017a) (which was based on maximum concentrations detected in the period 2014 to 2017) and subsequent monitoring event reports (AECOM, 2018b, 2019a, 2019b, 2021c, 2022b). The extent has been slightly modified to the west to take into account detection of PFHxS + PFOS in groundwater that have occurred since 2017.

The leading edge of the plume is inferred to be approaching the Management Area boundary. The extent of the plume to the south has been reduced. The southerly extent of the 2017 plume in the ESA was driven by the detection of PFAS (at concentrations close to the LOR) at MW285, however, as PFAS has not been detected in this monitoring well since 2019, the southerly extent of the plume is not considered to be representative and the estimated extent has been moved further north.

The majority of groundwater monitoring wells installed in the Management Area are in the upper portion of the Oakey Creek Alluvium. Previous investigations have identified the upper and lower portions of the aquifer to have slightly different properties with the upper portion to consist of more cohesive material and lower hydraulic conductivity compared to the lower portion which has relatively coarser material and higher hydraulic conductivity. The 2017 ESA (AECOM, 2017a) established that the different portions were connected and form a single aquifer. For many of the privately owned bores included in the monitoring program it is uncertain which portion of the Oakey Creek Alluvium aquifer they are installed in. The discussion in this section considers the Oakey Creek Alluvium as a single aquifer unit.

Table 19 summarises the extent of PFAS in different portions of the Management Area and identifies changes compared to previous results.

Table 19 PFAS in Oakey Creek Alluvium Off-Base

Area	Extent of PFAS in the Oakey Creek Alluvium aquifer	Bores / wells
<1 km of southern Base boundary	The extent of PFAS in groundwater is unchanged compared to previous results. This includes areas adjacent to the drainage channels and Oakey Creek. The highest off-Base PFAS (PFHxS + PFOS) concentrations recorded in 2022 was at MW276 (19.0 µg/L) which is located approximately 1 km to the south of AACO and 1 km to the west, and down hydraulic gradient, of drainage channel 1. Although it is the highest concentration, the concentration is within the historical range for MW276 (10.6 to 22.6 µg/L). The highest off-Base PFAS concentrations historically detected have been at MW020 located close to drainage channel 1, however, since March 2020 this bore as well as MW031 are no longer included in the monitoring program as the property owners have not provided permission to Defence to access these bores. Since 2020, PFHxS + PFOS concentrations in samples from MW132 were close to, or below the LOR, which contrasts with concentrations reported between 2014 and 2019 which were in the range 4.7 to 26.8 µg/L. PFHxS + PFOS concentrations in other bores (MW032, MW257, MW266, MW267, MW268) were in the range of 0.02 to 6.2 µg/L. The concentration of PFHxS + PFOS detected in MW267, which is screened in the upper portion of the Oakey Creek Alluvium (at approximately 20 mbgl) increased from 0.04 µg/L to 0.47 µg/L between April 2021 and April 2022. However, the concentrations are lower compared to the concentrations detected in groundwater samples from the paired deeper monitoring well MW268, which is screened in the lower portion of the Alluvium (screened between 44 and 50 mbgl). Since 2017, PFHxS + PFOS have reported in the range 0.43 to 1.82 µg/L. There are no changes to the risk profile. Overall, PFHxS + PFOS concentrations in bores and monitoring wells sampled to the south of AACO since 2013 have exhibited stable (MW031, MW032, MW268) or variable concentrations (MW020, MW132), where there have been periods of increasing	MW020, MW031, MW032, MW132, MW257, MW266, MW267, MW268, MW276

Area	Extent of PFAS in the Oakey Creek Alluvium aquifer	Bores / wells
	and periods of decreasing concentrations. Refer to **Chart D3** in **Appendix D**.	
<1 km of south-western corner of AACO	Except for an area located less than 250 m beyond the western Base boundary, the extent of PFAS in groundwater is unchanged compared to previous results. Groundwater sampling in this area occurred during the sampling event in March/April 2022. During the monitoring period, PFAS concentrations were relatively higher in the southern portion beyond the western AACO boundary (10.4 µg/L PFHxS + PFOS at MW157 and 2.0 µg/L at MW122 in April 2022), compared to the central portion of the western Base boundary, where bores had relatively lower PFHxS + PFOS concentrations (e.g. 0.4 µg/L at MW113) and were not reported above the LOR in bores further north and west (MW114 and MW118). Overall, the groundwater dataset shows generally stable concentrations in PFHxS + PFOS concentrations. Statistical analysis results in **Appendix C** indicated increasing trends for PFOS and PFOA in two bores, MW113 and MW122 with stable PFOS trends for MW114, MW118 and MW157. Both MW113 and MW122 are located within 250 m of the western Base boundary and downgradient of on-Base source areas. The concentration of PFOS at MW113 in April 2022 were noted to be 50% of the concentrations reported in March 2021. Relatively lower PFOS and PFOA concentrations were also reported for the sample from MW122 in April 2022 compared to March 2021. During the monitoring period, decreasing concentrations have been reported at MW257. The maximum PFHxS + PFOS concentration recorded at MW257 was 0.71 µg/L in 2017 with the concentration decreasing to 0.02 µg/L in April 2022. Refer to **Chart D4** in **Appendix D**.	MW113, MW118, MW122, MW257
1-2 km of southwestern corner of AACO	The extent of PFAS in groundwater is unchanged compared to previous results with similar concentrations detected in the samples from eight bores / wells collected in the monitoring period compared to the previous results. Temporal groundwater data generally show stable concentrations in PFHxS + PFOS concentrations. Mann-Kendall analysis (refer to **Appendix C**) indicated an overall increasing PFHxS + PFOS trend in groundwater at MW134 and MW262, which are located down-hydraulic gradient of the former Council landfill, located at Lorrimer Street. PFHxS + PFOS at MW134 increased in 2019 and 2020 but concentrations decreased in 2021 (to 0.04 µg/L) then increased again in 2022 with 0.22 µg/L reported in April 2022 before decreasing to 0.09 µg/L in November 2022. PFHxS + PFOS in MW262, located a couple of hundred metres to the east of MW134, was 0.53 µg/L and 0.34 µg/L in April and November 2022, respectively, which is similar to previous years. Refer to **Chart D5** in **Appendix D**. The furthest extent of PFAS in groundwater, related to the Council landfill source, is considered to be close to the location of MW134. The increases in concentration at MW134 and MW262 between 2019 and 2021 is likely to reflect the migration of PFAS in groundwater in this portion of the Management Area.	MW021, MW022, MW134, MW255, MW262, MW272, MW274, MW280

Area	Extent of PFAS in the Oakey Creek Alluvium aquifer	Bores / wells
	The fluctuation in PFAS concentration between 2020 and 2022 may reflect seasonal effects on the migration of PFAS from the former Council landfill and ongoing monitoring will continue at these locations to confirm the trend. An increasing trend was also recorded at MW280, which is also potentially down-hydraulic gradient of the former Council landfill. Concentrations of PFHxS + PFOS have been in the range of 0.17 to 0.28 µg/L since 2018. The increase in PFAS concentration in this well is considered minor as they are in the same order of magnitude and results are similar to other wells in this portion of the Management Area. Groundwater in MW038 has shown variable concentrations with periods of increasing and decreasing concentrations and statistical analysis has not identified a trend. For example, there was an increasing concentration in PFHxS + PFOS between October 2014 and October 2017, which was been followed by a decreasing concentration between October 2017 and October 2019. All other bores monitored in this area in October 2021 and April 2022 had similar PFAS concentrations compared to previously recorded concentrations in these bores. The maximum PFHxS + PFOS concentrations in groundwater in the monitoring period was 0.94 µg/L at MW038 in October 2021. The lateral extent of PFAS in groundwater to the south is uncertain as the nearest monitoring well south of MW038 is MW285, which is approximately 1.7 km away. A monitoring well positioned to the south of MW038 and on the western side of Oakey Creek would address the gap in the monitoring network in this portion of the Management Area.	
>2 km to the west and southwest of AACO	PFAS was detected in groundwater in a number of monitoring wells and residential bores to the west and southwest of the southwestern corner of AACO. The most down-hydraulic gradient well with detected PFAS concentrations in the monitoring period was MW019, which recorded 0.13 µg/L PFHxS + PFOS in October 2022. MW019 is located approximately 2.3 km to the west of the south-western corner of AACO. The leading edge of the area of PFAS in groundwater is likely to be close to this bore. Statistical analysis has not identified a trend. PFAS have been detected in samples from MW019 since 2016, when the full suite of 28 compounds was analysed. The drinking water guideline value (0.07 µg/L) was previously exceeded in October 2017 and March 2020 and exceeded the guideline in both sampling events in 2022. As the plume extent map shown in the ESA (AECOM, 2017a) did not include the exceedance at MW019 (as it was based on data from before June 2017), the extent has been modified with the updated extent shown in **Figure 26** in **Appendix A**. PFAS have not been detected in groundwater in sentinel bores located further to the west outside of the Management Area (MW147 and MW151). As the detections during the monitoring period are consistent with historical results from 2017, there is no change in the lateral extent to the west. PFAS are likely to continue migrating to the west with groundwater in the Oakey Creek Alluvium. Future changes to the extent were predicted based on	MW003, MW019, MW038, MW114, MW147, MW149, MW151, MW160, MW264, MW281, MW282, MW283

Area	Extent of PFAS in the Oakey Creek Alluvium aquifer	Bores / wells
	solute transport modelling and are reported in the ESA (AECOM, 2017a). PFAS were not detected in groundwater in the most distant wells (MW264 and MW283) to the southwest (4.5 km to the southwest of the southwestern corner of AACO) in April 2022 indicating that PFAS groundwater contamination does not extend to this portion of the Management Area.	
South-east of AACO	The extent of PFAS in groundwater is unchanged compared to previous results. Groundwater sampling in this area occurred during the comprehensive sampling event in March/April 2022. The April 2022 results show PFAS was not detected in a well <300 m from AACO (MW270). PFAS was detected in groundwater in MW294, located 1 km south of AACO, on the northern side of Oakey Creek at a concentration of 1.7 µg/L for PFHxS + PFOS. PFAS has been consistently detected in groundwater at MW292 (at 0.3 µg/L PFHxS + PFOS) located adjacent to the southern side of Oakey Creek. Groundwater results from two groundwater monitoring wells (MW278 and MW279) on the southern side of Oakey Creek, did not report PFAS concentrations above the LOR, indicating PFAS groundwater contamination does not extend to the southeast (based on the current dataset). A new maximum concentration was recorded at MW292 in April 2022, however, the concentrations recorded since 2018 are noted to be in a similar range (0.27 to 0.34 µg/L). The change is considered minor and likely to reflect sample variation. All results are within the same order of magnitude.	MW270, MW278, MW279, MW292, MW294
>1 km of AACO to the south	The extent of PFAS in groundwater in this area is unchanged compared to previous results. The PFHxS + PFOS concentration detected in MW290 in April 2022 (0.42 µg/L) are noted to be similar to the concentration recorded in the sample from MW056, located approximately 300 m further south, which has a stable trend. The presence of PFAS in these wells potentially relates to the presence of other historical off-Base local sources along Lorrimer Street, as identified in AECOM (2015a). For example, an area potentially used for off-Base firefighting training by non-Defence personnel is located to the east, which is hydraulically up-gradient. PFAS was not detected in April 2022 in the groundwater sample from MW285 located approximately 4.5 km to the south of the AACO. Historically, PFAS has been detected on two occasions in samples from this well at concentrations close to the LOR. As PFAS has not been detected in this monitoring well since 2019, PFAS in groundwater is not considered to extend as far south as MW285.	MW056, MW285, MW290
North east of AACO	PFAS was not detected in the background monitoring well (MW265) in April 2022 indicating there are no up-gradient sources of PFAS migrating onto the Base.	MW265

8.2.1.3 PFAS in Walloon Coal Measures

Overall, the sampling results in the wells monitoring the Walloon Coal Measures aquifer in the monitoring period are consistent with historical results reported between 2017 and 2021.

Since April 2018, PFAS have been detected in a well monitoring the Walloon Coal Measures aquifer (MW269) close to drainage channel 1 and approximately 400 m to the south of AACO. MW269 has been monitored on six occasions and has shown stable concentrations with PFHxS + PFOS reported in the range 0.08 µg/L to 0.14 µg/L between October 2020 and November 2022. It was reported that the detection of PFAS in this well could be related to conditions during the construction of the monitoring wells in this group. A purging event was completed in September 2018 to remove water containing PFAS in this bore (AECOM, 2018c). The results since the purging have generally been lower than the maximum concentration detected. The reduction in PFAS concentrations suggests that the detections are likely to be associated with the bore construction process and are not indicative of continuous or historical vertical migration to the Walloon Coal Measures aquifer.

In April 2022, PFAS were detected in a groundwater sample from one (MW291) of the other six monitoring wells that are screened in the Walloon Coal Measures. The PFHxS + PFOS concentration reported (0.03 µg/L) was close to the LOR and is the second time PFAS has been detected in this monitoring well. Occasional low-level detections of PFAS (close to the LOR) have been reported in groundwater samples collected from the Walloon Coal Measures aquifer since monitoring wells were installed in 2017. The detection of PFAS in these wells are not considered to represent a change in the risk profile.

Four wells (MW269, MW291, MW295, MW297) reported detectable concentrations of 6:2 FTS in March 2020 (in the range 0.09 to 0.5 µg/L). 6:2 FTS was also detected in samples from MW291 and MW295 in both October 2020 and April 2021 sampling events with MW291 reporting 0.05 and 0.07 µg/L, respectively, and MW295 reporting 0.21 and 0.25 µg/L, respectively. 6:2 FTS was not detected in groundwater samples from any of the wells in 2022. The detections of 6:2 FTS between 2020 and 2021 are considered anomalous as generally no other PFAS compounds have been detected.

8.2.2 PFAS in Groundwater in Main Range Volcanics at Brymaroo

Groundwater results for PFHxS + PFOS and PFOA compared to assessment criteria are presented in **Figure 20** and **Figure 21** in **Appendix A**. Full analytical results are shown in **Table T3** in **Appendix B**.

PFAS concentrations were generally similar to previous historical results undertaken since the ESA (AECOM, 2017a). Temporal changes in PFHxS + PFOS and PFOA concentrations have been evaluated using in **Charts D6** and **D7** in **Appendix D**. There is an insufficient number of datapoints to be able to conduct Mann-Kendall analysis. Qualitative review of the charts for PFHxS + PFOS indicate six wells have either a stable trend and three wells have an increasing trend; MW001, MW002, MW010.

The extent of PFAS in groundwater in this area is unchanged compared to previous results. With two exceptions, PFAS concentrations in April 2022 were generally similar to concentrations reported in April 2021. The exceptions were for samples from MW002 and MW003, both located adjacent to the refuelling pad in the infrastructure area. The groundwater sample from MW003 recorded 38.5 µg/L PFHxS + PFOS in April 2022, which increased from 13.0 µg/L in April 2021. The results suggests the monitoring well is close to a source area, however, exact source areas at Brymaroo have been identified (AECOM, 2018d). The concentration of PFHxS in MW002 approximately tripled in concentration between April 2021 and April 2022 (0.5 µg/L to 1.6 µg/L). The increases are attributed to the relatively higher groundwater level in 2022 mobilising PFAS in the soil above the groundwater table. Ongoing monitoring will indicate the longer term trend in PFAS concentrations in groundwater at the location of MW002 and MW003.

Overall, the results indicated an area of PFAS groundwater contamination is present in the infrastructure area with the highest concentrations present to the west and south of the western refuelling pad (MW003 and MW009). As PFAS was not reported above the LOR in groundwater samples from monitoring wells downgradient of this area to the north, northwest and west in MW004, MW005, MW006, MW007 and MW008, this indicated limited migration of PFAS in groundwater from the potential source areas in these directions. The changes in concentrations close to source areas may reflect the higher-than-average rainfall during the 2021/2022 wet season mobilising PFAS in the unsaturated zone.

Since 2019, PFAS has been detected in the two monitoring wells to the northeast of the infrastructure area, MW010 and MW011. At MW010, PFHxS + PFOS increased from <0.01 µg/L in 2019 to 1.18 µg/L in 2020, however, has since been stable reporting 0.84 µg/L in April 2021 and 0.91 µg/L in April 2022. The detection of PFAS at MW010 indicated the migration of PFAS towards the northeast, which is the inferred groundwater flow direction at this location. As there are no monitoring wells to the northeast beyond MW010, the extent of the area of PFAS groundwater contamination in this direction is not known. The PFAS in groundwater concentrations at MW010 appear to have stabilised. Due to the distance to the Base boundary (>400 m), the limited extent of PFAS in groundwater in other directions (<200 m) and the low hydraulic gradient of the Main Range Volcanics aquifer, this data gap is considered to be of low importance. Ongoing monitoring will indicate the longer term trend in PFAS concentrations in groundwater at the location of MW010.

There is no indication that PFAS is migrating in groundwater across the property boundary. There is potential for future changes in the magnitude and distribution of the contamination due to ongoing migration from potential source areas. Ongoing monitoring will continue to assess for any of the potential future changes.

8.3 Surface Water and Sediment Results

Surface water and sediment results for PFHxS + PFOS and PFOA in March/April 2022 are provided in **Figure 22** to **Figure 25**, in **Appendix A**. Full analytical results for surface water and sediment are shown in **Table T5** and **Table T6** in **Appendix B**.

8.3.1 Surface Water: Drainage Channels

The highest PFHxS + PFOS concentration in surface water samples from the drainage channels in March/April 2022 was reported in the on-Base sample from drainage channel 2 (SW024 with 1.52 µg/L). PFAS concentrations generally decreased downstream of the Base.

At drainage channel 1, PFHxS + PFOS was 1.01 µg/L on-Base (SW065) and 0.66 µg/L off-Base (SW026). At drainage channel 2, PFHxS + PFOS was 1.52 µg/L on-Base (SW024) and 0.87 µg/L off-Base (SW027). PFHxS + PFOS concentrations on and off-Base at drainage channel 3 were similar, 0.55 µg/L on-Base (SW063) and 0.65 µg/L off-Base (SW057).

Chart D8 in **Appendix D** shows the change in PFOS concentration in surface water in the three drainage channels, including on-Base and off-Base sampling locations between 2014 and 2022. PFOS has been selected as this compound has consistently been analysed since 2014.

- For drainage channel 1, results show PFOS concentrations in 2022 were all lower than historical results from the period 2015 to 2017.
- For drainage channel 2, results show PFOS concentrations in 2022 were within the historical range.
- For drainage channel 3, results show PFOS concentrations in 2022 were lower than historical concentrations.

Overall, PFAS results in 2022 in surface water from the on-Base drainage channels were lower than the historical maximum concentrations. Decreases in concentrations since 2018 may reflect reduction in mass flux along the drainage channels following completion of remediation works along the on-Base drainage channels in 2018.

8.3.2 Surface Water: Creeks

The highest PFOS concentration in surface water samples from creeks in April 2022 was 0.04 µg/L at SW013, which is located at the outfall of drainage channels 1 and 2. Only three of the ten samples from Oakey Creek recorded concentrations exceeding the LOR, which may reflect dilution due to higher flow conditions following the high rainfall received during the 2021/2022 wet season. For comparison the highest PFOS concentrations recorded along the Oakey Creek since 2017 was 0.72 µg/L at SW013 in April 2018.

The results indicate the following:

- **Oakey Creek:**

- Upstream of the outflow of drainage channel 4: PFAS have not been detected above the LOR at SW040. This location is considered representative of natural background conditions in the creek.
- At outflow of drainage channel 4: PFOS was not detected above the LOR at SW032 in March/April 2022.
- Downstream of drainage channels 1 and 2: Three of the five surface water samples collected reported PFAS, with the sample collected from the outfall of drainage channels 1 and 2 (SW013) recording the highest PFOS concentration (0.04 µg/L).
- Downstream of confluence of Westbrook Creek: PFAS was not detected above the LOR in the single surface water sample analysed (SW004).

- **Doctor Creek:**
  - PFOS was not detected above the LOR in the single surface water sample collected from Doctor Creek (SW043) in March 2022.
- **Westbrook Creek:**
  - PFOS was detected equal to the LOR (0.01 µg/L) in the single surface water sample collected (SW028). Previous sampling at this location have detected PFOS close to the LOR, which may possibly indicate an upgradient source.

Overall, the results show the highest PFAS concentrations in surface water are present at monitoring locations within 1.5 to 3 kilometres downstream of the outflow point of drains 1 and 2. The concentrations decrease with increasing distance downstream from AACO. The furthest downstream sample collected (SW004), approximately 6.5 km downstream from AACO has consistently reported PFOS concentrations close to, or below, the LOR.

Chart D9 in **Appendix D** shows the change in PFOS concentration in surface water in different parts of Oakey Creek between 2014 and 2022 as well as Doctor Creek and Westbrook Creek. PFOS has been selected as this compound has consistently been analysed since 2014 and the concentrations of PFOS have been higher compared to other PFAS. The sampling locations represent the following areas:

- Upstream of drainage channel 4 outfall (SW040)
- Upstream of outflow point of drainage channels 1 and 2 and downstream of drainage channel 3 (SW014) (It is noted that no sample was collected from SW014 in 2018 or 2019)
- Downstream of outflow of drainage channels 1 and 2 (SW013)
- A location approximately 1.5 km downstream of outflow of drainage channels 1 and 2 (SW012)
- A location approximately 2 km downstream of outflow of drainage channels 1 and 2 (SW011)
- A location approximately 3 km downstream of outflow of drainage channels 1 and 2 (SW010)
- A location approximately 3 km downstream of the confluence with Westbrook Creek (SW004)
- Westbrook Creek (SW028) and Doctor Creek (SW043).

Between 2014 and 2021, PFOS concentrations were variable with periods of increasing and decreasing trends, in particular at SW012 and SW013 and to a lesser extent at SW010 and SW11. The historical changes in PFOS concentration are likely to reflect changes in PFAS mass in surface water discharging via the drainage channels and variable flow conditions in the creek.

All PFOS concentrations in creek samples in March/April 2022 were either close to, or less than the LOR. These concentrations are much lower than historically reported and may reflect higher flow conditions in the creeks following the higher rainfall received during the 2021/2022 wet season due to the La Nina episode, which may have results in dilution of PFAS concentrations.

8.3.3 Sediment

The highest PFOS concentration reported in 2022 for sediment samples was 0.102 mg/kg at SD106 along drainage channel 1, which is lower than the previous maximum concentration recorded along this drainage channel (0.152 mg/kg), refer to **Table T6**, **Appendix B**. A summary of PFOS results for the

different surface water features for the period 2019 to 2021 and 2022 results compared to 2015-2018 period results is shown in **Table 20**. Data have been grouped into these time periods to compare results before the on-Base drainage channels were remediated in 2018 and post-remediation. The remediation included the removal of approximately 12,000 m^3 of sediment and soil. Maximum PFOS concentrations in sediment in 2022 were within the post-remediation range for drainage channels and Oakey Creek samples. Sediment PFOS concentrations in the samples collected from Doctor Creek and Westbrook Creek were close to the LOR. Except for one sample from drainage channel 1, lower maximum PFOS concentrations have been recorded in sediment in the drainage channels in the period 2019 to 2022 compared to the earlier 2015 to 2018 period, which is attributed to the drainage channel remediation works.

Table 20 Summary of Sediment Results: 2015 to 2022

Location	2015 to 2018		2019 to 2021		2022	
	No of samples	Range of PFOS (mg/kg)	No of samples	Range of PFOS (mg/kg)	No of samples	Range of PFOS (mg/kg)
Drainage Channel 1	10	0.032 to 0.13	9	0.007 to 0.152	3	0.016 – 0.102
Drainage Channel 2	11	0.001 to 0.492	12	0.0011 to 0.37	4	0.0005 to 0.0456
Drainage Channel 3	12	0.001 to 3.68	12	0.0004 to 0.0523	5	0.0026 to 0.0356
Oakey Creek	35	<0.0002 to 0.021	25	<0.0002 to 0.0746	9	<0.0002 to 0.0051
Doctor Creek	21	<0.0002 to 0.0072	3	<0.0002 to 0.0004	1	0.0005
Westbrook Creek	1	0.0007	3	0.0002 to 0.0004	1	0.0006

9.0 Conceptual Site Model

9.1 AACO

The CSM was developed during the investigation stages (AECOM, 2017a, b) and summarises the linkages between the sources, exposure pathways and receptors.

The Ongoing Monitoring Program over the monitoring period has provided additional data to further understand the changing conditions (concentration and shape) of the area of groundwater impacted by PFAS in the AACO Management Area.

No localised changes to the nature and extent of PFAS have been identified and the PFAS transport mechanisms and the general extent of the area of groundwater PFAS impacts (size and shape) are inferred to be consistent with the existing CSM presented in AECOM (2017a, b). The current mass flux investigations being undertaken as part of the PMAP delivery works will provide further information on PFAS transport mechanisms on-Base and hydrogeological pathways through and between the upper and lower sections of the Oakey Creek Alluvium. The CSM presented in the 2017 ESA (AECOM, 2017a) identified that PFAS in groundwater south of AACO may be due to PFAS migrating in surface water in drainage channels, off-Base towards the south, followed by infiltration to groundwater. The former Council landfill and the SES training ground are present to the south of AACO and are off-Base sources of PFAS to groundwater. PFAS in groundwater sourced from these off-site source areas will migrate with groundwater flow in a westerly or north-westerly direction. The presence of unidentified preferential pathways, such as paleochannels may also contribute to the presence of PFAS to the south and southwest of the Base.

Overall, data presented in this report on the PFAS primary and secondary sources, pathways and receptors does not change the understanding of the CSM. Future monitoring will continue to contribute to an evaluation of any potential change to the CSM understanding.

9.2 Brymaroo

The findings of the groundwater sampling event conducted in April 2022 are not considered to change the risk profile for the Base and no changes are required to the existing CSM for Brymaroo (presented in AECOM, 2018d).

10.0 Discussion

10.1 Risk Profile

10.1.1 AACO

The HHRA (AECOM, 2017b) concluded that if people living, working or undertaking recreation within the Management Area follow the existing precautionary advice from Queensland Health to minimise their intake of PFAS, they are unlikely to exceed the TDI. Conversely, it was concluded that unrestricted exposure to PFAS across the Management Area is likely to result in an exceedance of the TDI. The activities listed in the table below were identified as having elevated exposure to PFAS (i.e. approaching or exceeding the TDI).

Table 21 Activities with Elevated Exposure to PFAS

Exposure Pathway	Management Zone 1	Management Zone 2	Management Zone 3
Drinking PFAS-impacted groundwater or using it in cooking.	•	•	•
Unintentionally ingesting PFAS-impacted groundwater when used indoors for showering or bathing or outdoors for filling swimming pools and children's wading pools and sprinkler play.	•	•	
Eating PFAS-impacted home grown leafy green vegetables.	•	•	
Eating PFAS-impacted red meat and / or offal from home grown cattle or sheep that have consumed PFAS-impacted water or grazed in areas irrigated or flooded with PFAS-impacted water.	•	•	
Eating PFAS-impacted eggs from backyard poultry.	•	•	
Eating PFAS-impacted fish from Oakey Creek.	•	•	•
Drinking PFAS-impacted home grown milk.	•		

The HHRA (AECOM, 2017b) identified that all other exposure pathways considered had a low and acceptable risk.

The data collected during the Ongoing Monitoring Program over the 12-month monitoring period suggest that the risk profile to human health within the AACO Management Area, described in the HHRA (AECOM, 2017b), is unchanged, based on the following conclusions of the data assessment:

- The extent of PFAS in groundwater is generally similar to that presented in the 2017 ESA (AECOM, 2017a) and subsequent monitoring reports (AECOM, 2018b, 2019a, 2019b, 2021c, 2022b).
- PFAS analytical results for individual wells were generally in accordance with historical ranges. With a couple of minor exceptions, there were no first-time detections of PFHxS + PFOS or PFOA in underlying aquifers in the AACO Management Area[5], or in sentinel wells outside the

[5] Other than the first-time PFAS detections in replacement monitoring wells (MW562 and MW563) installed in 2022, which is located adjacent to a known source area and the detection of PFHxS + PFOS at the LOR at MW267.

Management Area. There were no new exceedances of the groundwater human health guideline values[6] and exposure point concentrations for wells within management zones were not exceeded.

- PFAS concentrations in surface water from the Oakey Creek at the AACO Management Area were lower compared to previous (historical) results with all creek samples reporting PFAS concentrations close to, or less than, the LOR. PFAS concentrations in surface water from the drainage channels were similar to concentrations reported in 2020 and 2021 indicating stable conditions. There were no new exceedances of guideline values during the monitoring period.
- PFAS concentrations in off-Base sediment were consistent with historical results.

Based on the data, AECOM considers that the conclusions made in the 2017 HHRA (AECOM, 2017b) still apply.

10.1.2 Brymaroo

No complete exposure pathways for human health receptors were identified for on-Base or off-Base receptors, assuming that occupational controls are in place to protect workers from exposure to potentially contaminated soil and the groundwater beneath the Base is not used for drinking or irrigation purposes. A potentially complete exposure pathway has been identified for on-Base ecological receptors (terrestrial ecosystems), where there could be uptake of PFAS in the food chain from contamination in the soil (in hotspots around the hot refuel area) to invertebrates and subsequently to invertivorous birds and small invertivorous mammals. However, it is considered that the PFAS concentrations detected in soil are unlikely to present unacceptable risks to secondary consumers. Note that this conclusion is based on a limited number of sample locations. No complete exposure pathway were identified for aquatic receptors.

The data collected during the Ongoing Monitoring Program in 2022 suggest that the risk profile to human health and ecological receptors at Brymaroo is unchanged as PFAS concentrations in groundwater at locations down-gradient of source areas are generally consistent with previous results reported in 2020 and 2021. Due to the distance to the down-gradient Base boundary and low concentrations detected in down-gradient wells, it is considered unlikely that PFAS is migrating off-Base. Increases in PFAS concentrations in groundwater in two monitoring wells located close to source areas were detected in April 2022. The reason for the increase in groundwater concentrations at these wells is not known but may be relate to the change in groundwater level during the monitoring period, which rose by 3.6 m between October 2021 and October 2022, presumably due to the wetter conditions that occurred during the 2021/22 wet season.

Based on the data, AECOM considers that the conclusions made in the 2018 DSI (AECOM, 2018d) still apply.

10.2 Assessment of Current OMP

Following a review of data collected during the current monitoring period, there has been no significant change to the understanding of risks associated with PFAS in the AACO Management Area or at Brymaroo, spatial distribution of PFAS and the need for monitoring of additional media. Furthermore, there has been no feedback received as a result of community consultation nor changes in land use.

Due to the number of sample locations that have reported PFAS concentrations consistent with historical results during the monitoring period, it is considered that there is scope to optimise the monitoring network and frequency by reducing the number of monitoring points in areas of the AACO Management Area where there is a relatively higher density. New monitoring wells have been installed as part of the mass flux works and inclusion of these wells in the ongoing monitoring program will provide longer term data and inform changes to mass flux. This triggers the requirement to complete a review of the OMP.

[6] Other than the detection of PFOA exceeding the drinking water guideline value. However, PFHxS + PFOS has consistently exceeded the drinking water guideline value in this well.

11.0 Conclusions

Groundwater, surface water and sediment sampling were completed as part of the OMP between October 2021 and November 2022.

Overall, the concentrations of PFAS in groundwater were generally similar to previous results, with the highest PFAS concentrations in 2022 being detected at monitoring wells located down-hydraulic gradient of PFAS source areas identified during previous investigations.

The inferred area with PFAS in groundwater in the AACO Management Area is similar to that presented in the 2017 ESA (AECOM, 2017a) and subsequent monitoring event reports (AECOM, 2018b, 2019a, 2019b, 2021c, 2022b). Statistical trend analysis indicated that most wells have either a stable or decreasing trend in PFHxS + PFOS concentration, with four wells reporting an overall increasing trend. Detected concentrations in the monitoring period in these wells were generally within the historical concentration range.

Concentrations of PFAS in surface water samples from creek locations within the AACO Management Area in April 2022, significantly decreased and were either close to or less than the LOR. This may reflect higher flow conditions in the creeks, due to the higher rainfall that occurred during the 2021/2022 wet season due to the La Nina episode. PFAS concentrations in surface water from drainage channels were consistent with concentrations reported in 2020 and 2021. PFAS concentrations in sediment samples from creeks and drainage channels were consistent with historical results.

At Brymaroo, PFAS groundwater concentrations in April 2022 in downgradient locations were similar to concentrations reported in April 2021. Increases in PFAS concentrations were recorded for groundwater samples collected from two monitoring wells (MW003 and MW009) close to the source areas where AFFF was stored and potentially discharged. A new maximum concentration for the Base for PFHxS + PFOS reported at MW003 in April 2022. The changes in concentrations close to the PFAS source area may relate to the increase in groundwater level, which rose by 3.6 m between October 2021 and October 2022, which may have mobilised PFAS in the vadose zone. The change in groundwater level is likely to be due to the higher-than-average rainfall during the 2021/2022 wet season mobilising PFAS in soil above the groundwater table. Increases in PFAS concentrations at MW010 were reported in the 2020 AIR, however concentrations have since been stable. There are no monitoring wells to the northeast beyond MW010, the extent of the area of PFAS groundwater contamination in this direction is not known. Due to the distance to the Base boundary (>400 m), the limited extent of PFAS in groundwater in other directions (<200 m) and the low hydraulic gradient of the Main Range Volcanics aquifer, this data gap is considered to be of low importance. Ongoing monitoring will indicate the longer term trend in PFAS concentrations in groundwater at the location of MW010.

The CSMs for AACO and Brymaroo were reviewed and no changes were identified to sources, pathways or receptors.

Based on the data, no changes to the risk profile are recommended. Due to the number of sample locations that have reported PFAS concentrations consistent with historical results during the monitoring period, it is considered that there is scope to optimise the monitoring network and frequency by reducing the number of monitoring points in areas of the AACO Management Area where PFAS has not been detected. New monitoring wells have been installed as part of the mass flux works and inclusion of these wells in the ongoing monitoring program will provide longer term data and inform changes to mass flux. This triggers the requirement to complete a review of the OMP.

There are limited groundwater monitoring points further west and down-gradient of the leading edge of the plume, which is interpreted to be close to off-Base bore MW019, located approximately 2 km west of the southwestern corner of AACO. As the detections during the monitoring period are consistent with historical results from 2017, there is no change in lateral extent to the west. PFAS has not been detected to date in sentinel bores MW147 and MW151, installed in the Alluvium aquifer to the west of the current Management Area boundary. Solute transport modelling conducted in the 2017 ESA (AECOM, 2017a) predicted PFAS to migrate in flowing groundwater in a westerly direction over time. Additional monitoring points are likely to be required in the future to provide dedicated groundwater monitoring to the west of the current Management Area boundary. The southern extent of the area impacted with PFAS has been reduced based on the non-detection of PFAS in groundwater samples to the south of the Oakey township. Due to the lack of monitoring wells south of MW038, there is

uncertainty in the extent of PFAS in groundwater. An additional monitoring well would be required to address this data gap.

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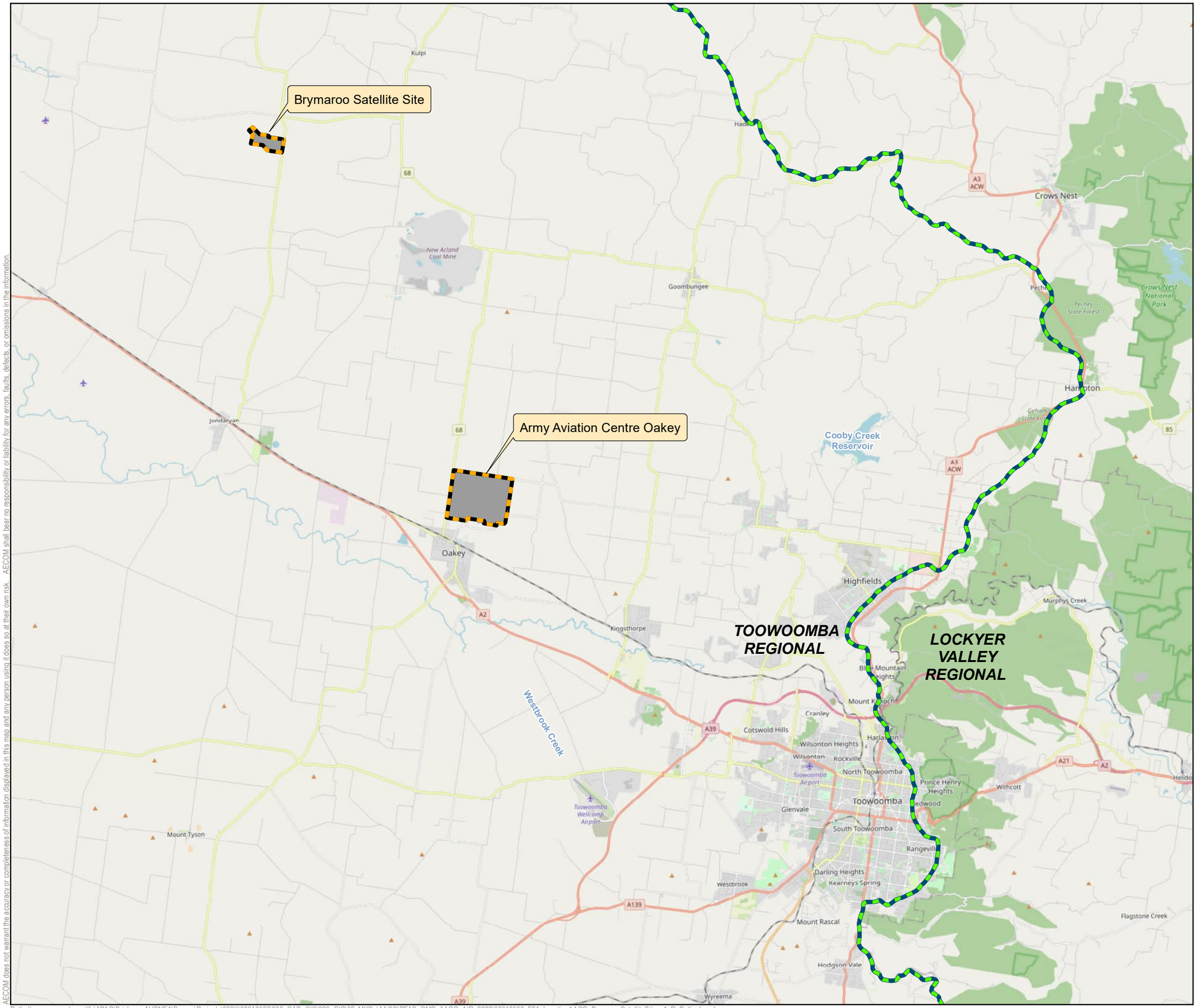
List of Appendices

Appendix A

Figures

Appendix A Figures



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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 1.5 3 6 Kilometers

1:200,000 (when printed at A3)

LEGEND

- Airport
- Watercourse/waterbody
- Great Dividing Range
- AACO and Brymaroo Boundaries
- Local Governmental Area
- National Park

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011

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DEPARTMENT OF DEFENCE

Ongoing Monitoring Interpretive Report, 2022
PFAS OMP - AACO

LOCATION OF AACO AND BRYMAROO SATELLITE SITE

PROJECT ID	60612563
CREATED BY	JP
LAST MODIFIED	20/06/2022
VERSION:	1

FIGURE 01

A3 size

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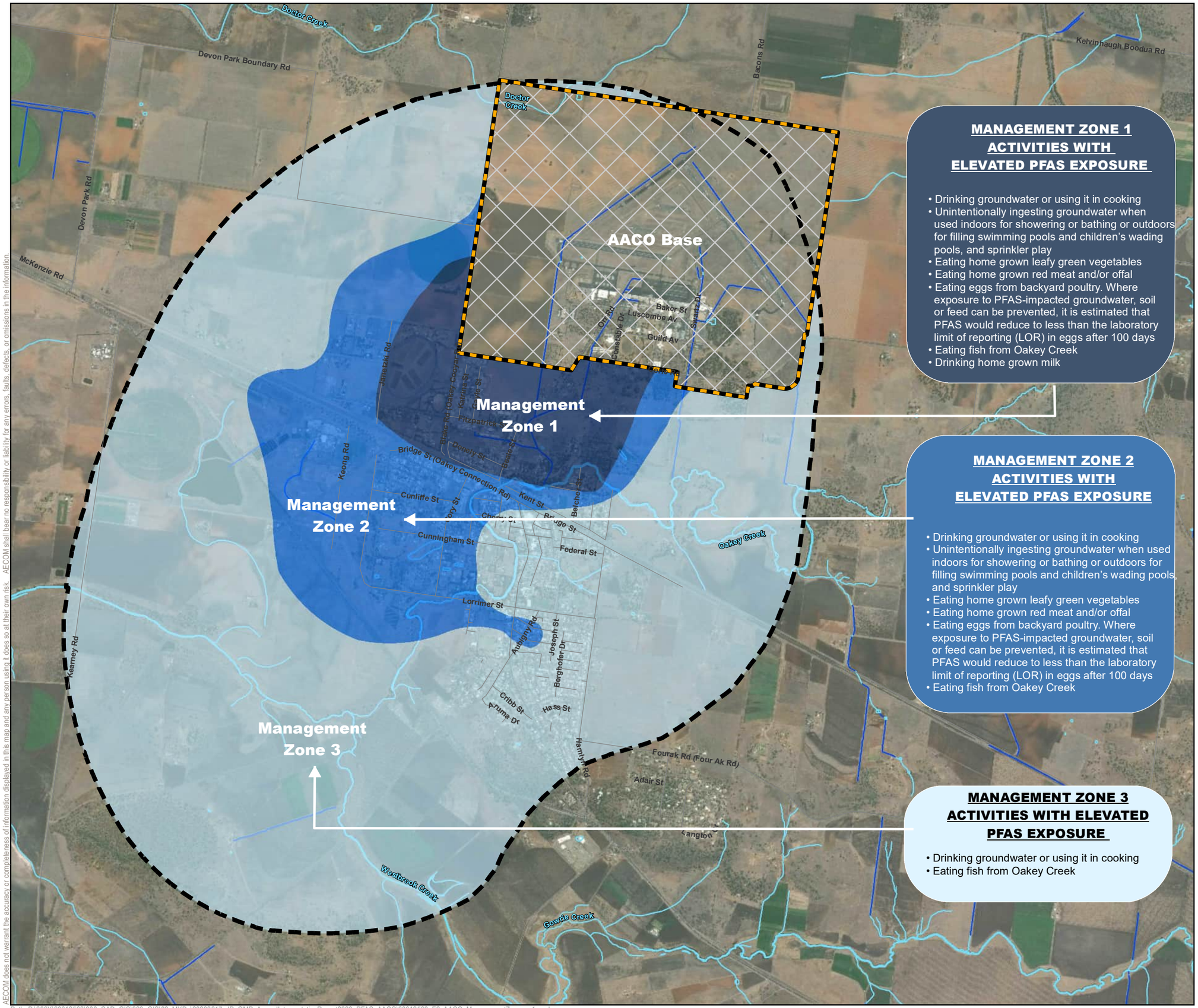

MANAGEMENT ZONE 1 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Unintentionally ingesting groundwater when used indoors for showering or bathing or outdoors for filling swimming pools and children's wading pools, and sprinkler play
- Eating home grown leafy green vegetables
- Eating home grown red meat and/or offal
- Eating eggs from backyard poultry. Where exposure to PFAS-impacted groundwater, soil or feed can be prevented, it is estimated that PFAS would reduce to less than the laboratory limit of reporting (LOR) in eggs after 100 days
- Eating fish from Oakey Creek
- Drinking home grown milk

MANAGEMENT ZONE 2 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Unintentionally ingesting groundwater when used indoors for showering or bathing or outdoors for filling swimming pools and children's wading pools, and sprinkler play
- Eating home grown leafy green vegetables
- Eating home grown red meat and/or offal
- Eating eggs from backyard poultry. Where exposure to PFAS-impacted groundwater, soil or feed can be prevented, it is estimated that PFAS would reduce to less than the laboratory limit of reporting (LOR) in eggs after 100 days
- Eating fish from Oakey Creek

MANAGEMENT ZONE 3 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Eating fish from Oakey Creek

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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:35,000 (when printed at A3)

LEGEND

- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- AACO Base

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011

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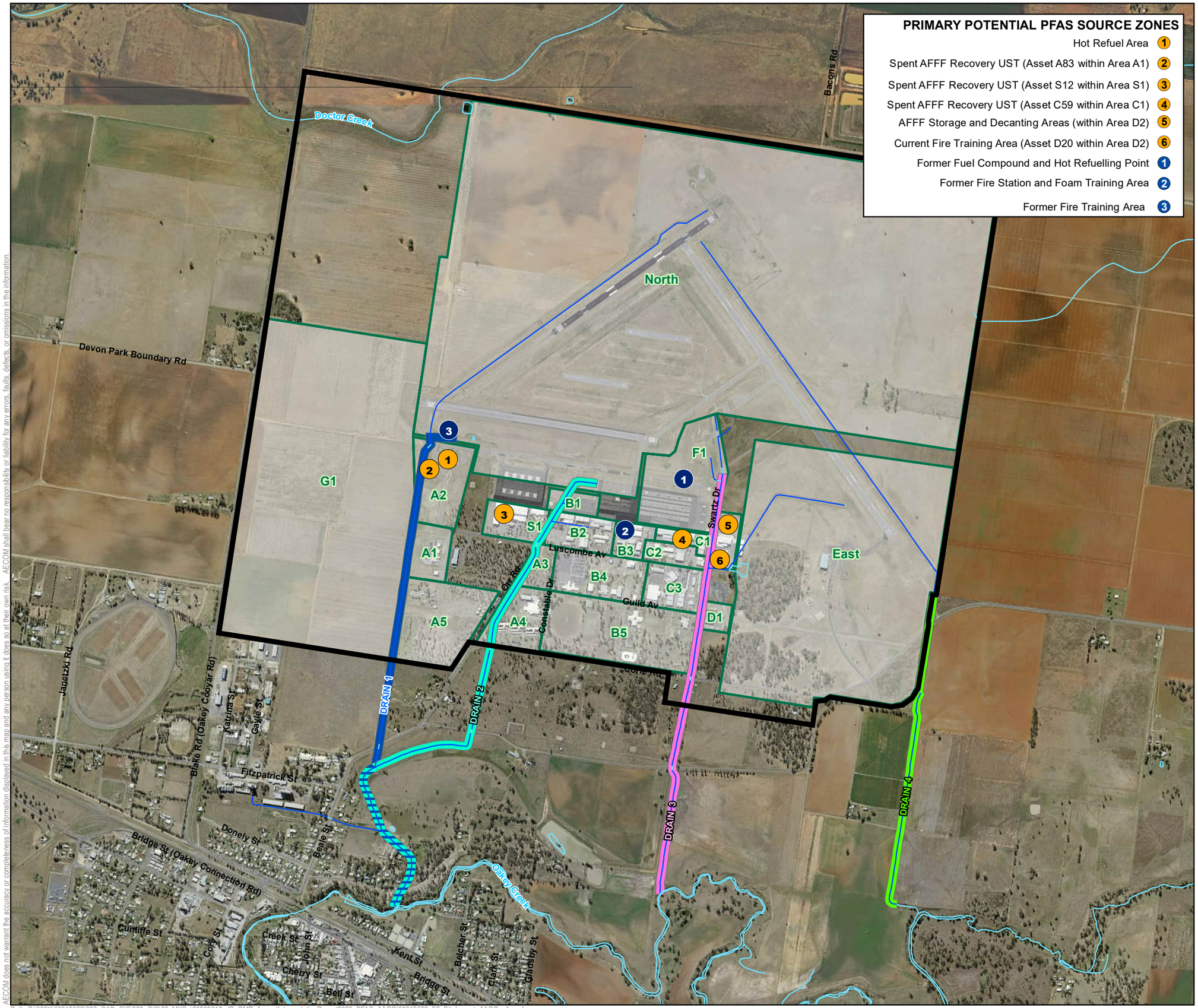
Ongoing Monitoring Interpretive Report, 2022
PFAS OMP - AACO

AACO MANAGEMENT AREA

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	bowenl2; 18/08/2020
VERSION:	1

FIGURE 02

A3 size



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DATUM GDA 1994. PROJECTION MGA ZONE 56

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LEGEND

- 1 Active Primary Potential Sources of Contamination
- 1 Depleting Primary Potential Sources of Contamination
- Drainage channel
- Watercourse/water body
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- On-Site Investigation Areas
- Site Boundary

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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Ongoing Monitoring Interpretive Report, 2022
PFAS OMP - AACO

SITE LAYOUT – AACO

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	bowenl2; 20/06/2022
VERSION:	1

FIGURE 03

A3 size

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DATUM GDA 1994. PROJECTION MGA ZONE 56

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LEGEND

- Site Boundary
- On-Site Groundwater Monitoring Locations

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
© State of Queensland, 2017

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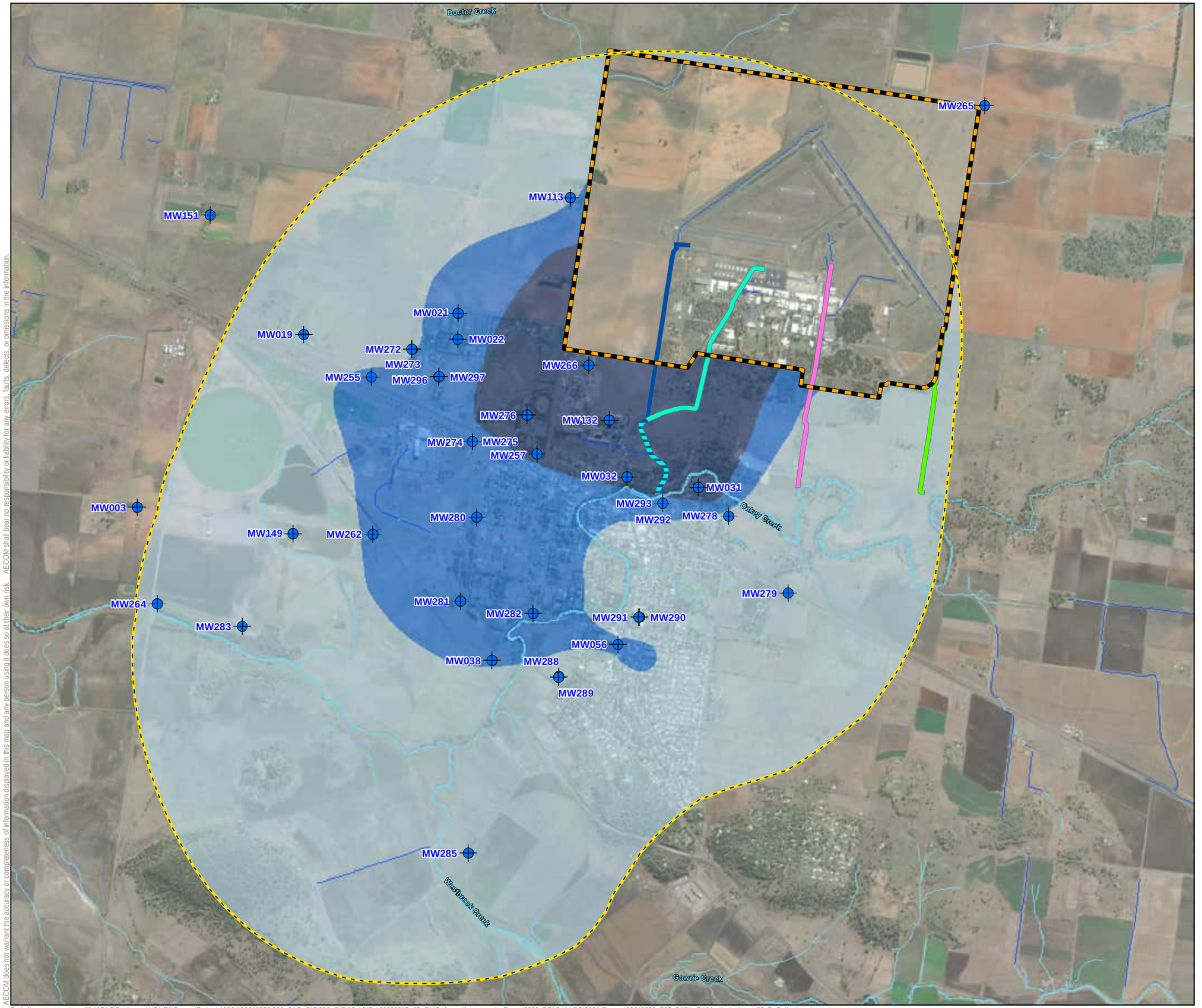
Ongoing Monitoring Interpretive Report, 2022
PFAS OMP - AACO

ON-SITE GROUNDWATER MONITORING LOCATIONS

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	20/06/2022
VERSION:	1

FIGURE 04



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- Off-Site Groundwater Monitoring Well
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Management Area
- Site Boundary

Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

SIZE

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AECOM

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SIZE A3

TITLE

Figure 05: On-Site Groundwater Monitoring Locations

Ongoing Monitoring Interpretive Report, 2022

CLIENT
DEPARTMENT OF DEFENCE

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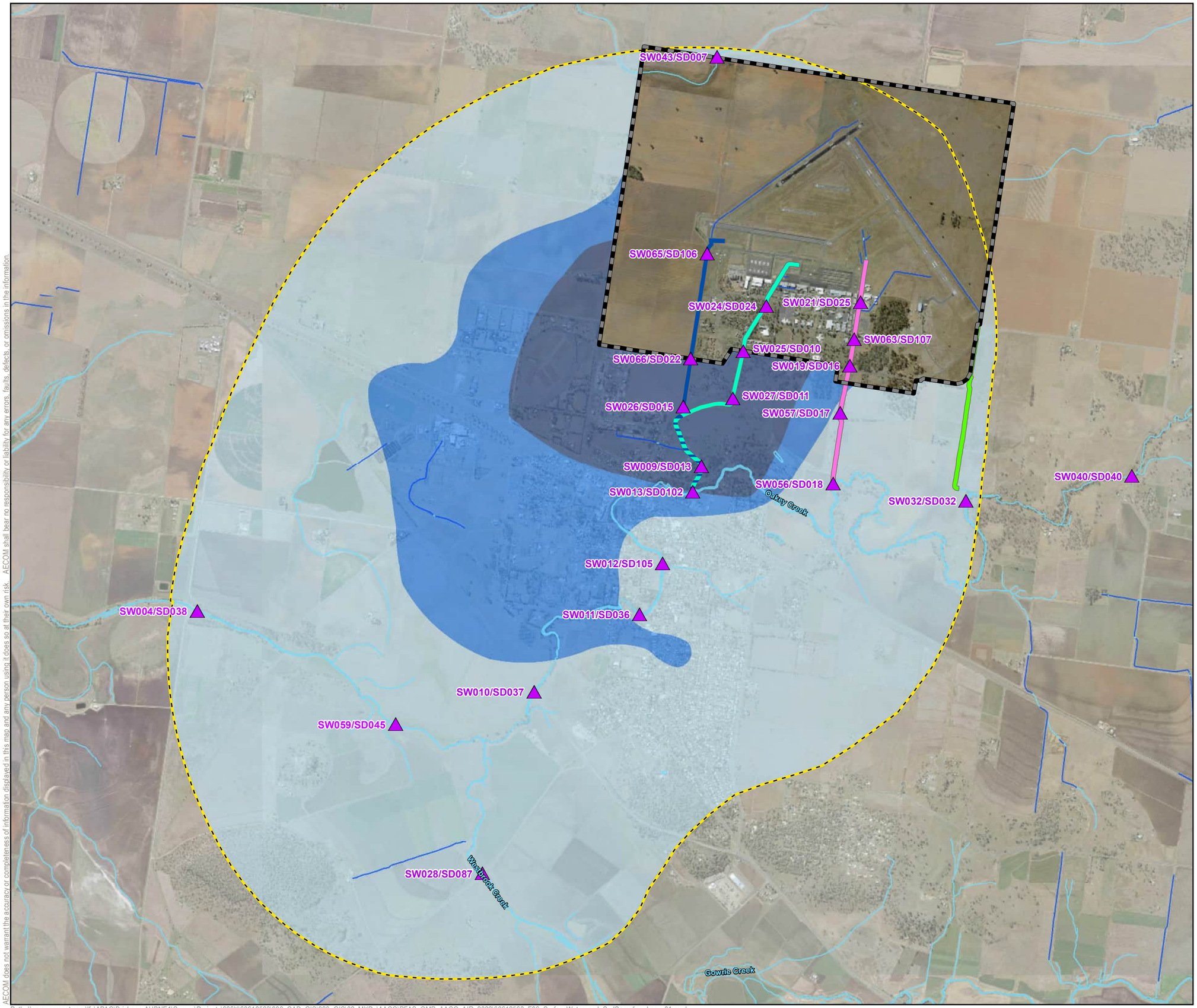

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DATUM GDA 1994. PROJECTION MGA ZONE 56

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- Surface Water and Sediment Locations
- Management Area
- Site Boundary
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
© State of Queensland, 2017

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Ongoing Monitoring Interpretive Report, 2022
PFAS OMP - AACO

SURFACE WATER AND SEDIMENT SAMPLING LOCATIONS

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	
VERSION:	1

FIGURE 06

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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 10 20 40 60 Meters

1:1,800 (when printed at A3)

Brymaroo Satellite Site

Groundwater Monitoring Locations

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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Ongoing Monitoring Interpretive Report, 2022
PFAS OMP - AACO

BRYMAROO GROUNDWATER MONITORING LOCATIONS

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	20/06/2022
VERSION:	1

FIGURE 07

A3 size

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MW254
MW253
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N

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LEGEND

- Site Boundary
- Groundwater Elevation (mAHD)
- Inferred Groundwater Contours (mAHD)
- Groundwater Flow Direction

AECOM

SCALE 1:15,000
SIZE A3
SHEET 1 of 1
COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 08: Inferred Groundwater Contours in Oakey Creek Alluvium Aquifer: October 2021

PROJECT

ONGOING MONITORING INTERPRETIVE REPORT, 2022, PFAS OMP - AACO

CLIENT

DEPARTMENT OF DEFENCE

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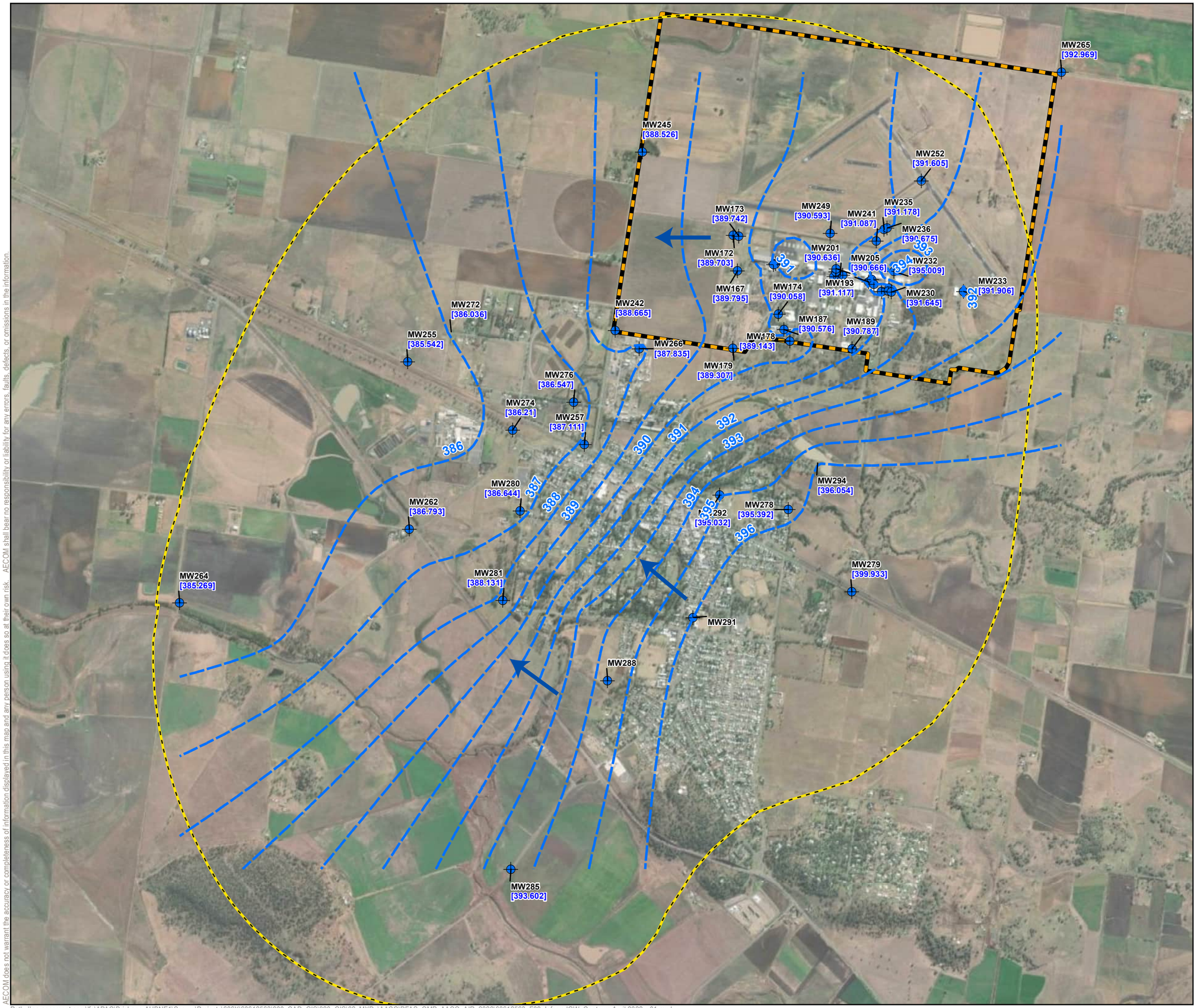

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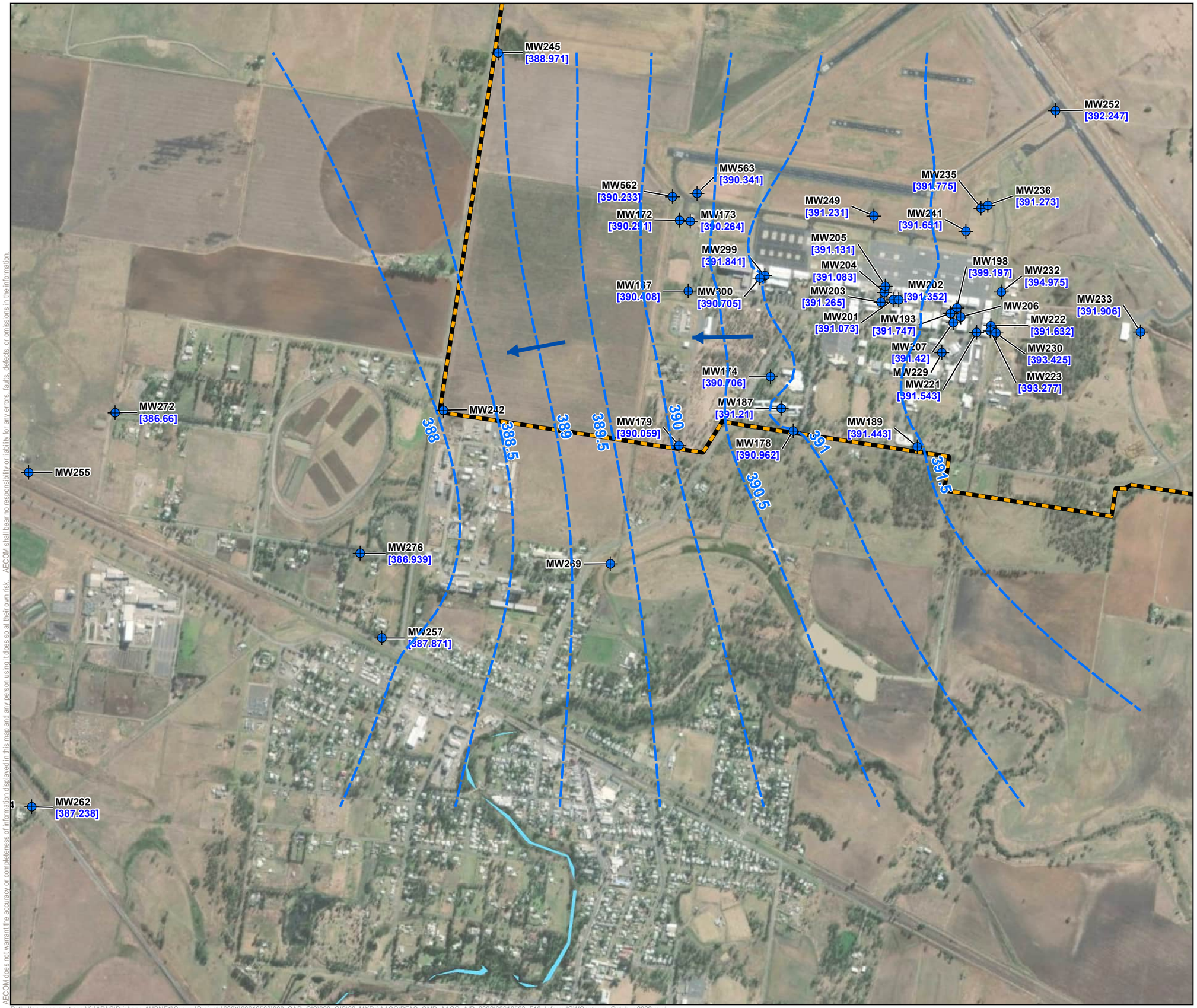

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LEGEND

- Site Boundary
- Groundwater Elevation (mAHD)
- Inferred Groundwater Contours (mAHD)
- Groundwater Flow Direction

0 0.25 0.5 km

AECOM

SCALE 1:15,000

SIZE A3

SHEET 1 of 1

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 10: Inferred Groundwater Contours in Oakey Creek Alluvium: October 2022

PROJECT

ONGOING MONITORING INTERPRETIVE REPORT, 2022, PFAS OMP- AACO

CLIENT

DEPARTMENT OF DEFENCE

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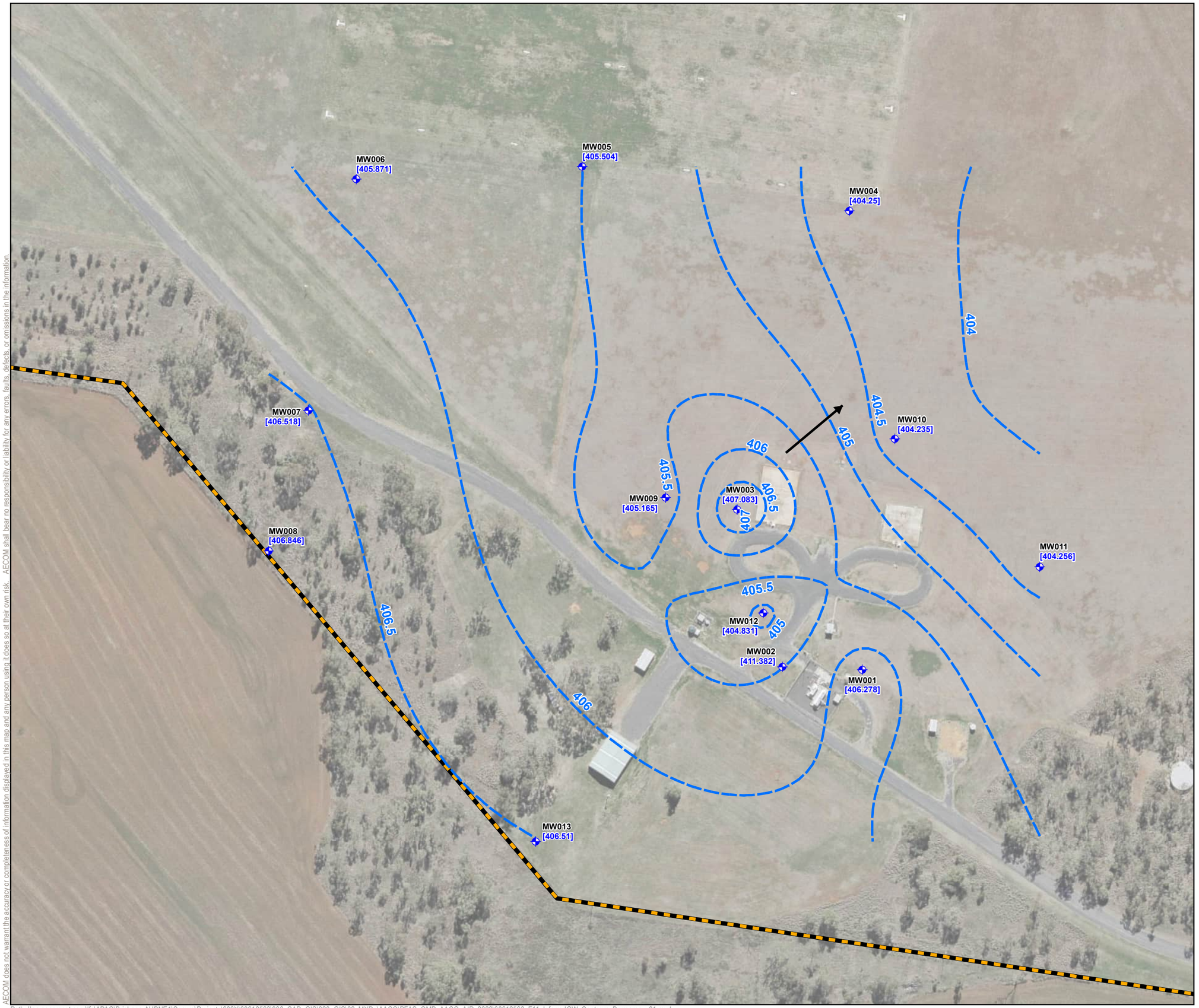

LEGEND

- Brymaroo Satellite Site
- Groundwater Elevation (mAHD)
- Groundwater Elevation Contour (mAHD)
- Groundwater Flow Direction

0 10 20 40 m

AECOM

SCALE 1:2,000

SIZE A3

SHEET 1 of 1

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 11: Inferred Groundwater Contours in the Main Range Volcanics at Brymaroo: April 2022

PROJECT

ONGOING MONITORING INTERPRETIVE REPORT, 2022, PFAS OMP - AACO

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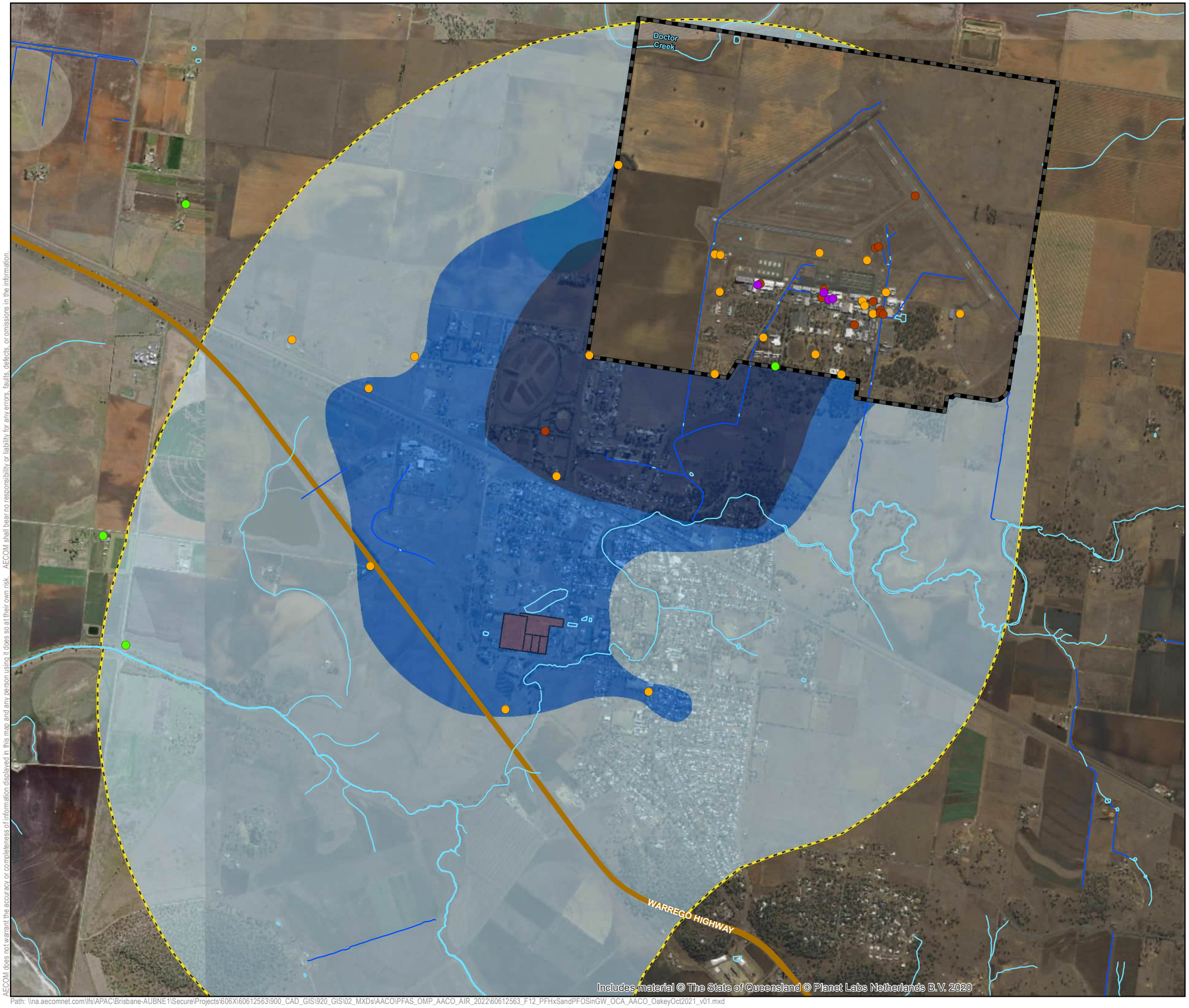

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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:28,000 (when printed at A3)

LEGEND

Groundwater Analytical Results:
PFOS + PFHxS Concentrations (µg/L)

- >50
- 10-50
- 0.07-10
- LOR-0.07
- <LOR
- Drainage channel
- Watercourse/water body
- Former Landfill
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.
3. Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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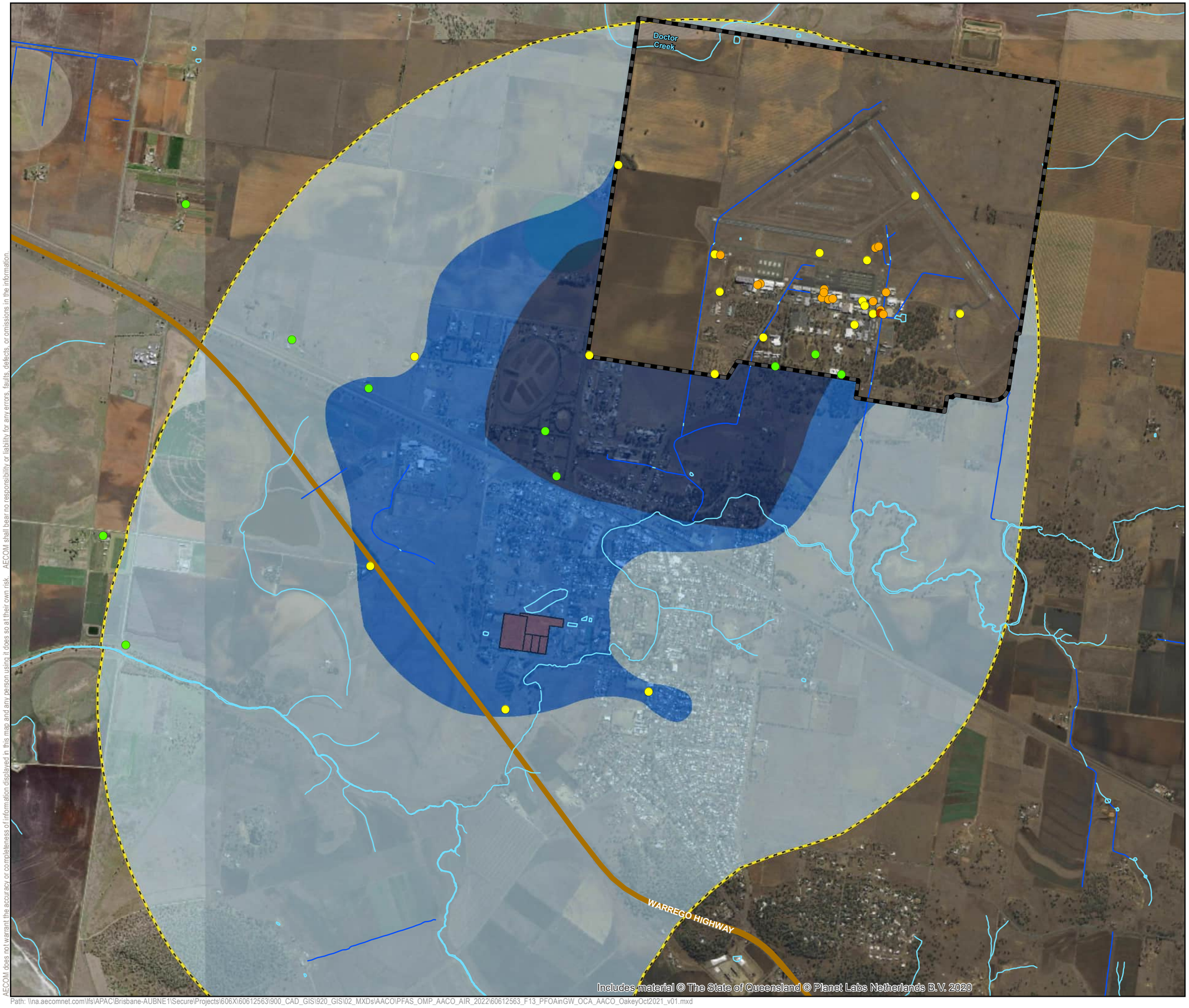
Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

SUM OF PFHxS AND PFOS CONCENTRATIONS IN GROUNDWATER IN OAKEY CREEK ALLUVIUM AND MAIN RANGE VOLCANICS AT AACO IN OCTOBER 2021

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	29/03/2023
VERSION:	1

FIGURE 12



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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:28,000 (when printed at A3)

LEGEND

Groundwater Analytical Results: PFOA Concentrations (µg/L)

- >50
- 10-50
- 0.56-10
- LOR-0.56
- <LOR
- Drainage channel
- Watercourse/water body
- Former Landfill
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.
3. Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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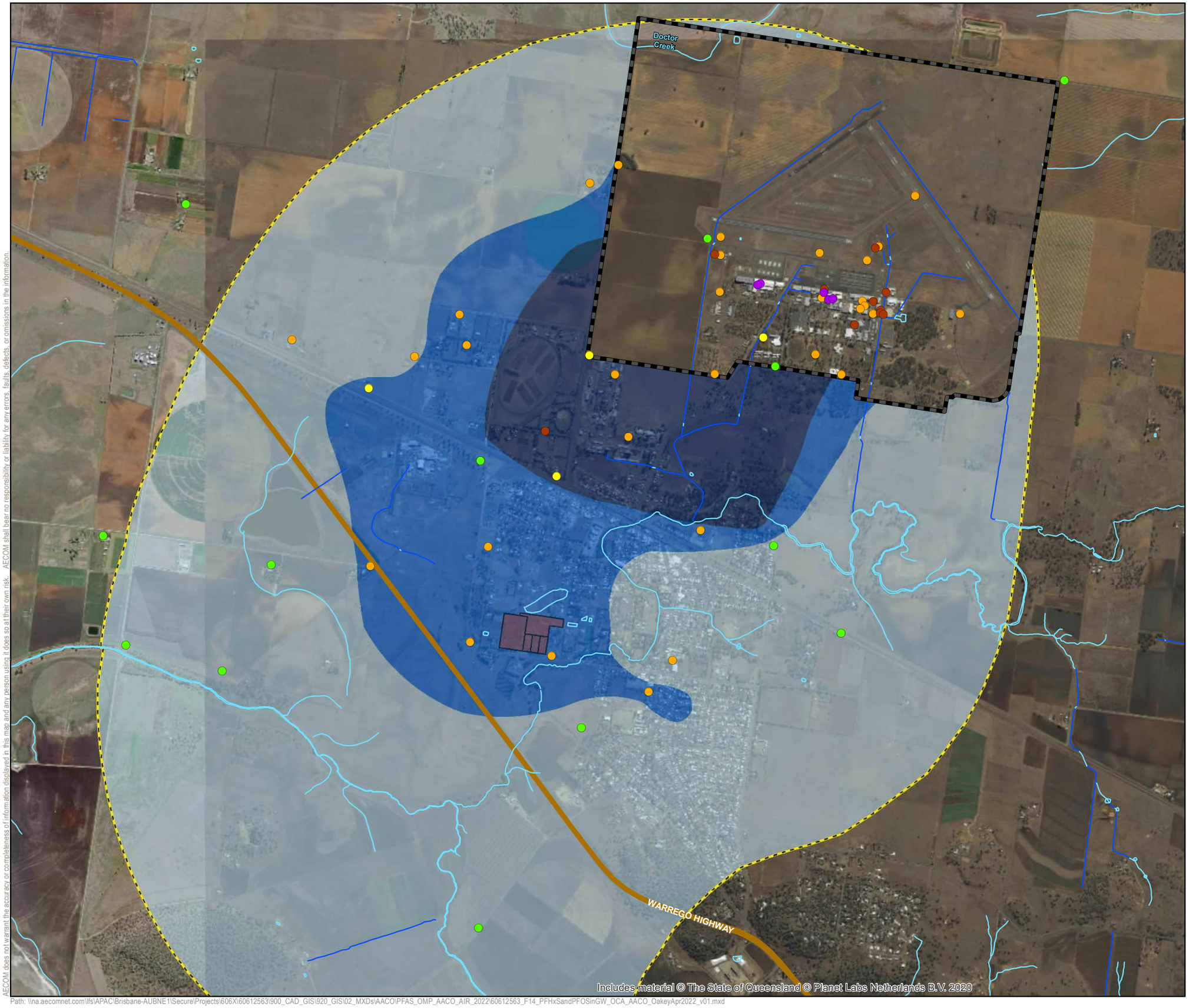
Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

PFOA CONCENTRATIONS IN GROUNDWATER IN OAKEY CREEK ALLUVIUM AND MAIN RANGE VOLCANICS AT AACO IN OCTOBER 2021

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	29/03/2023
VERSION:	1

FIGURE 13



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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:28,000 (when printed at A3)

LEGEND

Groundwater Analytical Results:
PFOS + PFHxS Concentrations (µg/L)

- >50
- 10-50
- 0.07-10
- LOR-0.07
- <LOR
- Drainage channel
- Watercourse/water body
- Former Landfill
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.
3. Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

Data sources:

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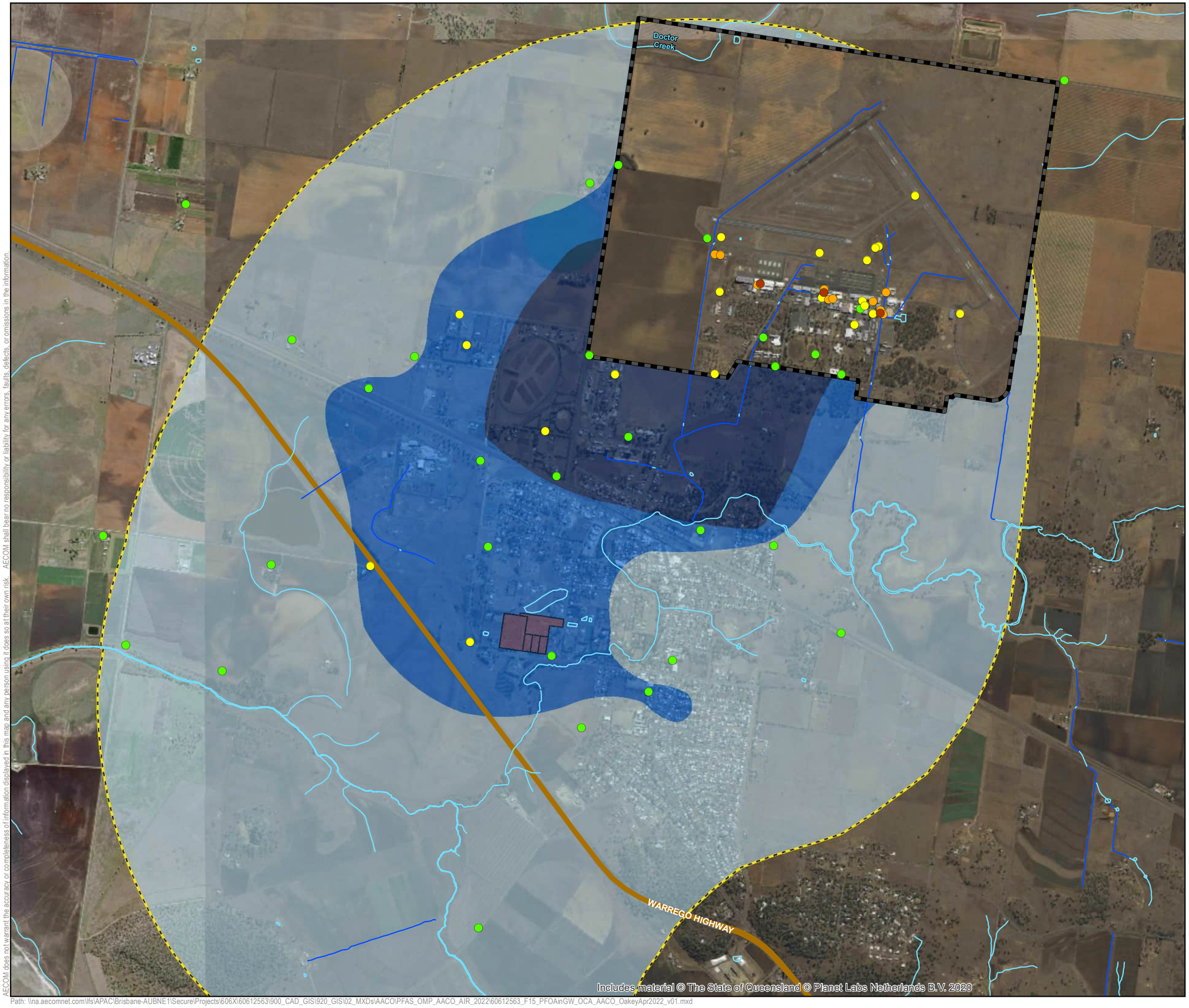
Ongoing Monitoring Interpretive Report, 2022,
PFAS OMP - AACO

SUM OF PFHxS AND PFOS CONCENTRATIONS IN GROUNDWATER IN OAKEY CREEK ALLUVIUM AND MAIN RANGE VOLCANICS AT AACO IN APRIL 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	29/03/2023
VERSION:	1

FIGURE 14



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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:28,000 (when printed at A3)

LEGEND

Groundwater Analytical Results: PFOA Concentrations (µg/L)

- >50
- 10-50
- 0.56-10
- LOR-0.56
- <LOR
- Drainage channel
- Watercourse/water body
- Former Landfill
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.
3. Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

Data sources:

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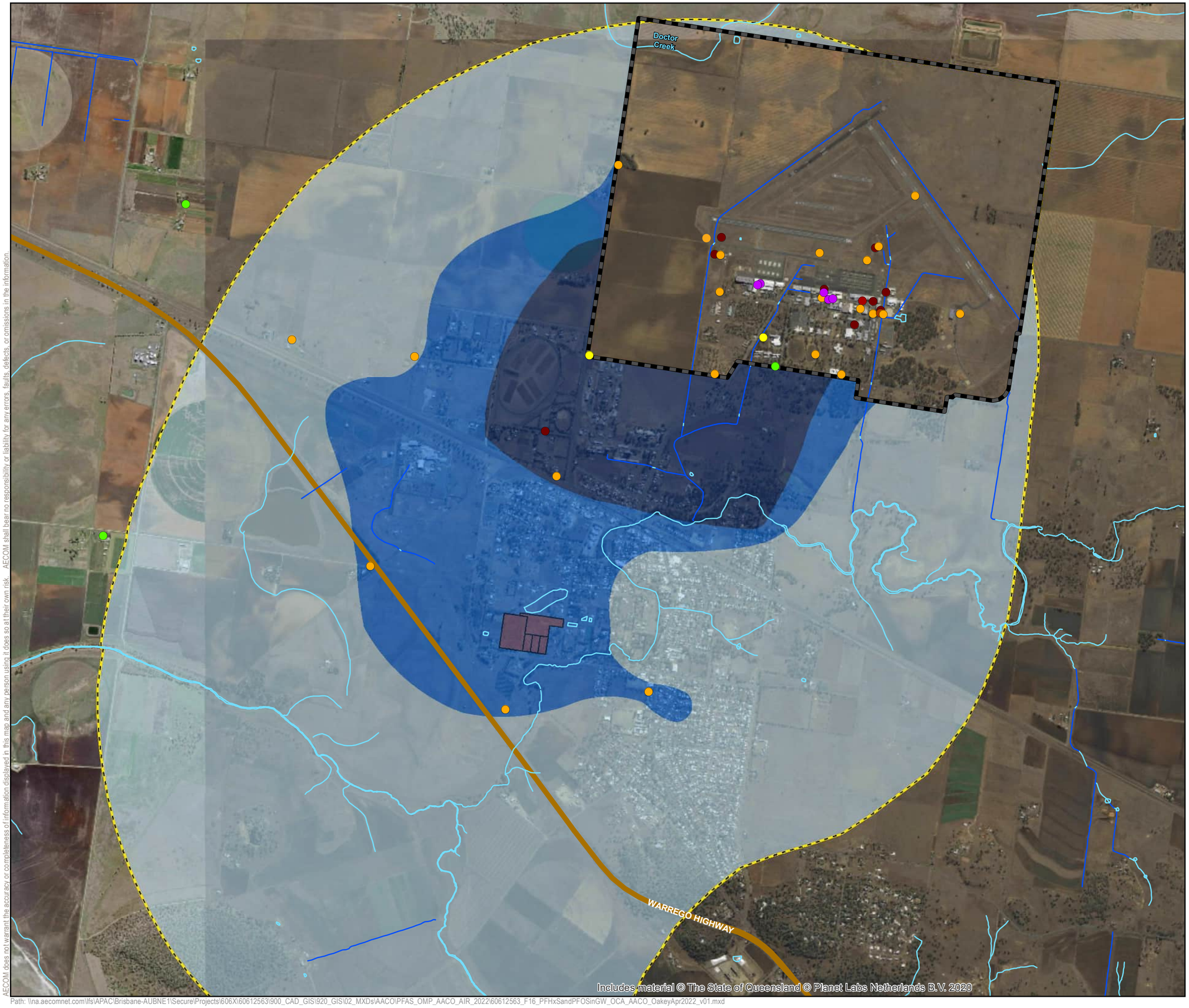
Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

PFOA CONCENTRATIONS IN GROUNDWATER IN OAKEY CREEK ALLUVIUM AND MAIN RANGE VOLCANICS AT AACO IN APRIL 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	29/03/2023
VERSION:	1

FIGURE 15



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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:28,000 (when printed at A3)

LEGEND

Groundwater Analytical Results: PFOS + PFHxS Concentrations (µg/L)

- >50
- 10-50
- 0.07-10
- LOR-0.07
- <LOR
- Drainage channel
- Watercourse/water body
- Former Landfill
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.
3. Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

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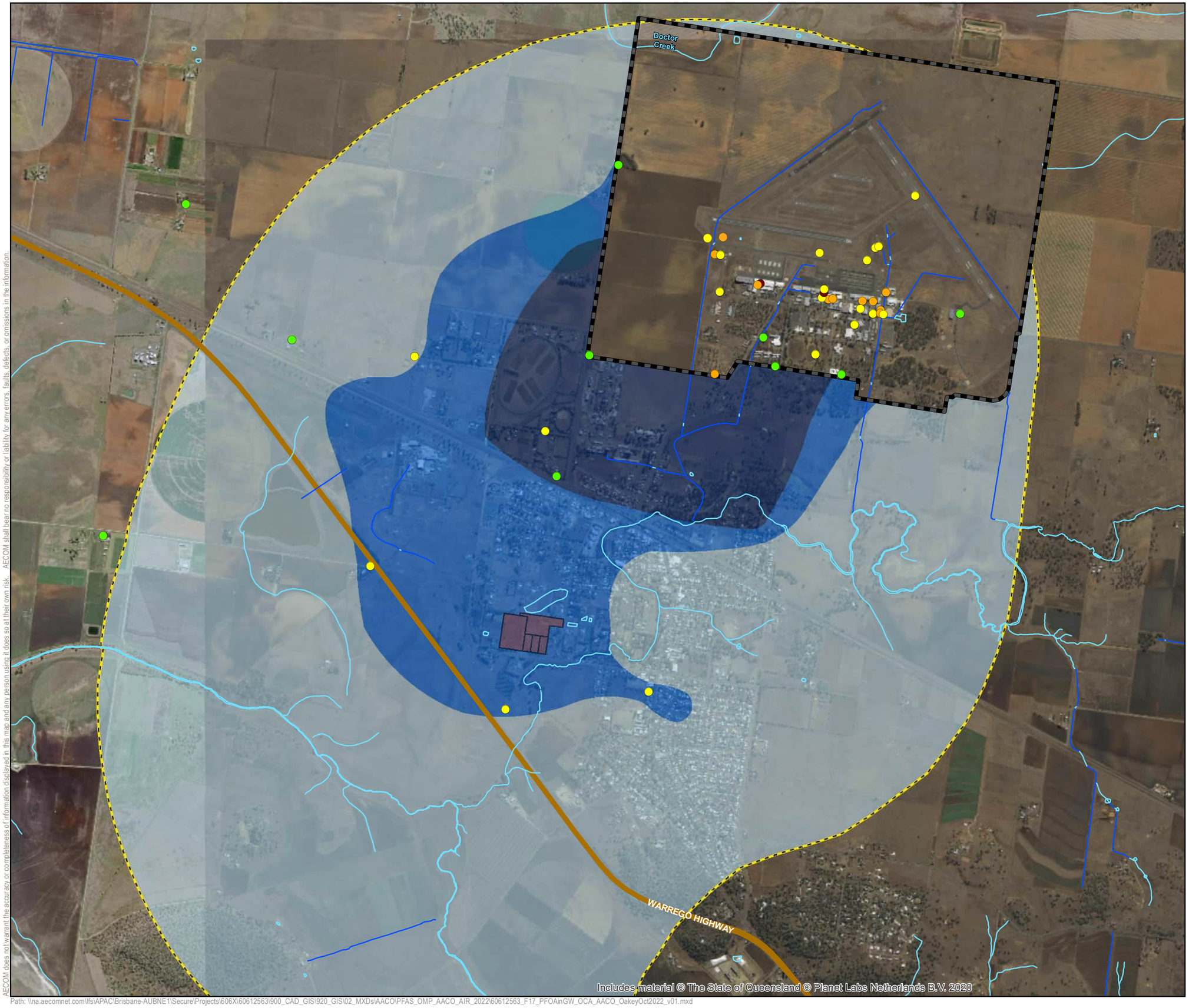
Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

SUM OF PFHxS AND PFOS CONCENTRATIONS IN GROUNDWATER IN OAKEY CREEK ALLUVIUM AND MAIN RANGE VOLCANICS AT AACO IN OCTOBER 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	29/03/2023
VERSION:	1

FIGURE 16



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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:28,000 (when printed at A3)

LEGEND

Groundwater Analytical Results: PFOA Concentrations (µg/L)

- >50
- 10-50
- 0.56-10
- LOR-0.56
- <LOR

Drainage channel
Watercourse/water body
Former Landfill
Management Zone 1
Management Zone 2
Management Zone 3
Management Area
Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.
3. Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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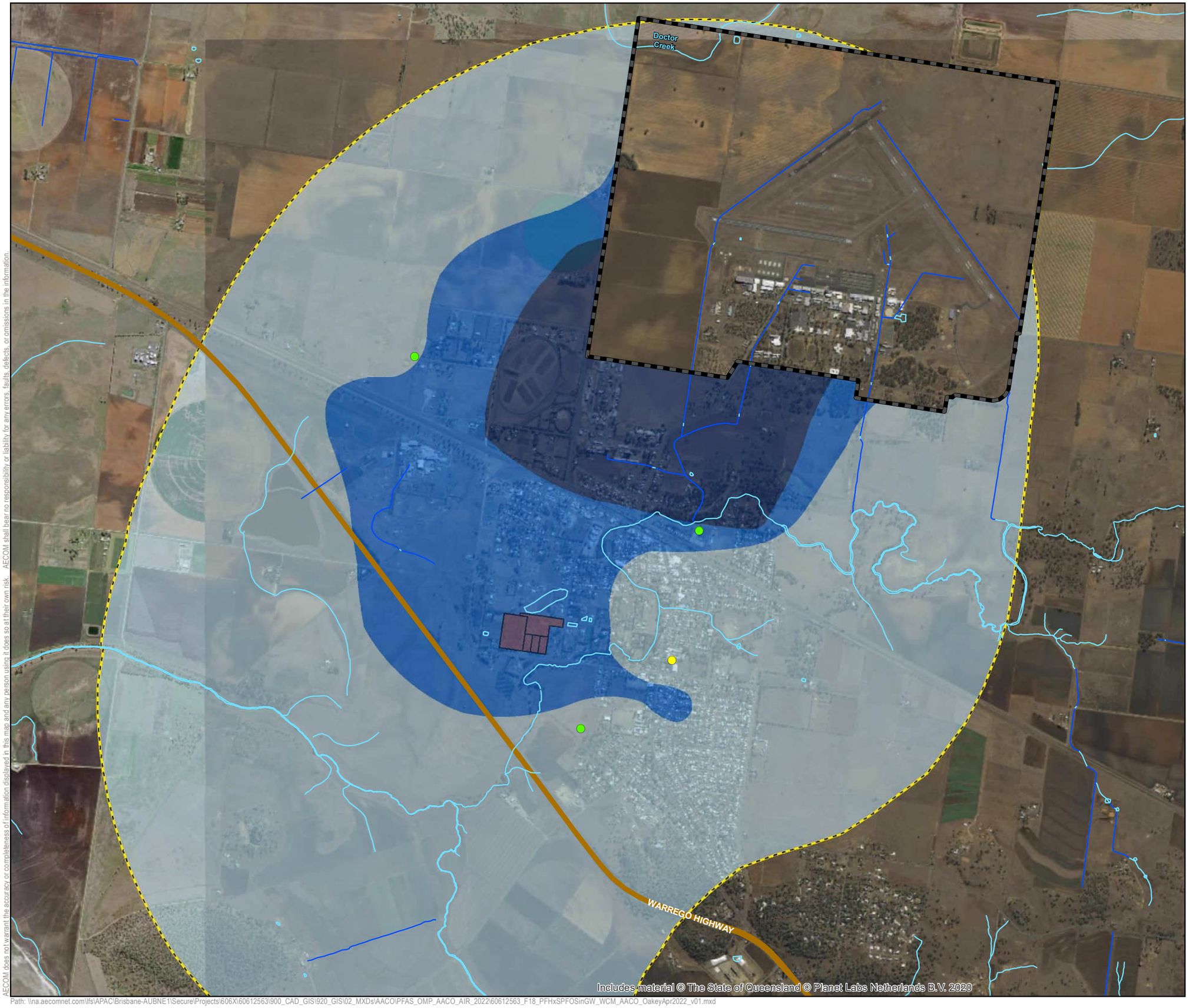
Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

PFOA CONCENTRATIONS IN GROUNDWATER IN OAKEY CREEK ALLUVIUM AND MAIN RANGE VOLCANICS AT AACO IN OCTOBER 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	29/03/2023
VERSION:	1

FIGURE 17



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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:28,000 (when printed at A3)

LEGEND

Groundwater Analytical Results:
Sum of PFHxS+PFOS Concentrations (µg/L)

- >50
- 10-50
- 0.07-10
- LOR-0.07
- <LOR

Drainage channel
Watercourse/water body
Former Landfill
Management Zone 1
Management Zone 2
Management Zone 3
Management Area
Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.
3. Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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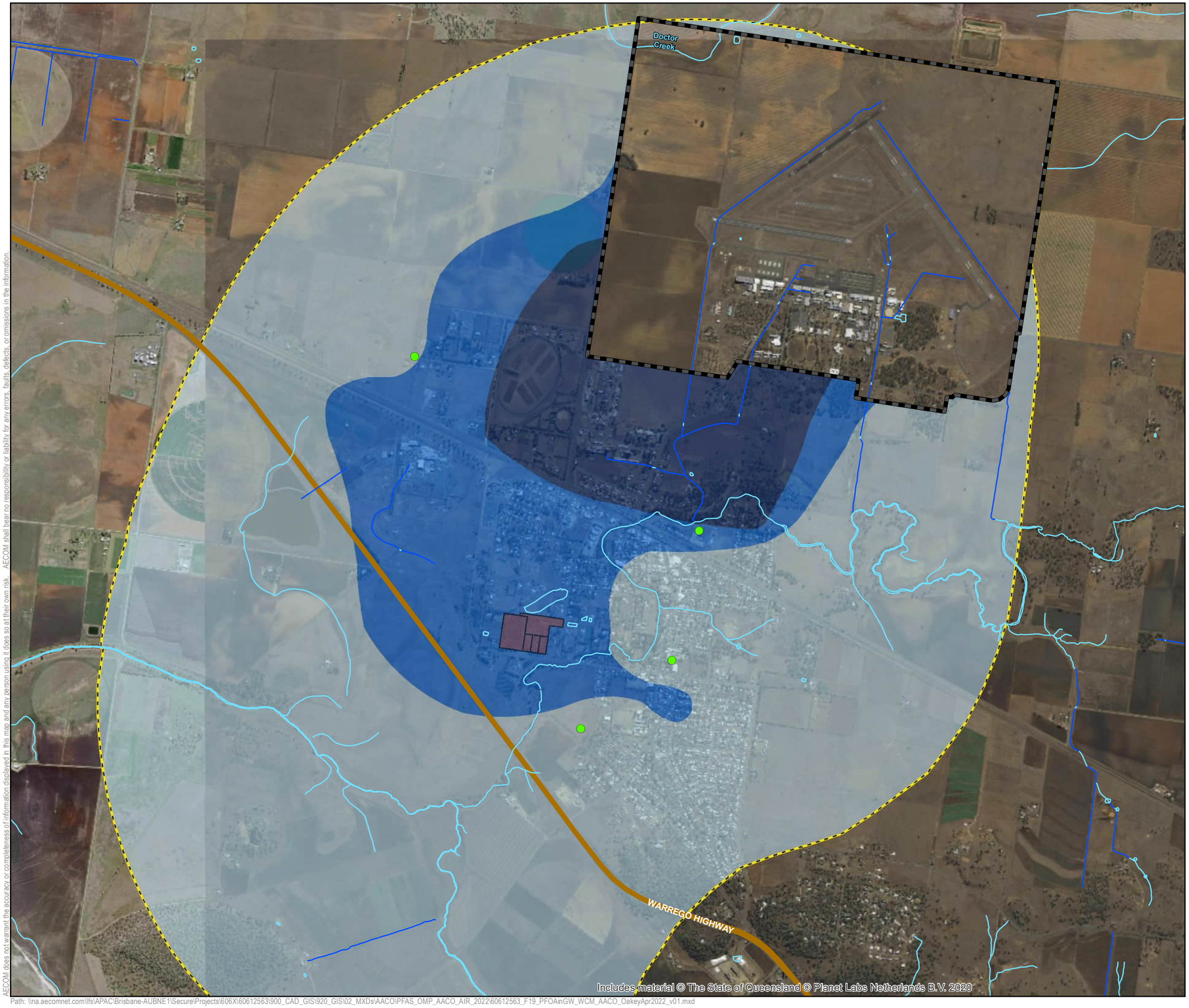
Ongoing Monitoring Interpretive Report, 2022,
PFAS OMP - AACO

SUM OF PFHxS+PFOS CONCENTRATIONS IN GROUNDWATER IN WALLOON COAL MEASURES AT AACO IN APRIL 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	29/03/2023
VERSION:	1

FIGURE 18



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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:28,000 (when printed at A3)

LEGEND

Groundwater Analytical Results: PFOA Concentrations (µg/L)

- >50
- 10-50
- 0.56-10
- LOR-0.56
- <LOR

Drainage channel
Watercourse/water body
Former Landfill
Management Zone 1
Management Zone 2
Management Zone 3
Management Area
Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.
3. Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

Data sources:

Base Layers: ESRI Basemaps Online
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Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

PFOA CONCENTRATIONS IN GROUNDWATER IN WALLOON COAL MEASURES AT AACO IN APRIL 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	29/03/2023
VERSION:	1

FIGURE 19

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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 10 20 40 60 Meters

1:1,800 (when printed at A3)

LEGEND
Groundwater Analytical Results:
PFOS + PFHxS Concentrations (µg/L)

- >50
- 10-50
- 0.07-10
- LOR-0.07
- <LOR
- Site Boundary

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

SUM OF PFHxS AND PFOS CONCENTRATIONS IN GROUNDWATER IN MAIN RANGE VOLCANICS AT BRYMAROO IN APRIL 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	
VERSION:	1

FIGURE 20

A3 size

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DATUM GDA 1994. PROJECTION MGA ZONE 56

Meters
0 10 20 40 60

1:1,800 (when printed at A3)

LEGEND
Groundwater Analytical Results: PFOA Concentrations (µg/L)

- >50
- 10-50
- 0.56-10
- LOR-0.56
- <LOR
- Site Boundary

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

PFOA
CONCENTRATIONS IN GROUNDWATER IN MAIN RANGE VOLCANICS AT BRYMAROO IN APRIL 2022

PROJECT ID	60612563
CREATED BY	BM
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VERSION:	1

FIGURE 21

A3 size

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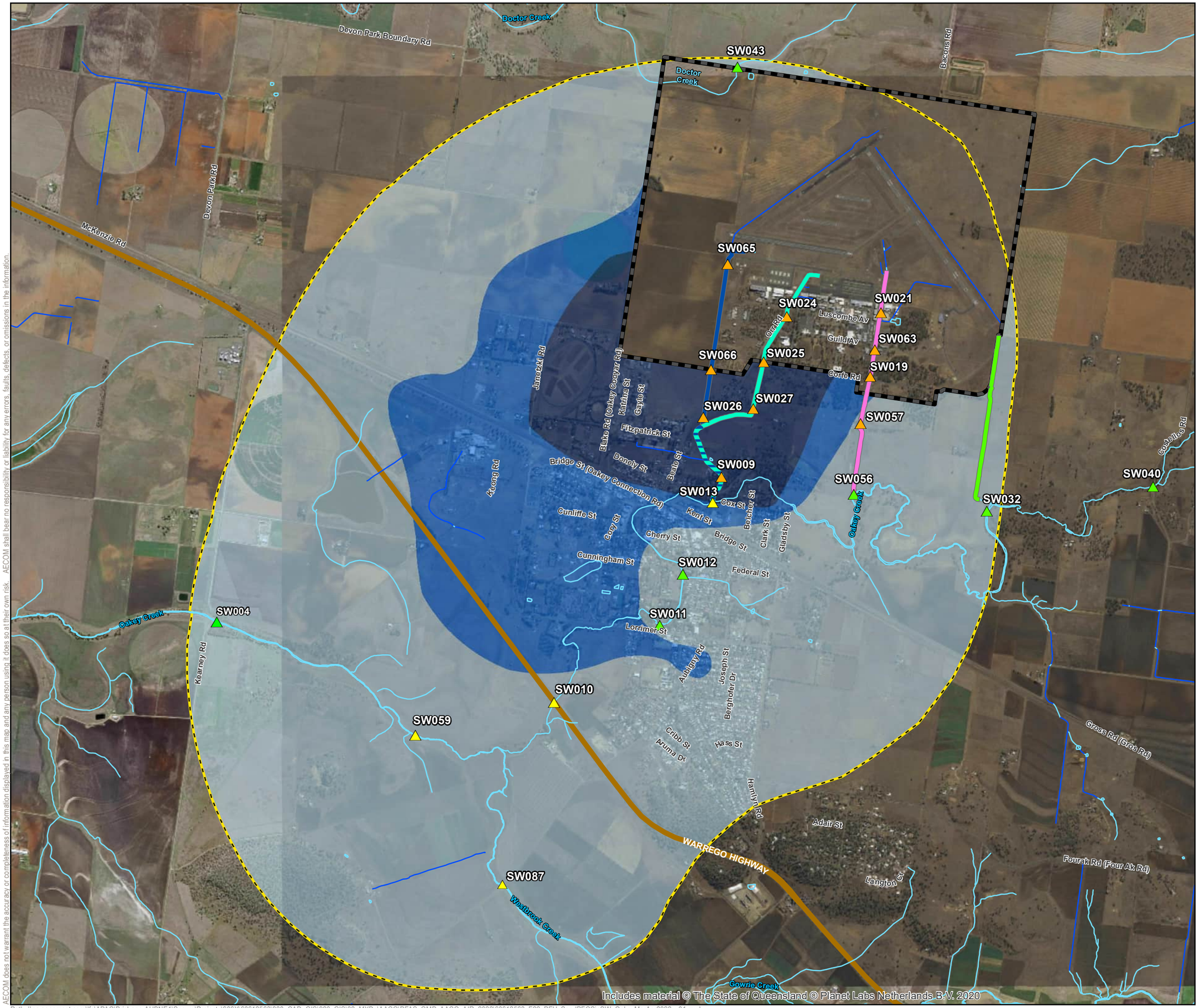

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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:32,000 (when printed at A3)

LEGEND

Surface Water Analytical Results: PFOS + PFHxS Concentrations (µg/L)

- >50
- 10-50
- 0.07-10
- LOR-0.07
- <LOR
- Drainage channel
- Watercourse/water body
- Former Landfill
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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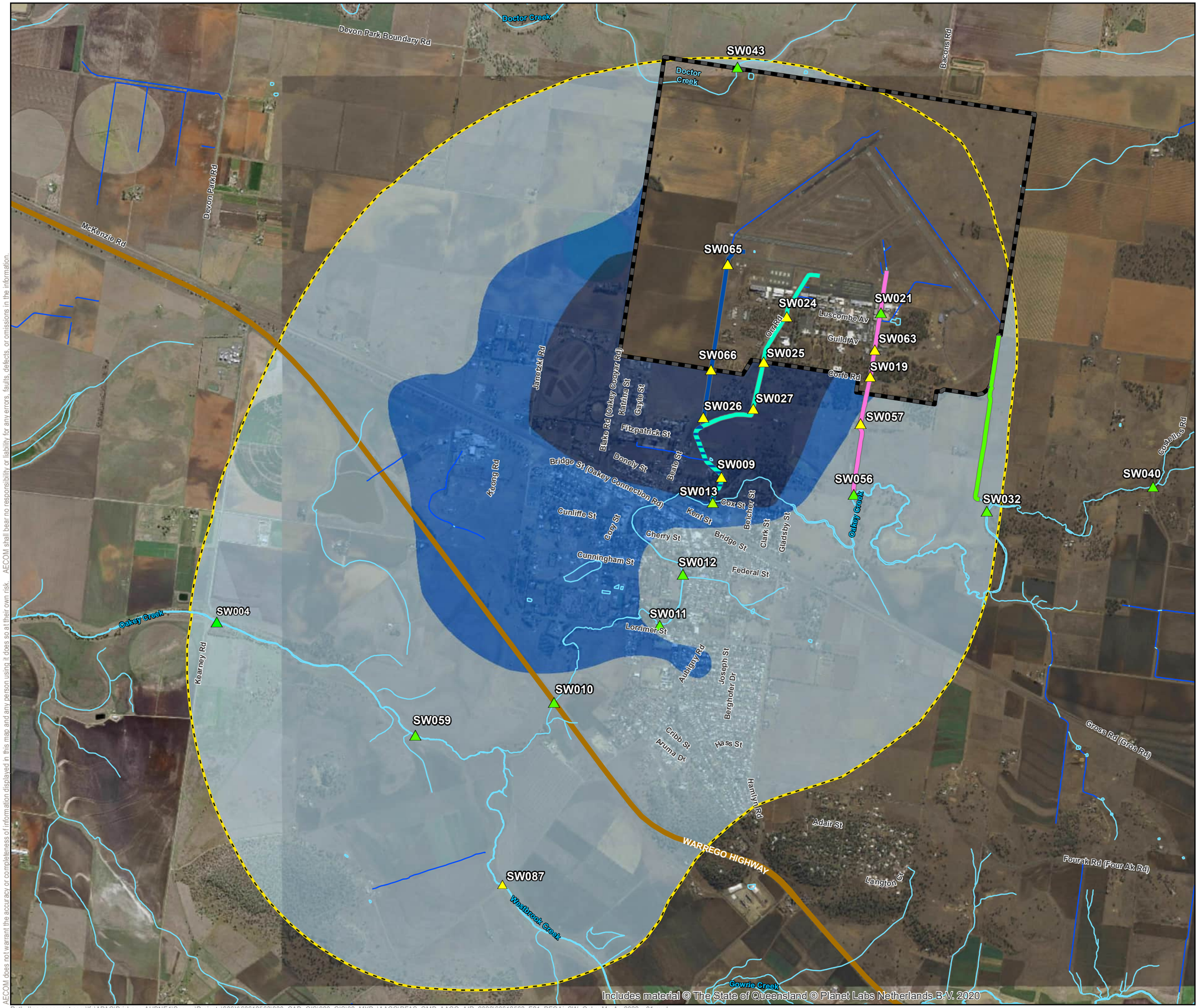
Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

SUM OF PFHxS AND PFOS CONCENTRATIONS IN SURFACE WATER IN MARCH/APRIL 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	james.peachey; 29/03/2023
VERSION:	1

FIGURE 22



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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:32,000 (when printed at A3)

LEGEND

Surface Water Analytical Results: PFOA Concentrations (µg/L)

- >50
- 10-50
- 0.56-10
- LOR-0.56
- <LOR
- Drainage channel
- Watercourse/water body
- Former Landfill
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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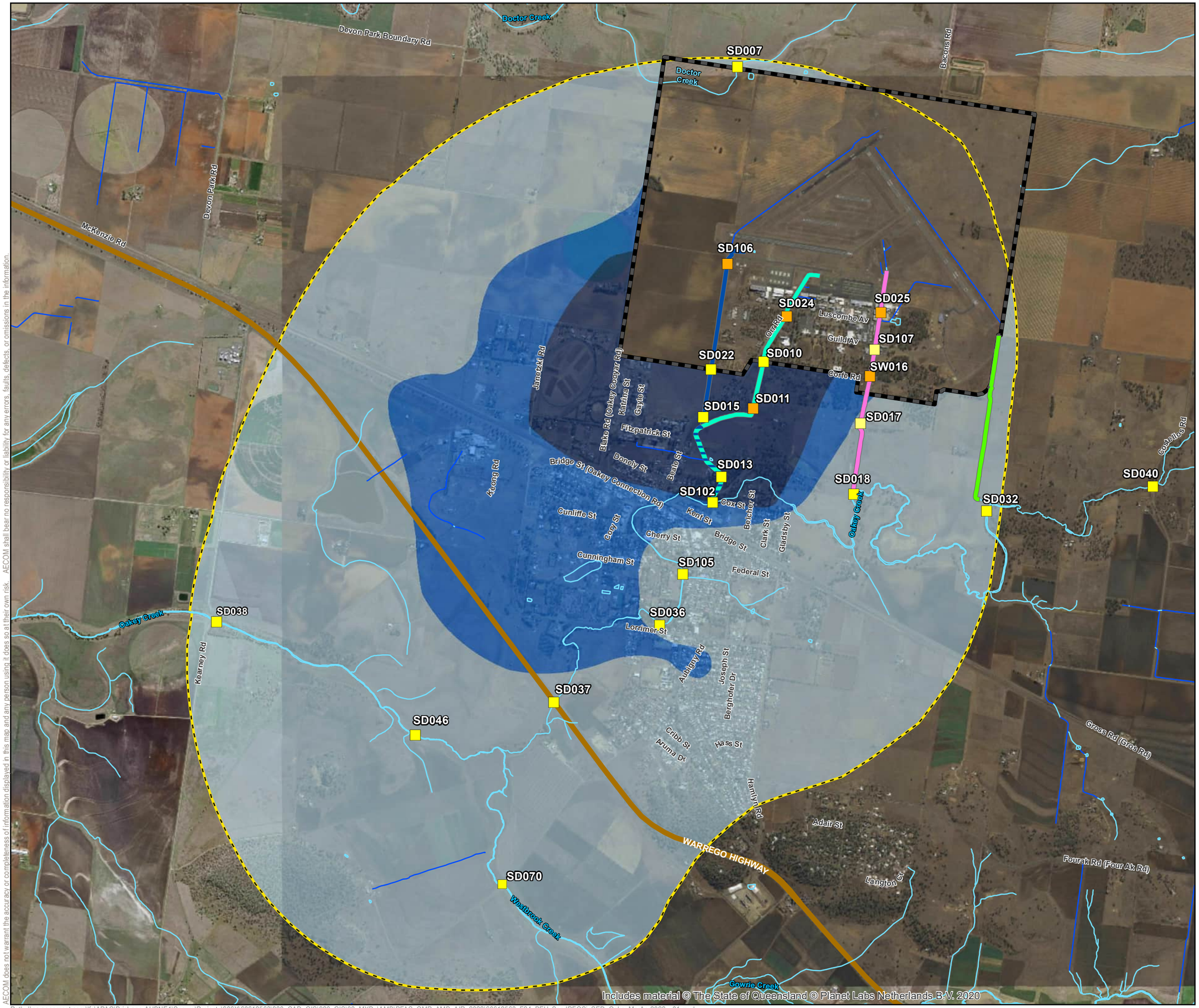
Ongoing Monitoring Interpretative Report, 2022, PFAS OMP - AACO

PFOA CONCENTRATIONS IN SURFACE WATER IN MARCH/APRIL 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	james.peachey; 29/03/2023
VERSION:	1

FIGURE 23



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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:32,000 (when printed at A3)

LEGEND

Sediment Analytical Results

PFHxS + PFOS Concentrations (mg/kg)

- >10
- 1 - 10
- 0.3 - 1
- LOR - 0.3
- < LOR

Drainage channel
Watercourse/water body
Former Landfill
Management Zone 1
Management Zone 2
Management Zone 3
Management Area
Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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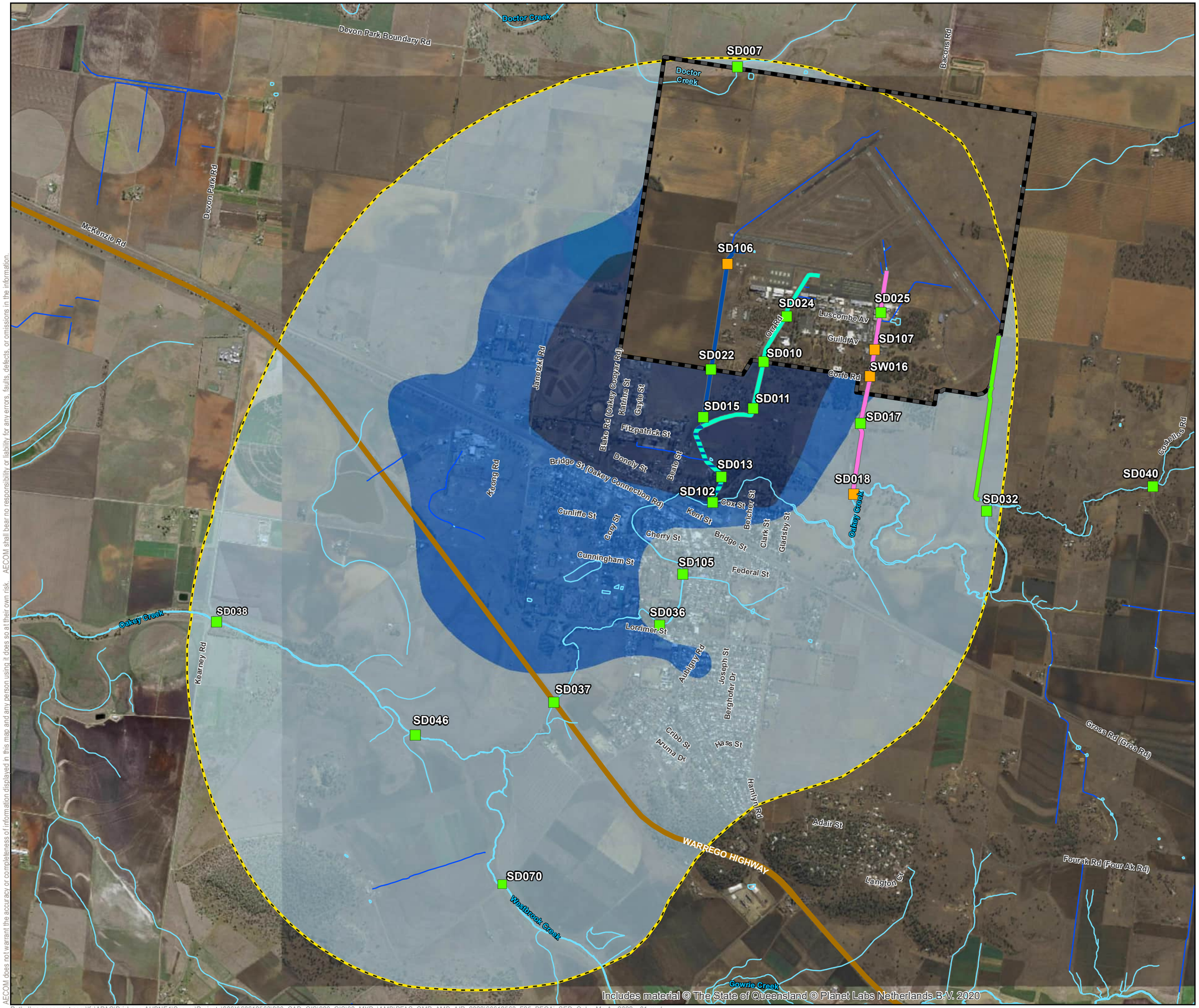
DEPARTMENT OF DEFENCE

Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

SUM OF PFHxS AND PFOS CONCENTRATIONS IN SEDIMENT IN MARCH/APRIL 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	james.peachey; 29/03/2023
VERSION:	1

FIGURE 24



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Path: \\na.aecomnet.com\lfs\APAC\Brisbane-AUBNE1\Secure\Projects\606X\60612563\900_CAD_GIS\920_GIS\02_MXDs\AMB\PFAS_OMP_AMB_AIR_2022\60612563_F25_PFOAinSED_OakeyMarApr2022_v01.mxd

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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:32,000 (when printed at A3)

LEGEND

Sediment Analytical Results

PFOA Concentrations (mg/kg)

- >10
- 1 - 10
- 0.3 - 1
- LOR - 0.3
- < LOR

Drainage channel
Watercourse/water body
Former Landfill
Management Zone 1
Management Zone 2
Management Zone 3
Management Area
Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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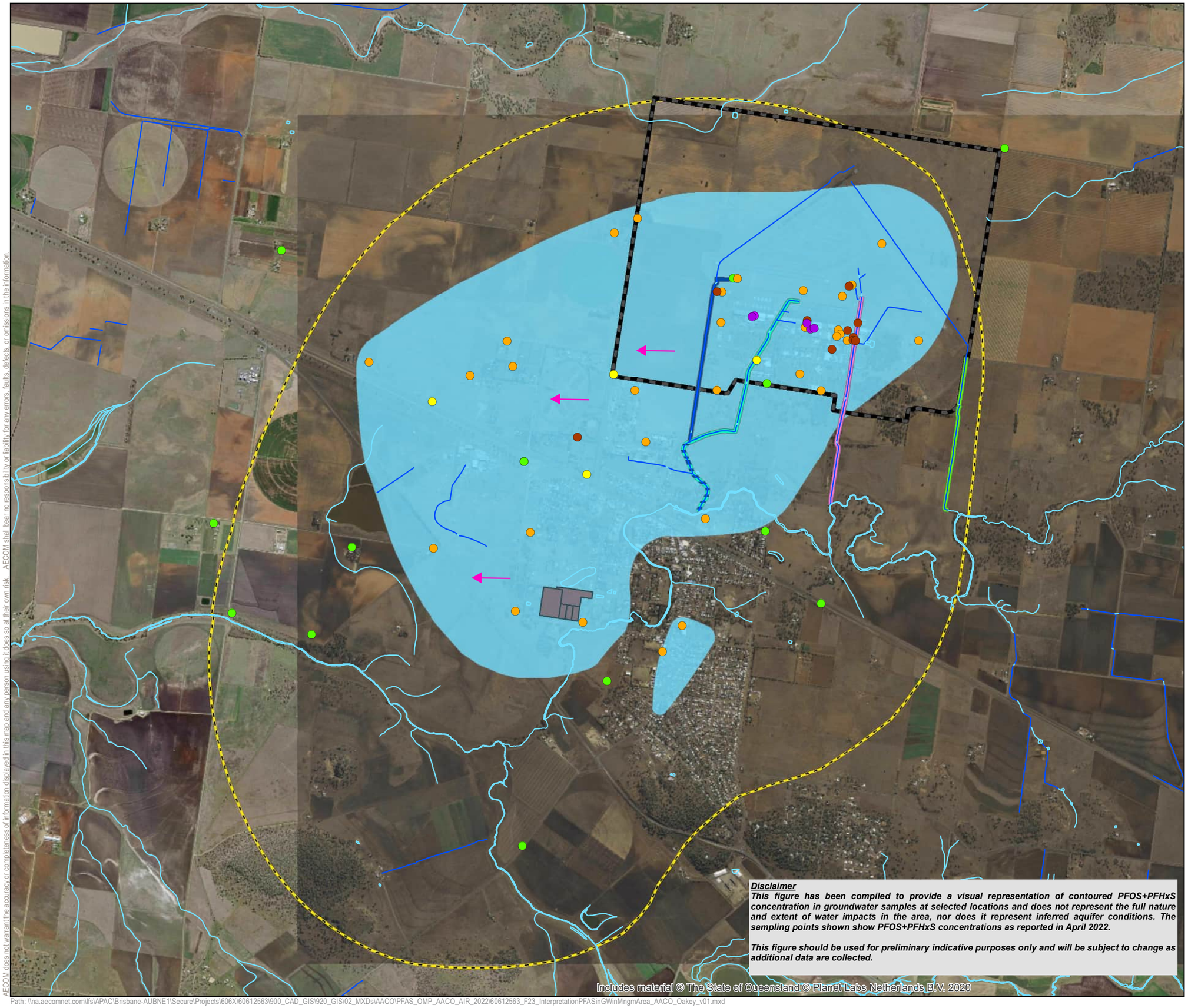
Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

PFOA CONCENTRATIONS IN SEDIMENT IN MARCH/APRIL 2022

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	james.peachey; 29/03/2023
VERSION:	1

FIGURE 25



AECOM
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DATUM GDA 1994. PROJECTION MGA ZONE 56

0 0.25 0.5 1 km

1:34,000 (when printed at A3)

LEGEND

Groundwater Analytical Results: PFOS + PFHxS Concentrations (µg/L)

- >50
- 10-50
- 0.07-10
- LOR-0.07
- <LOR

Interpreted PFOS+PFHxS (µg/L) in groundwater

- >0.07
- Interpreted groundwater flow direction
- Drainage channel
- Watercourse/water body
- Former Landfill
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Management Area
- Site Boundary

Notes

1. <LOR - Less than laboratory limit of reporting
2. Maximum concentration of primary and QC samples shown for locations where duplicates and triplicates collected.

Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011
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Ongoing Monitoring Interpretive Report, 2022, PFAS OMP - AACO

ESTIMATED EXTENT OF SUM OF PFHxS AND PFOS IN GROUNDWATER IN THE AACO MANAGEMENT AREA

PROJECT ID	60612563
CREATED BY	BM
LAST MODIFIED	james.peachey; 29/03/2023
VERSION:	1

FIGURE 26

Path: \\na.aecomnet.com\lfs\APAC\Brisbane-AUBNE1\Secure\Projects\606X\60612563\900_CAD_GIS\920_GIS\02_MXDs\AACO\PFAS_OMP_AACO_AIR_2022\60612563_F23_InterpretationPFASinGWinMngmArea_AACO_Oakey_v01.mxd

Appendix B

Tables

Appendix B Tables

Property ID	Well ID	Date Hydrasleeve Installed	Date Well Sampled	Gauging Date	Depth to LNAPL (mbtoc)	Depth to Water (mbtoc)	TOC Elevation (mAHD)	Groundwater Elevation (mAHD)	Corrected Groundwater Elevation (mAHD)*	Well Depth (mbtoc)	Condition of Gatic	DO (mg/L) *Field measurement*	EC (µS/cm) *Field measurement*	pH *Field measurement*	E_c (mV) *Field measurement*	E_h (mV)	Temp (°C) *Field measurement*	Turbidity	Water Colour	Odour	Sheen	Sample Method / Comments
1435	MW001	19/04/2022	20/04/2022	19/04/2022	-	12.256	418.534	406.278	406.278	21.275	Damaged	0.24	959	10.93	47.5	252.5	22.6	Clear	Clear	No odour	No sheen	HydraSleeve™. Slight damage to concrete collar.
1435	MW002	16/04/2021	19/04/2022	19/04/2022	-	6.837	418.219	411.382	411.382	20.53	Damaged	1.91	1938	7.52	161	366	23.4	Clear	Clear	No odour	No sheen	HydraSleeve™. Slight damage to concrete collar.
1435	MW003	16/04/2021	19/04/2022	19/04/2022	-	10.971	418.054	407.083	407.083	20.3	Damaged	0.47	1476	6.92	146	351	22.8	Clear	Clear	No odour	No sheen	Hydrasleeve™. Gatic collar is damaged.
1435	MW004	16/04/2021	19/04/2022	19/04/2022	-	13.128	417.378	404.250	404.250	24.69	Good	3.36	1390	6.99	154.6	359.6	22.3	Clear	Clear	No odour	No sheen	HydraSleeve™.
1435	MW005	19/04/2022	20/04/2022	19/04/2022	-	12.346	417.850	405.504	405.504	26.925	Good	0.5	1111	8.03	109.5	314.5	22.5	Clear	Clear	No odour	No sheen	HydraSleeve™.
1435	MW006	16/04/2021	20/04/2022	20/04/2022	-	10.588	416.459	405.871	405.871	27.155	Good	0.36	1128	7.26	169.5	374.5	22	Clear	Clear	No odour	No sheen	HydraSleeve™.
1435	MW007	16/04/2021	19/04/2022	19/04/2022	-	9.895	416.413	406.518	406.518	24.995	Good	0.53	1415	7.01	139.7	344.7	22.5	Clear	Clear	No odour	No sheen	HydraSleeve™.
1435	MW008	16/04/2021	19/04/2022	19/04/2022	-	8.346	415.192	406.846	406.846	22.095	Good	0.54	2095	6.77	155.7	360.7	21.2	Clear	Clear	No odour	No sheen	HydraSleeve™.
1435	MW009	16/04/2021	19/04/2022	19/04/2022	-	12.824	417.989	405.165	405.165	25.91	Good	1.15	1844	6.74	151.8	356.8	23.2	Clear	Clear	No odour	No sheen	HydraSleeve™.
1435	MW010	16/04/2021	19/04/2022	19/04/2022	-	13.789	418.024	404.235	404.235	26.91	Good	0.29	1049	7.72	125.6	330.6	22.4	Clear	Clear	No odour	No sheen	HydraSleeve™.
1435	MW011	16/04/2021	19/04/2022	19/04/2022	-	14.033	418.289	404.256	404.256	27.49	Good	0.16	1138	7.49	148.4	353.4	22.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
1435	MW012	19/04/2022	20/04/2022	19/04/2022	-	13.509	418.340	404.831	404.831	26.715	Good	0.42	1709	8.28	102.8	307.8	23.2	Clear	Clear	No odour	No sheen	HydraSleeve™.
1435	MW013	16/04/2021	19/04/2022	19/04/2022	-	9.417	415.927	406.510	406.510	23.89	Good	0.67	2005	7.03	171.7	376.7	21.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW003	None- tap	14/10/2021	-	-	-	-	-	-	-	-	1.74	2448	7.29	83.7	288.7	26.8	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW003	Tap sample	2/11/2022	-		Not gauged - pumping equipment installed.				-	-	1.75	2605	7.1	96.2	301.2	20.6	Medium	Clearish/brown	No odour	No sheen	Tap sample.
0207	MW003	None-tap	None-tap	13/04/2022	-	-	-	-	-	-	-	1.55	1884	7.42	134.8	339.8	25.2	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW019	None- tap	14/10/2021	-	-	-	-	-	-	-	-	3.17	2648	7.15	110.2	315.2	23.5	Low	Clear	No odour	No sheen	Tap sample.
0207	MW019	Tap sample	27/10/2022	-		Not gauged - pumping equipment installed.				-	-	1.98	2723	7.24	74.6	279.6	25.3	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW019	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	2.85	2135	7.3	127.6	332.6	24.1	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW021	None-tap	None-tap	12/04/0222	-	-	-	-	-	-	-	2.45	1566	7.3	128.4	333.4	25.4	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW022	None- tap	14/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Stakeholder unable to be contacted.
0207	MW022	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	1.7	1605	7.57	115.4	320.4	25.8	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW031	None- tap	14/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Stakeholder unable to be contacted.
0207	MW032	None-tap	None-tap	21/04/2022	-	-	-	-	-	-	-	2.86	878	7.56	134.1	339.1	23	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW038	None- tap	14/10/2021	-	-	-	-	-	-	-	-	1.1	1047	8.61	43.4	248.4	24.1	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW038	Tap sample	3/11/2022	-		Not gauged - pumping equipment installed.				-	-	0.79	1056	8.05	72.10	277.1	19.9	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW038	None-tap	None-tap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not sampled- stakeholder declined.
0207	MW056	13/04/2021	14/10/2021	14/10/2021	-	10.246	Unknown	-	-	20.68	Good	2.51	2343	6.9	97.8	302.8	23.9	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW056	13/04/2021	12/04/2022	12/04/2022		7.271	-	-	-	20.46	-	2.18	2972	7.01	148.2	353.2	21.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW056	17/04/2022	27/10/2022	-		Not surveyed				-	-	3.68	2321	7.13	108.4	313.4	24.3	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW113	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	2.72	1541	7.07	112.1	317.1	24.6	Low	Light brown	No odour	No sheen	Tap sample.
0207	MW114	None-tap	None-tap	20/04/2022	-	-	-	-	-	-	-	3.49	1448	7.26	161	366	22.1	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW118	None-tap	None-tap	20/04/2022	-	-	-	-	-	-	-	2.77	1492	7.3	160.7	365.7	22.2	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW122	None-tap	None-tap	20/04/2022	-	-	-	-	-	-	-	4.41	1459	7.44	161.4	366.4	21.5	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW132	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	2.37	567	7.81	117	322	25	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW134	None- tap	14/10/2021	-	-	-	-	-	-	-	-	2.17	2491	7.16	-21.1	183.9	24.1	Low	Orange/brown	No odour	No sheen	Tap sample.
0207	MW134	Tap sample	2/11/2022	-		Not gauged - pumping equipment installed.				-	-	3.01	2712	7.17	75.9	280.9	18.9	Medium	Clear/brown	No odour	No sheen	Tap sample.
0207	MW134	None-tap	None-tap	14/04/2022	-	-	-	-	-	-	-	2.01	1600	7.49	148.3	353.3	20.3	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW147	None- tap	14/10/2021	-	-	-	-	-	-	-	-	2.36	3689	7.02	-87.2	117.8	22.3	Medium	Clear		No sheen	Tap sample.
0207	MW147	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	2.25	3368	7.16	120.9	325.9	23.3	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW147	Tap sample	Not sampled	-		Not gauged or sampled- bore no longer functioning.				-	-	-	-	-	-	-	-	-	-	-	-	Bore is no longer functional.
0207	MW149	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	3.7	1840	7.85	130.1	335.1	22.6	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW151	None- tap	14/10/2021	-	-	-	-	-	-	-	-	4.24	2020	7.17	83	288	22.2	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW151	Tap sample	27/10/2022	-		Not gauged - pumping equipment installed.				-	-	3.4	2221	7.19	117	142.7	22.6	Clear	Clear	No odour	No sheen	Tap sample. Bore had been running for roughly an hour before sampling.
0207	MW151	None-tap	None-tap	14/04/2022	-	-	-	-	-	-	-	3.58	1636	7.52	125.9	142.7	21.5	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW157	None-tap	None-tap	20/04/2022	-	-	-	-	-	-	-	3.11	1810	7.29	162.6	367.6	22.1	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW160	None- tap	14/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Stakeholder unable to be contacted.
0207	MW167	17/04/2021	11/10/2021	11/10/2021	-	13.722	402.428	388.706	388.706	15.27	Good	6.59	1918	7.41	130.9	335.9	23.1	Medium	Clear	No odour	No sheen	HydraSleeve™.
0207	MW167	17/04/2021	17/04/2022	17/04/2022	-	12.633	402.428	389.795	389.795	-	Good	0.73	1749	7.24	127.7	332.7	22.5	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW167	26/10/2022	27/10/2022	27/10/2022	-	12.02	402.428	390.408	390.408	15.86	Good	-	-	-	-	-	-	Clear	Clear	No odour	No sheen	Sharpie pen found in HydraSleeve™, which may have been dropped during another sampling program (e.g. Queensland water quality monitoring program). Water quality parameters were not collected due to the loss of some of sample volume.
0207	MW172	14/04/2021	13/10/2021	13/10/2021	-	14.247	402.818	388.571	388.571	17.17	Good	2.61	1546	7.12	86.6	291.6	21.9	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW172	14/04/2021	17/04/2022	17/04/2022	-	13.115	402.818	389.703	389.703	17.16	Good	2.33	746	7.43	130.8	335.8	21.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW172	17/04/2022	26/10/2022	26/10/2022	-	12.527	402.818	390.291	390.291	17.16	Good	2.7	1311	7.45	88.5	293.5	22.6	Medium	Brownish/Clear	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW173	14/04/2021	13/10/2021	13/10/2021	-	14.464	403.262	388.798	388.798	17.86	Good	3.28	1683	9.67	86.4	291.4	21.8	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW173	14/04/2021	17/04/2022	17/04/2022	-	13.52	403.262	389.742	389.742	17.65	Good	2.53	1502	7.23	144.2	349.2	21.8	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW173	17/04/2022	24/10/2022	24/10/2022	-	12.998	403.262	390.264	390.264	17.65	Good	3.58	2385	7.29	64.7	269.7	23.8	Med-high	Cloudy/brown	No odour	No sheen	HydraSleeve™. Lots of brown suspended sediment.
0207	MW174	11/10/2021	13/10/2021	11/10/2021	-	14.962	404.072	389.110	389.110	23.12	Good	2.73	2611	7.08	55.2	260.2	22.6	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW174	14/04/2021	17/04/2022	17/04/2022	-	14.014	404.072	390.058	390.058	29.99	Good	0.79	2158	7.47	138.6	343.6	20.2	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW174	27/10/2022	2/11/2022	2/11/2022	-	13.366	404.072	390.706	390.706	29.99	Good	1.42	3725	7.32	78.9	283.9	20.5	Clear	Clear	Weak sulfuric	No sheen	HydraSleeve™. Minimal settled black/brown sediment.
0207	MW178	17/04/2021	11/10/2021	11/10/2021	-	14.062	403.513	389.451	389.451	17.41	Good	1.02	2972	7.15	-107.6	97.4	26.6	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW178	17/04/2021	17/04/2022	17/04/2022	-	14.37	403.513	389.143	389.143	17.4	Good	0.61	2149	7.38	141.5	346.5	21.3	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW178	27/10/2022	2/11/2022	2/11/2022	-	12.551	403.513	390.962	390.962	17.4	Good	0.7	4664	7.05	68.6	273.6	20.4	Clear	Clear	No odour	No sheen	HydraSleeve™. Some black/grey settled sediment.
0207	MW179	16/04/2021	11/10/2021	11/10/2021	-	14.464	403.000	388.536	388.536	19.42	Good	1.53	3996	7.28	-23.1	181.9	23	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW179	16/04/2021	18/04/2022	18/04/2022	-	13.699	403.006	389.307	389.307	20.98	Good	0.26	3529	7.93	120.3	325.3	22.3	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW179	27/10/2022	3/11/2022	3/11/2022	-	12.947	403.006	390.059	390.059	20.98	Good	4.3	4630	7.09	70.2	275.2	21.4	Low	Cloudy	No odour	No sheen	HydraSleeve™.
0207	MW187	17/04/2021	13/10/2021	13/10/2021	-	14.934	404.576	389.642	389.642	18.31	Good	0.75	3698	6.56	63	268	23.9	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW187	17/04/2021	11/04/2022	11/04/2022	-	14	404.576	390.576	390.576	18.355	Good	1.38	2173	6.71	152.7	357.7	23.6	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW187	19/04/2022	27/10/2022	27/10/2022	-	13.366	404.576	391.210	391.210	18.355	Good	0.98	4310	6.88	93.4	298.4	24.9	Low	Cloudy	No odour	No sheen	HydraSleeve™. Settled grey sediment.
0207	MW189	17/04/2021	13/10/2021	13/10/2021	-	15.116	405.431	390.315	390.315	21.03	Good	1.47	4292	6.74	49.4	254.4	24	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW189	17/04/2021	11/04/2022	11/04/2022	-	13.865	404.652	390.787	390.787	21.07	Good	0.71	3432	6.93	132.9	337.9	22.9	Low	Yellow-brown	No odour	No sheen	HydraSleeve™.
0207	MW189	18/04/2022	27/10/2022	27/10/2022	-	13.209	404.652	391.443	391.443	21.07	Good	1.67	5246	6.84	47.6	252.6	24.6	High	Cloudy / brown / grey	No odour	No sheen	HydraSleeve™. Suspended brown sediment and settled grey sediment.
0207	MW193	14/04/2021	11/10/2021	11/10/2021	-	15.723	405.676	389.953	389.953	19.65	Good	0.46	5676	6.92	-162.8	42.2	23.4	Clear	Clear	HC odour	Oil globules / sheen	Hydrasleeve™.
0207	MW193	14/04/2021	17/04/2022	17/04/2022	14.488	14.585	405.630	391.045	391.117	19.74	Good	0.25	4934	6.85	91.9	296.9	23.1	Clear	Clear	HC odour	Heavy sheen	Hydrasleeve™. 97 mm LNAPL.
0207	MW193	25/10/2022	26/10/2022	26/10/2022	13.859	13.951	405.630	391.679	391.747	19.74	Good	0.86	5652	6.98	34.2	239.2	25.3	Low	Clear	Strong Kerosene/HC odour	Heavy sheen	HydraSleeve™. 92 mm LNAPL. Min settled grey sediment.
0207	MW198	14/04/2021	11/10/2021	11/10/2021	-	7.603	405.505	397.902	397.902	13.47	Good	0.54	2118	6.93	21.3	226.3	23.1	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW198	14/04/2021	17/04/2022	17/04/2022		6.536	405.505	398.969	403.806	13.48	Good	2.58	622	7.03	114.2	319.2	23.2	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW198	19/04/2022	25/10/2022	25/10/2022	-	6.308	405.505	399.197	399.197	13.5	Good	1.26	4388	7.13	150.7	355.7	23.6	Clear	Clear	No odour	No sheen	HydraSleeve™ . Some settled brown sediment.
0207	MW201	15/04/2021	12/10/2021	12/10/2021	-	16.394	404.900	388.506	388.506	19.86	Good	1.04	3824	6.67	51.8	256.8	22.1	Medium	Clear	No odour	No sheen	HydraSleeve™.
0207	MW201	15/04/2021	17/04/2022	17/04/2022	-	14.164	404.800	390.636	390.636	19.83	Good	0.56	3642	6.74	136.5	341.5	23.1	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW201	20/04/2022	25/10/2022	25/10/2022	-	13.727	404.800	391.073	391.073	19.83	Good	2.24	6928	6.69	162.7	367.7	22.6	Med-high	Cloudy/brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW202	17/04/2021	12/10/2021	12/10/2021	-	15.482	405.100	389.618	389.618	19.18	Good	0.25	3533	6.89	45	250	22.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW202	17/04/2021	17/04/2022	17/04/2022	-	14.028	405.000	390.972	390.972	19.12	Good	0.69	2768	6.99	106.6	311.6	23.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW202	15/04/2022	24/10/2022	24/10/2022	-	13.648	405.000	391.352	391.352	19.12	Good	1.6	3145	7.24	104.3	309.3	28.1	Clear	Clear	No odour	No sheen	HydraSleeve™. Some suspended grey sediment.
0207	MW203	15/04/2021	12/10/2021	12/10/2021	-	15.602	405.100	389.498	389.498	20.1	Good	4.3	2946	6.88	41.1	246.1	24.3	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW203	15/04/2021	17/04/2022	17/04/2022	-	14.064	405.100	391.036	391.036	20.11	Good	2.33	2611	6.87	147.1	352.1	23.5	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW203	15/04/2022	24/10/0222	24/10/2022	-	13.835	405.100	391.265	391.265	20.11	Good	2.19	4734	9.96	111.2	316.2	21.2	Low	Cloudy	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW204	17/04/2021	12/10/2021	12/10/2021	-	15.782	405.200	389.418	389.418	19.99	Good	4.28	5478	6.84	59.3	264.3	22.7	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW204	17/04/2021	20/04/2022	20/04/2022	-	14.464	405.200	390.736	390.736	19.97	Good	2.19	3831	7.05	172.9	377.9	21.5	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW204	16/04/2022	24/10/2022	24/10/2022	-	14.117	405.200	391.083	391.083	19.97	Good	-	-	-	-	-	-	Clear	Clear	No odour	No sheen	HydraSleeve™. Water quality parameters missed.
0207	MW205	17/04/2021	12/10/2021	12/10/2021	-	16.239	405.700	389.461	389.461	20.09	Good	2.76	2338	6.91	51.5	256.5	22.9	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW205	17/04/2021	20/04/2022	20/04/2022	-	15.034	405.700	390.666	390.666	20.02	Good	1.9	1880	7.26	164.4	369.4	22.9	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW205	14/04/2022	24/10/2022	24/10/2022	-	14.569	405.700	391.131	391.131	20.02	Good	2.26	6879	6.72	116	321	25.5	Med-high	Cloudy/brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.

Property ID	Well ID	Date Hydrasleeve Installed	Date Well Sampled	Gauging Date	Depth to LNAPL (mbtoc)	Depth to Water (mbtoc)	TOC Elevation (mAHD)	Groundwater Elevation (mAHD)	Corrected Groundwater Elevation (mAHD)*	Well Depth (mbtoc)	Condition of Gatic	DO (mg/L) *Field measurement*	EC (µS/cm) *Field measurement*	pH *Field measurement*	E_r (mV) *Field measurement*	E_h (mV)	Temp (°C) *Field measurement*	Turbidity	Water Colour	Odour	Sheen	Sample Method / Comments
0207	MW206	14/04/2021	11/10/2021	11/10/2021	-	14.461	405.72	391.259	391.259	19.13	Good	1.65	4156	7.2	-9.4	195.6	23.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW206	14/04/2021	21/04/2022	21/04/2022	-	13.046	405.720	392.674	392.674	19.115	Good	0.68	3957	7.19	143.4	348.4	24.4	Clear	Clear	No odour	No sheen	HydraSleeve™.
207	MW207	Unknown	17/04/2022	17/04/2022	-	14.537	405.416	390.879	390.879	20.435	Good	0.33	2728	7.03	92.7	297.7	24.5	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW207	15/04/2022	25/10/2022	25/10/2022	-	13.996	405.416	391.420	391.420	20.435	Good	2	4138	7.43	132.2	337.2	24	med-high	Cloudy/grey	No odour	No sheen	HydraSleeve™. Suspended and settled grey sediment. Sampled instead of MW206, which was not accessible.
0207	MW221	14/04/2021	12/10/2021	12/10/2021	-	15.673	405.496	389.823	389.823	19.35	Good	0.6	2269	7.26	22.5	227.5	24.7	Medium	Clear	No odour	No sheen	HydraSleeve™.
0207	MW221	14/04/2021	17/04/2022	17/04/2022	-	14.493	405.496	391.003	391.003	19.31	Good	0.91	1587	7.11	159.3	364.3	22.4	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW221	17/04/2022	25/10/2022	25/10/2022	-	13.953	405.496	391.543	391.543	19.31	Good	0.99	2198	7.42	132.6	337.6	24.8	Low	Clear/brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW222	14/04/2021	12/10/2021	12/10/2021	-	15.896	405.658	389.762	389.762	19.01	Good	3.8	2626	7.15	58.4	263.4	23.4	Medium	Light brown	No odour	No sheen	Hydrasleeve™.
0207	MW222	14/04/2021	17/04/2022	17/04/2022	-	14.663	405.716	391.053	391.053	18.93	Good	1.82	2052	7.24	148.1	353.1	22.6	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW222	17/04/2022	26/10/2022	26/10/2022	-	14.084	405.716	391.632	391.632	18.93	Good	2.71	2624	7.36	81.5	286.5	23.4	Medium	Clear/brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW223	14/04/2021	12/10/2021	12/10/2021	-	15.915	405.788	389.873	389.873	20.92	Good	4.72	2280	7.06	70.9	275.9	23.9	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW223	14/04/2021	13/04/2022	13/04/2022	-	-	405.845	-	-	20.18	-	-	-	-	-	-	-	-	-	-	-	HydraSleeve™. Gauging and field parameter data lost due to EDCA fault
0207	MW223	17/04/2022	26/10/2022	26/10/2022	-	12.568	405.845	393.277	393.277	20.18	Good	3.6	3134	7.08	80.1	285.1	23	Clear	Clear	No odour	No sheen	HydraSleeve™. Some settled brown sediment.
0207	MW229	14/04/2021	12/10/2021	12/10/2021	-	4.307	405.533	401.226	401.226	15.68	Good	0.75	2215	7.58	-20.8	184.2	27.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW229	14/04/2021	13/04/2022	13/04/2022	-	-	405.533	-	-	15.66	-	-	-	-	-	-	-	-	-	-	-	HydraSleeve™. Gauging and field parameter data lost due to EDCA fault.
0207	MW229	20/04/2022	27/10/2022	27/10/2022	-	2.715	405.533	402.818	402.818	15.66	Good	1.09	2074	7.55	77	282	24.3	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW230	14/04/2021	12/10/2021	12/10/2021	-	15.291	405.416	390.125	390.125	18.97	Good	3.14	1872	7.08	52.4	257.4	23.2	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW230	14/04/2021	17/04/2022	17/04/2022	-	13.771	405.416	391.645	391.645	18.85	Good	2.84	1346	7.25	144.3	349.3	22.8	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW230	20/04/2022	26/10/2022	26/10/2022	-	11.991	405.416	393.425	393.425	18.85	Good	3.09	1420	7.32	84.5	289.5	24.7	Low-med	Clear/brown	No odour	No sheen	HydraSleeve™. Suspended brown sediment.
0207	MW232	14/04/2021	13/10/2021	13/10/2021	-	11.106	405.898	394.792	394.792		Good	4.47	200.9	6.68	75.9	280.9	22.5	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW232	14/04/2021	17/04/2022	17/04/2022	-	10.889	405.898	395.009	395.009	12.055	Good	2.25	278.3	7.19	142.3	347.3	21.8	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW232	17/04/2022	27/10/2022	27/10/2022	-	10.923	405.898	394.975	394.975	12.055	Good	4.11	329.1	7.05	102.5	307.5	20.9	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW233	17/04/2021	14/10/2021	14/10/2021	-	15.884	406.470	390.586	390.586	17.84	Good	4.56	1037	7.28	74.2	279.2	23	Turbid	Light brown	No odour	No sheen	HydraSleeve™.
0207	MW233	17/04/2021	20/04/2022	20/04/2022	-	14.564	406.470	391.906	391.906	17.78	Good	3.4	850	7.56	142	347	22.1	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW233	20/04/2022	24/11/2022	24/11/2022	-	14.564	406.470	391.906	391.906	17.78	Good	3.4	850	7.56	142	347	22.1	Medium	Clear	No odour	No sheen	HydraSleeve™. Some suspended and settled brown sediment.
0207	MW235	14/04/2021	13/10/2021	13/10/2021	-	16.311	406.308	389.997	389.997	22.65	Good	0.76	1816	6.73	-51	154	23.3	Low	Light brown	No odour	No sheen	HydraSleeve™.
0207	MW235	14/04/2021	20/04/2022	20/04/2022	-	15.13	406.308	391.178	391.178	22.54	Good	0.78	1089	7.09	165.3	370.3	23.1	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW235	20/04/2022	26/10/2022	26/10/2022	-	14.533	406.308	391.775	391.775	22.54	Good	2.9	1907	7.02	128.8	333.8	25.2	Meidum	Clearish/Brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW236	14/04/2021	20/04/2022	20/04/2022	-	14.978	405.653	390.675	390.675	16.67	Good	0.84	565	6.68	172.2	377.2	22.8	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW236	20/04/2022	26/10/2022	26/10/2022	-	14.38	405.653	391.273	391.273	16.67	Good	1.8	1495	6.63	123.6	328.6	25.1	Low	Brownish/clear	No odour	No sheen	HydraSleeve™. Brown settled sediment.
0207	MW236	-	-	13/10/2021	-	16.186	405.653	389.467	389.467	16.72	Good	1.38	2013	6.36	76	281	24.8	Turbid	Clear	No odour	No sheen	Grab sample with bailer.
0207	MW241	14/04/2021	13/10/2021	13/10/2021	-	16.046	405.883	389.837	389.837	18.08	Good	4.41	935	6.78	74.6	279.6	23.6	Turbid	Clear	No odour	No sheen	Hydrasleeve™.
0207	MW241	14/04/2021	19/04/2022	19/04/2022	-	14.796	405.883	391.087	391.087	18.07	Good	3.21	726	7.3	153.1	358.1	22.6	Clear	Clear	No odour	No sheen	Hydrasleeve™.
0207	MW241	19/04/2022	26/10/2022	26/10/2022	-	14.232	405.883	391.651	391.651	18.07	Good	3.64	865	7.1	103.1	308.1	23.2	Low-med	Clear	No odour	No sheen	HydraSleeve™. Brown suspended and settled sediment.
0207	MW242	20/04/2021	11/10/2021	11/10/2021	-	14.771	402.030	387.259	387.259	20.03	Damaged	1.63	2351	7.58	-33.8	171.2	24.5	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW242	20/04/2021	18/04/2022	18/04/2022	-	13.365	402.030	388.665	388.665	20	Damaged	2.74	672	11.24	36.7	241.7	23.4	Clear	Clear	No odour	No sheen	Bailed due to damaged well moument. Moument no longer present.
0207	MW242	Not installed.	24/11/2022	24/11/2022	-	Not gauged	-	-	-	20.00	Good	5.4	10532	7.04	130.2	335.2	22.2	High	Brown	No odour	No sheen	Monument recently replaced, sampled with bailer. Insufficient water to install HydraSleeve™. Suspended brown sediment. Inadvertently not gauged.
0207	MW245	20/04/2021	11/10/2021	11/10/2021	-	15.696	402.981	387.285	387.285	20.55	Good	3.32	1535	7.15	66.7	271.7	21.9	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW245	20/04/2021	18/04/2022	18/04/2022	-	14.455	402.981	388.526	388.526	21.925	Good	2.72	1326	7.26	175	380	20.1	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW245	18/04/2022	3/11/2022	3/11/2022	-	14.01	402.981	388.971	388.971	21.925	Good	2.39	1815	6.99	80.8	285.8	20.4	Medium	Clear	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW249	14/04/2021	13/10/2021	13/10/2021	-	15.243	404.769	389.526	389.526	18.76	Good	3.86	1699	7.06	73.4	278.4	21.9	Low	Clear	No odour	No sheen	Hydrasleeve™.
0207	MW249	14/04/2021	19/04/2022	19/04/2022	-	14.176	404.769	390.593	390.593	18.7	Good	1.81	1268	7.64	156.4	361.4	20.9	Clear	Clear	No odour	No sheen	Hydrasleeve™
0207	MW249	19/04/2022	26/10/2022	26/10/2022	-	13.538	404.769	391.231	391.231	18.7	Good	3.06	1594	7.15	94.4	299.4	24.4	Med-high	Brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW252	20/10/2020	13/10/2021	13/10/2021	-	15.821	406.162	390.341	390.341	16.64	Good	0.78	695	6.67	61.8	266.8	25.3	Turbid	Clear	No odour	No sheen	HydraSleeve™.
0207	MW252	14/04/2021	20/04/2022	20/04/2022	-	14.557	406.162	391.605	391.605	16.545	Good	0.67	318.2	6.73	170.7	375.7	22.6	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW252	20/04/2022	26/10/2022	26/10/2022	-	13.915	406.162	392.247	392.247	16.545	Good	2.5	252.9	6.44	122	327	23.8	Med-high	Brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW253	14/04/2021	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Destroyed by remediation project.
0207	MW254	14/04/2021	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Destroyed by remediation project.
0207	MW255	13/04/2021	15/10/2021	15/10/2021	-	12.913	397.784	384.871	384.871	24.06	Good	3.86	2796	7.23	69	274	23	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW255	13/04/2021	15/04/2022	15/04/2022	-	12.242	397.784	385.542	385.542	23.85	Damaged	1.56	995	7.93	94.9	299.9	21.4	Clear	Clear	No odour	No sheen	Hydrasleeve. J cap not sealing well and needs replacing.
0207	MW255	16/04/2022	Not sampled	Well not found.						-	-	-	-	-	-	-	-	-	-	-	-	Used metal detector but unable to locate well due to heavy overgrowth.
0207	MW257	17/04/2021	14/10/2021	14/10/2021	-	14.563	400.833	386.270	386.270	23.94	Good	0.9	3073	9.66	-183.5	21.5	26	Low	Clear	Organic odour	No sheen	HydraSleeve™.
0207	MW257	17/04/2021	15/04/2022	15/04/2022	-	13.722	400.833	387.111	387.111	23.945	Damaged	0.23	452.9	7.04	60.9	265.9	21.9	Clear	Clear	No odour	No sheen	Hydrasleeve. J cap not sealing well and needs replacing.
207	MW257	15/04/2022	26/10/2022	27/10/2022	-	12.962	400.833	387.871	387.871	23.945	Good	0.8	3280	7.29	49.3	254.3	25.5	Clear	Clear	No odour	No sheen	HydraSleeve™. Some organice in HydraSleeve™, minimal settled grey sediment.
0207	MW262	19/04/2021	14/10/2021	14/10/2021	-	12.339	398.329	385.990	385.990	17.84	Good	1.5	2686	7.14	12.2	217.2	26.8	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW262	19/04/2021	16/04/2022	16/04/2022	-	11.536	398.329	386.793	386.793	17.81	Good	1.8	1909	7.01	116.2	321.2	23.2	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW262	16/04/2022	2/11/2022	2/11/2022	-	11.091	398.329	387.238	387.238	17.81	Good	2.05	2384	7.31	78.9	283.9	20.4	Clearing	Cloudy/brown	No odour	No sheen	HydraSleeve™.
0207	MW264	13/04/2021	14/10/2021	14/10/2021	-	8.477	392.755	384.278	384.278	11.04	Good	1	3270	6.83	20.8	225.8	24.6	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW264	13/04/2021	14/04/2022	14/04/2022	-	7.486	392.755	385.269	385.269	11.06	Good	0.51	2347	6.89	152.4	357.4	21.5	Turbid	Clear	No odour	No sheen	HydraSleeve™.
0207	MW264	14/04/2022	Not sampled	Well not found	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Used metal detector but unable to locate well due to heavy overgrowth.
0207	MW265	12/04/2021	16/04/2022	16/04/2022	-	15.429	408.398	392.969	392.969	19.11	Good	0.5	817	7.25	109.8	314.8	22.9	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW266	20/04/2021	16/04/2022	16/04/2022	-	13.481	401.316	387.835	387.835	21.46	Good	0.78	3615	7.11	140.1	345.1	23.6	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW267	15/04/2021	13/04/2022	13/04/2022	-	-	401.392	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault.
0207	MW268	15/04/2021	13/04/2022	13/04/2022	-	-	401.323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault
0207	MW269	15/04/2021	15/10/2021	15/10/2021	-	34.127	401.958	367.831	367.831	-	Good	1.46	2895	11.84	-226.7	-21.7	22.4	Clear	Clear	No odour	No sheen	Hydrasleeve™
0207	MW269	15/04/2021	13/04/2022	13/04/2022	-	-	401.958	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault.
0207	MW269	13/04/2022	2/11/2022	2/11/2022	-	33.486	401.958	368.472	368.472	86.96	Good	1.34	3134	12.13	44.3	249.3	16.1	Clear	Clear	No odour	No sheen	HydraSleeve™. Settled brown sediment.
0207	MW270	15/04/2021	13/04/2022	13/04/2022	-	-	404.078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault.
0207	MW271	15/04/2021	13/04/2022	13/04/2022	-	-	403.855	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault.
0207	MW272	19/04/2021	15/10/2021	15/10/2021	-	12.662	397.972	385.310	385.310	19.99	Good		2722	7.21	81.3	286.3	23.8	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW272	19/04/2021	16/04/2022	16/04/2022	-	11.936	397.972	386.036	386.036	20.04	Good	2.36	1936	7.78	131.7	336.7	20.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW272	16/04/2022	27/10/2022	27/10/2022	-	11.312	397.972	386.660	386.660	20.04	Good	2.5	2799	7.37	83	288	23.3	Med-high	Clear/brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW273	19/04/2021	16/04/2022	16/04/2022	-	18.564	398.044	379.480	379.480	67.09	Good	0.27	227.6	9.04	97.9	302.9	19.2	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW274	17/04/2021	15/04/2022	15/04/2022	-	13.737	399.947	386.210	386.210	32	Good	0.26	1225	7.65	39.6	244.6	22.5	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW275	17/04/2021	15/04/2022	15/04/2022	-	13.69	399.911	386.221	386.221	56.16	Good	0.82	1536	7.74	61.7	266.7	23.3	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW276	19/04/2021	14/10/2021	14/10/2021	-	14.678	400.474	385.796	385.796	19.84	Good	1.04	3097	6.99	55.3	260.3	25	Medium	Clear	Organic odour	No sheen	HydraSleeve™.
0207	MW276	19/04/2021	15/04/2022	15/04/2022	-	13.927	400.474	386.547	386.547	19.9	Damaged	0.45	2123	7.01	105.4	310.4	22.8	Clear	Clear	No odour	No sheen	Hydrasleeve. Concrete collar and gatic slightly damaged.
0207	MW276	15/04/2022	24/11/2022	14/11/2022	-	13.535	400.474	386.939	386.939	19.9	Damaged	1.46	2428	7.12	101.1	306.1	23.5	High	Brown	No odour	No sheen	HydraSleeve™. Suspended brown sediment and settled grey sediment. Concrete has been damaged.
0207	MW278	16/04/2021	16/04/2022	16/04/2022	-	8.763	404.155	395.392	395.392	22.06	Good	0.51	1217	7.12	113.2	318.2	23.4	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW279	16/04/2021	15/04/2022	15/04/2022	-	6.408	406.341	399.933	399.933	18.055	Damaged	0.99	1374	7.16	120.5	325.5	22.2	Clear	Clear	No odour	No sheen	Hydrasleeve. Concrete collar slightly damaged.

Property ID	Well ID	Date Hydrasleeve Installed	Date Well Sampled	Gauging Date	Depth to LNAPL (mbtoc)	Depth to Water (mbtoc)	TOC Elevation (mAHD)	Groundwater Elevation (mAHD)	Corrected Groundwater Elevation (mAHD)*	Well Depth (mbtoc)	Condition of Gatic	DO (mg/L) *Field measurement*	EC (µS/cm) *Field measurement*	pH *Field measurement*	E_r (mV) *Field measurement*	E_h (mV)	Temp (°C) *Field measurement*	Turbidity	Water Colour	Odour	Sheen	Sample Method / Comments
0207	MW280	17/04/2021	14/04/2022	14/04/2022	-	11.842	398.486	386.644	386.644	30.175	Good	0.27	2251	7.34	96.4	301.4	24.9	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW281	20/04/2021	14/04/2022	14/04/2022	-	8.725	396.856	388.131	388.131	18.485	Good	1.11	2345	7.06	126.1	331.1	23	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW282	15/04/2021	15/04/2022	15/04/2022	-	4.202	397.327	393.125	393.125	16	Good	2.03	923	7.05	126.9	331.9	22.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW283	20/04/2021	13/04/2022	13/04/2022	-	9.675	395.371	385.696	385.696	15	Good	0.33	1265	7.26	132.8	337.8	22	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW285	15/04/2021	16/04/2022	16/04/2022	-	4.729	398.331	393.602	393.602	10.71	Good	2.05	2045	7.2	131.9	336.9	21.4	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW288	21/04/2021	21/04/2022	21/04/2022	-	16.258	402.161	385.903	385.903	21.83	Damaged	0.33	1020	7.87	76.8	281.8	19.7	Clear	Clear	No odour	No sheen	Hydrasleeve. Monument is damaged and lid is broken.
0207	MW289	21/04/2021	21/04/2022	21/04/2022	-	61.785	402.072	340.287	340.287	65.18	Damaged	0.99	863	7.91	47.5	252.5	20.4	Clear	Clear	No odour	No sheen	Hydrasleeve. Monument is damaged and lid is broken.
0207	MW290	21/04/2021	21/04/2022	21/04/2022	-	5.765	403.688	397.923	397.923	19.71	Good	0.26	3774	6.95	77.2	282.2	19.6	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW291	21/04/2021	21/04/2022	21/04/2022	-	16.12	403.709	387.589	387.589	56.72	Good	0.57	982	7.57	73.6	278.6	17.5	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW292	19/04/2021	14/04/2022	14/04/2022	-	6.786	401.818	395.032	395.032	19.14	Good	0.54	4407	8.67	51.5	256.5	21	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW293	19/04/2021	14/04/2022	14/04/2022	-	36.203	402.021	365.818	365.818	60.18	Good	2.03	3270	11.89	-8.2	196.8	22.3	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW294	15/04/2021	15/04/2022	15/04/2022	-	7.726	403.780	396.054	396.054	18.415	Good	1.77	2221	7.79	147.2	352.2	19.7	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW295	15/04/2021	13/04/2022	13/04/2022	-	-	402.837	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault.
0207	MW296	15/04/2021	-	-	-	-	399.155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not sampled- stakeholder declined.
0207	MW297	15/04/2021	-	-	-	-	399.230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not sampled- stakeholder declined.
0207	MW299	17/04/2021	12/10/2021	12/10/2021	-	12.244	403.970	391.726	391.726	15.44	Good	0.54	8647	6.77	17.3	222.3	23.8	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW299	17/04/2021	17/04/2022	17/04/2022	-	12.106	403.970	391.864	391.864	15.45	Good	0.35	5518	6.68	143.6	348.6	23.8	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW299	17/04/2022	24/10/2022	26/10/2022	-	12.129	403.970	391.841	391.841	15.45	Good	1.04	6628	6.76	91.9	296.9	26.8	Clear	Clear	No odour	No sheen	HydraSleeve™. Settled sediment.
0207	MW300	17/04/2021	12/10/2021	12/10/2021	-	14.657	403.715	389.058	389.058	16.43	Good	0.81	8986	7.38	32.3	237.3	24.7	Low	Clear	No odour	No sheen	HydraSleeve™.
0207	MW300	17/04/2021	17/04/2022	17/04/2022	-	13.534	403.715	390.181	390.181	16.46	Good	0.53	5337	6.8	139.5	344.5	23.4	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW300	17/04/2022	24/10/2022	26/10/2022	-	13.01	403.715	390.705	390.705	16.46	Good	3.49	5686	6.8	105.9	310.9	25.6	Clear	Clear	No odour	No sheen	HydraSleeve™. Settled sediment.
207	MW562	19/04/2022	20/04/2022	19/04/2022	-	13.111	402.720	389.609	389.609	16.5	Good	0.46	1871	7.21	174.2	379.2	22.8	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW562	26/10/2022	3/11/2022	3/11/2022	-	12.487	402.720	390.233	390.233	16.5	Good	2.58	2102	7.12	88.8	293.8	17.8	Medium	Clear	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
207	MW563	19/04/2022	20/04/2022	19/04/2022	-	13.181	402.900	389.719	389.719	19.49	Good	0.42	1481	7.46	168.3	373.3	22.2	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW563	26/10/2022	3/11/2022	3/11/2022	-	12.559	402.900	390.341	390.341	19.49	Good	1.01	1891	7.33	90.3	295.3	18.9	Clear	Clear	No odour	No sheen	HydraSleeve™.

* Corrected groundwater elevation provides the groundwater elevation following correction for the presence of LNAPL (if present).
mbtoc is metres below top of casing
mAHD is metres above Australian height datum
LNAPL is light non-aqueous phase liquid
DO is dissolved oxygen
EC is electrical conductivity
E_h is oxidation reduction potential
Oxidation reducation potential (E_r) measured with a platinum electrode and a silver/silver chloride reference electrode (E_r) and converted to E_h by $E_h = E_r + 205$ mV (based on a groundwater temperature of 21°C)
Temp is Temperature
µS/cm is microsiemens per centrimetre
ºC is degrees Celcius
mV is millivolts
pH was not measured at all locations due to a faulty sensor on the water quality meter.

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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					0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.0005	0.001	0.001	0.001	0.0005	0.001	0.001	0.001	0.001	0.0003	0.0003
PFAS NEMP 2020 Drinking Water															0.56																0.07	
PFAS NEMP 2020 Recreational Water															**10**																**2**	
Location Code	**Date**	**Sample Type**	**Lab Report**																														
MW001	31/01/2014	Normal	EB1402209	MW00141670EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-
MW001	26/05/2014	Normal	EB1412900	MW00141785EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW001	27/05/2016	Normal	EB1614022	MW00142517EB1614022	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-
MW002	31/01/2014	Normal	EB1402209	MW00241670EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-
MW002	26/05/2014	Normal	EB1412900	MW00241785EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW002	27/05/2016	Normal	EB1614022	MW00242517EB1614022	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-
MW002	28/04/2017	Normal	EB1708623	MW00242853EB1708623	<0.02	<0.02	0.04	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.04	0.04
MW003	27/05/2014	Normal	EB1412900	MW00341786EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW003	18/10/2018	Normal	EB1826389	MW00343391EB1826389	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW003	16/04/2019	Normal	EB1910259	MW00343571EB1910259	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW003	24/10/2019	Normal	EB1928471	MW00343762EB1928471	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW003	24/03/2020	Normal	EB2008683	MW00343914EB2008683	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW003	24/03/2020	Field_D	EB2008693	MW00343914EB2008693	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW003	21/10/2020	Normal	EB2027835	MW00344125EB2027835	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW003	13/04/2021	Normal	EB2110958	MW00344299EB2110958	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW003	14/10/2021	Normal	EB2129563	MW00344483EB2129563	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW003	13/04/2022	Normal	EB2211323	MW00344664EB2211323	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW003	2/11/2022	Normal	EB2232882	MW00344867.68125EB2232882	<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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW004	27/05/2014	Normal	EB1412900	MW00441786EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW004	16/04/2019	Normal	EB1910265	MW00443571EB1910265	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW004	16/04/2019	Field_D	EB1910265	MW00443571EB1910265	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW004	16/04/2019	Interlab_D	RN1231107	MW00443571RN1231107	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	-
MW005	27/05/2014	Normal	EB1412900	MW00541786EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW005	12/10/2015	Normal	EB1531260	MW00542289EB1531260	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW005	12/10/2015	Field_D	EB1531260	MW00542289EB1531260	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW005	12/10/2015	Interlab_D	475642	MW00542289475642	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.01	-	-
MW006	27/05/2014	Normal	EB1412900	MW00641786EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW006	4/02/2016	Normal	EB1603065	MW00642404EB1603065	-	-	-	-	0.05	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW006	10/03/2017	Normal	EB1704807	MW00642804EB1704807	-	-	0.14	-	0.12	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	0.26	-
MW006	16/04/2019	Normal	EB1910263	MW00643571EB1910263	<0.02	<0.02	0.12	<0.02	0.1	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.22	0.22
MW007	27/05/2014	Normal	EB1412900	MW00741786EB1412900	-	-	-	-	1.44	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW007	26/05/2016	Normal	EB1614023	MW00742516EB1614023	-	-	-	-	0.46	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-
MW008	27/05/2014	Normal	EB1412900	MW00841786EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW009	26/05/2014	Normal	EB1412900	MW00941785EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW009	8/02/2016	Normal	EB1603686	MW00942408EB1603686	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW009	29/03/2017	Normal	EB1706413	MW00942823EB1706413	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	<0.02	-
MW010	6/05/2014	Normal	EB1413760	MW01041796EB1413760	-	-	-	-	2.25	-	-	-	-	-	0.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW010	2/02/2016	Normal	EB1603065	MW01042402EB1603065	0.43	-	2.79	-	3.07	<0.02	-	-	0.65	0.19	0.35	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	5.86	-
MW010	30/03/2016	Normal	EB1608593	MW01042459EB1608593	-	-	-	-	1.14	-	-	-	-	-	0.81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW010	3/05/2017	Field_D	EB1709203	MW01042858EB1709203	0.67	0.72	3.37	0.27	4.91	<0.02	<0.1	0.14	0.65	0.28	0.57	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	8.28	11.58
MW010	3/05/2017	Normal	EB1709203	MW01042858EB1709203	0.61	0.66	3.04	0.24	4.55	<0.02	<0.1	0.14	0.58	0.25	0.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	7.59	10.6
MW010	3/05/2017	Interlab_D	AECO06/170508	MW01042858AECO06/170508	0.4	-	2.3	-	3	<0.02	0.19	0.13	0.54	0.14	0.3	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	-
MW011	6/06/2014	Normal	EB1413760	MW01141796EB1413760	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW011	12/10/2015	Normal	EB1531260	MW01142289EB1531260	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW011	10/01/2017	Normal	EB1700645	MW01142745EB1700645	-	-	0.03	-	0.06	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.09	-
MW011	17/03/2017	Normal	EB1705316	MW01142811EB1705316	-	-	0.03	-	0.02	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.05	-
MW011	26/05/2017	Normal	EB1710855	MW01142881EB1710855	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.05	0.05
MW011	19/10/2017	Normal	EB1721721	MW01143027EB1721721	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW012	13/08/2014	Normal	ES1418075	MW01241864ES1418075	-	-	-	-	0.05	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW012	19/10/2016	Normal	EB1625209	MW01242662EB1625209	-	-	0.21	-	0.07	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.28	-
MW012	19/10/2017	Normal	EB1721728	MW01243027EB1721728	0.03	0.03	0.22	<0.02	0.07	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.29	0.4
MW013	13/08/2014	Normal	ES1418075	MW01341864ES1418075	-	-	-	-	0.06	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW013	16/03/2016	Normal	EB1607658	MW01342445EB1607658	-	-	-	-	0.05	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW013	6/04/2017	Field_D	EB1707193	MW01342831EB1707193	-	-	0.1	-	0.02	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.12	-
MW013	6/04/2017	Normal	EB1707193	MW01342831EB1707193	-	-	0.08	-	0.02	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.1	-
MW013	20/04/2017	Interlab_D	AECO06_170410	MW01342845AECO06_170410	-	-	0.29	-	0.13	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.42	-
MW014	13/08/2014	Interlab_D	428995	MW01441864428995	-	-	-	-	0.61	-	-	-	-	-	0.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-
MW014	13/08/2014	Normal	ES1418075	MW01441864ES1418075	-	-	-	-	2.7	-	-	-	-	-	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW014	13/08/2014	Field_D	ES1418075	MW01441864ES1418075	-	-	-	-	2.28	-	-	-	-	-	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW014	5/02/2016	Normal	EB1603065	MW01442405EB1603065	0.98	-	7.07	-	2.3	<0.02	-	-	1.5	0.18	0.16	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	9.37	-
MW014	4/04/2017	Normal	EB1707189	MW01442829EB1707189	0.78	0.8	5.36	0.22	2.35	<0.02	<0.1	0.22	1.22	0.12	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	7.71	11.3
MW015	13/08/2014	Normal	ES1418075	MW01541864ES1418075	-	-	-	-	1.02	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW015	9/02/2016	Normal	EB1603686	MW01542409EB1603686	-	-	-	-	0.92	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW015	21/03/2017	Normal	EB1705928	MW01542815EB1705928	0.1	0.09	0.92	0.06	1.28	<0.02	<0.1	<0.02	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	2.2	2.6
MW016	13/08/2014	Normal	ES1418075	MW01641864ES1418075	-	-	-	-	1.44	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW016	16/03/2016	Normal	EB1607656	MW01642445EB1607656	-	-	-	-	1.8	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW016	27/04/2017	Interlab_D	AECO06_170502	MW01642852AECO06_170502	0.32	-	2.3	-	2.6	<0.02	0.11	0.087	0.41	0.066	0.15	<0.01	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	4.9	-
MW016	27/04/2017	Normal	EB1708638	MW01642852EB1708638	0.54	0.38	4.45	0.2	3.46	<0.02	<0.1	0.03	0.05	<0.02	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	7.91	9.21
MW016	27/04/2017	Field_D	EB1708638	MW01642852EB1708638	0.51	0.36	4.22	0.18	2.99	<0.02	<0.1	0.02	0.05	<0.02	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	7.21	8.43
MW017	13/08/2014	Normal	ES1418075	MW01741864ES1418075	-	-	-	-	3.13	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW017	10/02/2016	Normal	EB1603686	MW01742410EB1603686	0.42	-	3.38	-	4.89	<0.02	-	-	0.61	0.07	0.15	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	8.27	-
MW017	17/03/2016	Normal	EB1614432	MW01742446EB1614432	0.26	0.28	1.74	0.29	4.85	<0.02	<0.1	0.09	0.28	0.07	0.1	<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	<0.05	<0.05	6.59	7.96
MW017	25/08/2017	Normal	EB1717510	MW01742972EB1717510	0.25	0.23	2.19	0.26	3.96	<0.02	<0.1	0.05	0.27	0.04	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	6.15	7.37
MW017	25/02/2020	Normal	EB2005413	MW01743886EB2005413	0.26	0.28	2.35	0.24	4.91	<0.02	<0.1	0.07	0.41	0.07	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	7.26	8.73
MW017	25/02/2020	Field_D	EB2005413	MW01743886EB2005413	0.25	0.23	2.11	0.28	4.76	<0.02	<0.1	0.06	0.34	0.06	0.13	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	6.87	8.22
MW017	25/02/2020	Interlab_D	RN1266062	MW01743886RN1266062	0.23	0.21	1.9	0.16	3.8	<0.01	0.052	0.06	0.29	0.047	0.11	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW018	13/08/2014	Normal	ES1418075	MW01841864ES1418075	-	-	-	-	17.5	-	-	-	-	-	0.63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW018	26/09/2014	Normal	EB1443316	MW01841908EB1443316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW018	26/09/2014	Field_D	EB1443316	MW01841908EB1443316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW018	26/09/2014	Interlab_D	433638	MW01841908433638	-	-	-	-	31	-	-	-	-	-	0.89	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	<0.01	-	-	-
MW018	8/02/2016	Normal	EB1603686	MW01842408EB1603686	1.3	-	9.22	-	21.4	<0.02	-	-	2.41	0.29	0.76	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	30.62	-
MW018	21/04/2022	Normal	EB2211317	MW01844672EB2211317	0.83	0.98	6.19	0.67	17.9	<0.02	0.2	0.28	1.46	0.24	0.73	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	24.1	29.5
MW019	13/08/2014	Normal	ES1418075	MW01941864ES1418075	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW019	4/02/2016	Normal	EB1603065	MW01942404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW019	21/09/2016	Normal	EB1623093	MW01942634EB1623093	-	-	0.05	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.05	-
MW019	17/10/2017	Normal	EB1721736	MW01943025EB1721736	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.08	0.08
MW019	22/11/2018	Interlab_D	AECO06_181128	MW01943426AECO06_181128_1	<0.01	<0.01	0.043	<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	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW019	22/11/2018	Normal	EB1828779	MW01943426EB1828779	<0.02	<0.02	0.06	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.06	0.06
MW019	22/11/2018	Field_D	EB1828779	MW01943426EB1828779	<0.02	<0.02	0.05	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.06	0.06
MW019	17/04/2019	Interlab_D	RN1231109	MW01943572RN1231109	<0.01	<0.01	0.03	<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	<0.02	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW019	17/04/2019	Normal	EB1910283	MW01943572EB1910283	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.03	0.03
MW019	17/04/2019	Field_D	EB1910283	MW01943572EB1910283	<0.02	<0.02	0.03	<0.02	<0.01	<0.02

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW019	12/04/2022	Normal	EB2211288	MW01944663EB2211288	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.08
MW019	27/10/2022	Normal	EB2232883	MW01944861.6819444444EB2232883	<0.02	<0.02	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	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.13	0.13
MW020	13/08/2014	Normal	ES1418075	MW02041864ES1418075	-	-	-	-	7.56	-	-	-	-	-	1.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW020	16/03/2016	Normal	EB1607660	MW02042445EB1607660	2.83	-	33	-	39.2	<0.02	-	-	5.33	0.51	1.66	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	72.2	-
MW020	20/09/2016	Normal	EB1623085	MW02042633EB1623085	4.84	3.93	30.1	1.83	39.8	<0.02	<0.1	1.04	6.86	1.14	2.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	69.9	91.6
MW020	18/10/2017	Normal	EB1721734	MW02043026EB1721734	2.7	2.61	17.5	1.32	7.91	<0.02	0.4	1.19	5.63	0.88	1.68	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	25.4	41.8
MW020	17/04/2018	Field_D	EB1809896	MW02043207EB1809896	2.02	1.97	15.5	1.05	22.2	<0.02	0.6	0.78	3.72	0.66	1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	37.7	49.5
MW020	17/04/2018	Normal	EB1809896	MW02043207EB1809896	1.96	2.01	15.4	1.06	21.5	<0.02	0.6	0.78	3.76	0.64	1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	36.9	48.7
MW020	17/04/2018	Interlab_D	AECO06_180424	MW02043207AECO06_180424	1.4	1.3	12	0.74	15	<0.01	0.48	0.58	2.7	0.43	0.79	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.05	<0.05	<0.01	0.017	<0.01	<0.01	-	-
MW020	8/05/2019	Normal	EB1911734	MW02043593EB1911734	1.95	1.99	19.3	0.98	28.1	<0.02	0.5	0.79	4.14	0.6	1.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	47.4	59.5
MW020	27/03/2020	Normal	EB2009338	MW02043917EB2009338	2.62	2.24	20	1.54	14.9	<0.02	0.9	1.09	4.38	0.96	1.54	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	34.9	50.2
MW021	13/08/2014	Normal	ES1418075	MW02141864ES1418075	-	-	-	-	2.47	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW021	5/02/2016	Normal	EB1603065	MW02142405EB1603065	0.25	-	2	-	3.56	<0.02	-	-	0.31	0.07	0.1	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	5.56	-
MW021	21/03/2017	Normal	EB1705927	MW02142815EB1705927	0.28	0.23	2.03	0.23	4.19	<0.02	<0.1	<0.02	0.27	0.04	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	6.22	7.37
MW021	18/04/2018	Normal	EB1809893	MW02143208EB1809893	0.2	0.17	1.46	0.16	3.22	<0.02	<0.1	0.05	0.24	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	4.68	5.62
MW021	18/10/2018	Interlab_D	AECO06_181024	MW02143391AECO06_181024	0.16	0.15	1.4	0.12	3.8	<0.01	<0.05	0.046	0.22	0.034	0.08	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW021	18/10/2018	Field_D	EB1826392	MW02143391EB1826392	0.16	0.12	1.32	0.14	2.58	<0.02	<0.1	0.04	0.22	0.03	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	3.9	4.69
MW021	18/10/2018	Normal	EB1826392	MW02143391EB1826392	0.18	0.15	1.26	0.14	2.46	<0.02	<0.1	0.04	0.19	0.03	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	3.72	4.53
MW021	10/04/2019	Normal	EB1909634	MW02143565EB1909634	0.16	0.18	1.58	0.17	2.91	<0.02	<0.1	0.04	0.24	0.04	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	4.49	5.41
MW021	27/03/2020	Normal	EB2009334	MW02143917EB2009334	0.21	0.24	1.87	0.25	4.44	<0.02	<0.1	0.06	0.27	0.06	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	6.31	7.51
MW021	19/04/2021	Normal	EB2110949	MW02144305EB2110949	0.18	0.23	1.62	0.27	4.48	<0.02	<0.1	0.06	0.28	0.05	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	6.1	7.29
MW021	12/04/2022	Normal	EB2211290	MW02144663EB2211290	0.23	0.24	1.91	0.27	4.42	<0.02	<0.1	0.05	0.29	0.05	0.13	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	6.33	7.59
MW022	13/08/2014	Normal	ES1418075	MW02241864ES1418075	-	-	-	-	0.48	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW022	14/07/2016	Interlab_D	508124	MW02242565508124	-	-	0.34	-	0.97	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.01	-	1.31	-
MW022	14/07/2016	Normal	EB1618080	MW02242565EB1618080	-	-	0.27	-	0.61	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	0.88	-
MW022	14/07/2016	Field_D	EB1618080	MW02242565EB1618080	-	-	0.21	-	0.56	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	0.77	-
MW022	20/10/2016	Normal	EB1625194	MW02242663EB1625194	-	-	0.46	-	0.92	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	1.38	-
MW022	2/04/2020	Normal	EB2009346	MW02243923EB2009346	0.03	0.04	0.31	0.04	0.7	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	1.01	1.18
MW022	22/10/2020	Normal	EB2027828	MW02244126EB2027828	0.03	0.03	0.24	0.03	0.6	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	0.84	0.99
MW022	28/04/2021	Normal	EB2111757	MW02244314EB2111757	0.02	0.02	0.18	<0.02	0.37	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	0.55	0.63
MW022	12/04/2022	Normal	EB2211303	MW02244663EB2211303	0.02	0.03	0.29	0.03	0.53	<0.02	<0.1	<0.02	0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	0.82	0.95
MW023	13/08/2014	Normal	ES1418075	MW02341864ES1418075	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW023	4/02/2016	Normal	EB1603065	MW02342404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW023	21/03/2017	Normal	EB1705929	MW02342815EB1705929	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW023	12/04/2019	Normal	EB1909697	MW02343567EB1909697	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW024	27/08/2014	Normal	EB1441408	MW02441878EB1441408	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW024	18/10/2018	Normal	EB1826391	MW02443391EB1826391	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW025	27/08/2014	Normal	EB1441408	MW02541878EB1441408	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW026	27/08/2014	Normal	EB1441408	MW02641878EB1441408	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW027	27/08/2014	Normal	EB1441408	MW02741878EB1441408	-	-	-	-	8.23	-	-	-	-	-	0.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW027	30/03/2016	Normal	EB1608596	MW02742459EB1608596	0.94	-	5.64	-	5.53	<0.02	-	-	0.47	0.08	0.75	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	11.17	-
MW027	2/05/2017	Normal	EB1709201	MW02742857EB1709201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.4	-
MW027	2/05/2017	Field_D	EB1709201	MW02742857EB1709201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.54	-
MW027	2/05/2017	Normal	EB1709201	MW02742857EB1709201	0.91	1.13	7.27	0.67	17.1	<0.02	0.2	0.23	1.23	0.29	0.62	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	24.37	29.6
MW027	2/05/2017	Field_D	EB1709201	MW02742857EB1709201	0.82	1.05	6.54	0.57	17	<0.02	0.2	0.2	1.09	0.26	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	23.5	28.28
MW027	2/05/2017	Interlab_D	AECO06/170508	MW02742857AECO06/170508	0.68	-	6.6	-	10	<0.02	0.25	0.26	0.43	0.17	0.43	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	-	-	-	-
MW027	18/04/2018	Normal	EB1809894	MW02743208EB1809894	0.85	0.89	6.87	0.55	15.4	<0.02	0.3	0.28	1.35	0.23	0.46	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	22.3	27.2
MW027	18/04/2019	Normal	EB1910276	MW02743573EB1910276	0.65	0.81	5.92	0.49	9.79	<0.02	<0.1	0.22	1.16	0.18	0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	15.7	19.6
MW028	27/08/2014	Normal	EB1441408	MW02841878EB1441408	-	-	-	-	2.27	-	-	-	-	-	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW028	30/03/2016	Normal	EB1608596	MW02842459EB1608596	0.42	-	2.32	-	2.53	<0.02	-	-	0.15	0.03	0.4	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	4.85	-
MW028	2/05/2017	Normal	EB1709201	MW02842857EB1709201	0.39	0.5	3	0.22	4.12	<0.02	<0.1	0.08	0.42	0.1	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	7.12	9.04
MW029	27/08/2014	Normal	EB1441408	MW02941878EB1441408	-	-	-	-	0.04	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW029	26/05/2016	Normal	EB1614024	MW02942516EB1614024	-	-	-	-	0.09	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW029	6/04/2017	Normal	EB1707194	MW02942831EB1707194	-	-	0.34	-	0.1	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.44	-
MW029	11/04/2019	Normal	EB1909706	MW02943566EB1909706	0.05	0.05	0.35	<0.02	0.13	<0.02	<0.1	<0.02	0.07	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	0.48	0.65
MW030	27/08/2014	Interlab_D	430575	MW03041878430575	-	-	-	-	1.3	-	-	-	-	-	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	-
MW030	27/08/2014	Normal	EB1441408	MW03041878EB1441408	-	-	-	-	2.2	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW030	27/08/2014	Field_D	EB1441408	MW03041878EB1441408	-	-	-	-	2.8	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW030	5/02/2016	Normal	EB1603065	MW03042405EB1603065	1.01	-	6.97	-	3.46	<0.02	-	-	1.5	0.22	0.25	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	10.43	-
MW030	5/02/2016	Interlab_D	488333	MW03042405488333	-	-	-	-	<0.04	-	-	-	-	-	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.04	-	-	-
MW030	5/02/2016	Field_D	EB1603065	MW03042405EB1603065	-	-	-	-	3.9	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW030	24/03/2017	Normal	EB1705977	MW03042818EB1705977	-	-	5.47	-	3.02	-	-	-	-	-	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	8.49	-
MW031	27/08/2014	Normal	EB1441408	MW03141878EB1441408	-	-	-	-	11.5	-	-	-	-	-	0.96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW031	27/05/2016	Normal	EB1614025	MW03142517EB1614025	-	-	-	-	13.5	-	-	-	-	-	0.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW031	28/04/2017	Field_D	EB1708621	MW03142853EB1708621	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.45	-
MW031	28/04/2017	Normal	EB1708621	MW03142853EB1708621	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.44	-
MW031	28/04/2017	Normal	EB1708621	MW03142853EB1708621	0.88	0.56	7.2	0.4	7.24	<0.02	<0.02	<0.1	0.1	0.16	0.03	0.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	14.4	16.9
MW031	28/04/2017	Field_D	EB1708621	MW03142853EB1708621	0.92	0.54	6.76	0.4	7.69	<0.02	<0.02	<0.1	0.11	0.15	0.04	0.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	14.4	16.93
MW031	28/04/2017	Interlab_D	AECO06_170502	MW03142853AECO06_170502	0.39	-	2.8	-	4.3	<0.02	0.13	0.12	0.62	0.093	0.23	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	7.1	-
MW031	8/05/2019	Normal	EB1911746	MW03143593EB1911746	0.31	0.28	2.11	0.15	4.67	<0.02	<0.1	0.09	0.51	0.07	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	6.78	8.36
MW031	26/03/2020	Normal	EB2008689	MW03143916EB2008689	0.43	0.41	2.77	0.22	6.69	<0.04	<0.2	0.33	0.6	0.11	0.23	<0.04	<0.04	<0.04	<0.04	<0.04	<0.09	<0.04	<0.09	<0.04	<0.09	<0.09	<0.04	<0.09	<0.05	<0.05	<0.05	9.46	11.8
MW032	27/08/2014	Normal	EB1441408	MW03241878EB1441408	-	-	-	-	3.75	-	-	-	-	-	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW032	5/02/2016	Normal	EB1603065	MW03242405EB1603065	0.36	-	2.65	-	6.73	<0.02	-	-	0.5	0.06	0.21	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	9.38	-
MW032	21/03/2017	Normal	EB1705931	MW03242815EB1705931	-	-	2.73	-	7.95	-	-	-	-	-	0.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	10.68	-
MW032	18/04/2019	Normal	EB1910273	MW03243573EB1910273	0.24	0.31	2.69	0.13	6.26	<0.02	<0.02	<0.1	0.07	0.34	0.06	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	8.95	10.3
MW032	30/03/2020	Normal	EB2009344	MW03243920EB2009344	0.27	0.3	2.49	0.21	5.93	0.04	0.1	0.07	0.33	0.07	0.18	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	8.42	10.0
MW032	19/04/2021	Normal	EB2110956	MW03244305EB2110956	0.22	0.29	1.85	0.14	5.33	<0.02	<0.1	0.07	0.28	0.05	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	7.18	8.37
MW032	21/04/2022	Normal	EB2211324	MW03244672EB2211324	0.25	0.34	2.19	0.12	3.99	<0.03	<0.1	0.06	0.23	0.05	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	6.18	7.38
MW033	27/08/2014	Normal	EB1441408	MW03341878EB1441408	-	-	-	-	1.17	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW033	5/02/2016	Normal	EB1603065	MW03342405EB1603065	-	-	-	-	1.22	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW033	24/03/2017	Normal	EB1705982	MW03342818EB1705982	-	-	1.8	-	0.83	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	2.63	-
MW034	27/08/2014	Normal	EB1441408	MW03441878EB1441408	-	-	-	-	11.2	-	-	-	-	-	0.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW034	8/02/2016	Normal	EB1603686	MW03442408EB1603686	0.94	-	7	-	16.7	<0.02	-	-	1.66	0.18	0.54	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	23.7	-
MW034	8/02/2016	Field_D	EB1603686	MW03442408EB1603686	-	-	-	-	16.3	-	-	-	-	-	0.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW034	8/02/2016	Interlab_D	489126	MW03442408489126	-	-	-	-	1.3	-	-	-	-	-	0.46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.04	-	-	-
MW034	21/03/2017	Normal	EB1705930	MW03442815EB1705930	-	-	4.91	-	21.4	-	-	-	-	-	0.42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	26.31	-
MW034	25/04/2018	Normal	EB1810802	MW03443215EB1810802	0.36	0.35	2.71	0.21	17.3	<0.02	0.2	0.13	0.55	0.11	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	20	22.2
MW034	8/05/2019	Normal	EB1911743	MW03443593EB1911743	0.29	0.26	2.53	0.15	12	<0.02	<0.1	0.1	0.48	0.08	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	14.5	16.1
MW035	27/08/2014	Normal	EB1441408	MW03541878EB1441408	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW036	26/09/2014	Interlab_D	433638	MW03641908433638	-	-	-	-	4.1	-	-	-	-	-

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW038	18/10/2017	Normal	EB1721735	MW03843026EB1721735	0.04	0.06	0.34	0.03	0.77	<0.02	<0.1	<0.02	0.07	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.11	1.35
MW038	19/10/2018	Normal	EB1826393	MW03843392EB1826393	0.04	0.03	0.24	<0.02	0.39	<0.02	<0.1	<0.02	0.04	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.63	0.77
MW038	16/04/2019	Normal	EB1910260	MW03843571EB1910260	0.03	0.03	0.21	<0.02	0.42	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.63	0.75
MW038	24/10/2019	Normal	EB1928474	MW03843762EB1928474	0.03	0.03	0.17	<0.02	0.28	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.45	0.57
MW038	26/03/2020	Normal	EB2008687	MW03843916EB2008687	0.04	0.04	0.26	0.03	0.59	<0.02	<0.1	<0.02	0.06	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.85	1.05
MW038	21/10/2020	Normal	EB2027843	MW03844125EB2027843	0.03	0.03	0.18	<0.02	0.38	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.56	0.68
MW038	15/04/2021	Normal	EB2110944	MW03844301EB2110944	0.04	0.04	0.22	0.02	0.5	<0.02	<0.1	<0.02	0.06	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.72	0.91
MW038	15/10/2021	Normal	EB2129551	MW03844484EB2129551	0.05	0.05	0.32	0.03	0.62	<0.02	<0.1	<0.02	0.08	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.94	1.19
MW038	3/11/2022	Normal	EB2232888	MW03844868.6847222222EB2232888	0.06	0.05	0.31	0.03	0.62	<0.02	<0.1	<0.02	0.07	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.93	1.18
MW039	29/10/2014	Normal	EB1445390	MW03941941EB1445390	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW039	5/02/2016	Normal	EB1603065	MW03942405EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW040	29/10/2014	Normal	EB1445390	MW04041941EB1445390	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW040	19/10/2016	Normal	EB1625191	MW04042662EB1625191	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW040	18/10/2017	Normal	EB1721729	MW04043026EB1721729	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW041	29/10/2014	Normal	EB1445390	MW04141941EB1445390	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW041	5/02/2016	Normal	EB1603065	MW04142405EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW041	3/05/2017	Normal	EB1709216	MW04142858EB1709216	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW042	29/10/2014	Normal	EB1445390	MW04241941EB1445390	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW042	5/02/2016	Normal	EB1603065	MW04242405EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW043	29/10/2014	Normal	EB1445390	MW04341941EB1445390	-	-	-	-	14.2	-	-	-	-	-	0.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW043	8/02/2016	Field_D	EB1603686	MW04342408EB1603686	-	-	-	-	11.2	-	-	-	-	-	0.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW043	8/02/2016	Interlab_D	489126	MW04342408489126	-	-	-	-	0.5	-	-	-	-	-	0.42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.04	-	-	-
MW043	8/02/2016	Normal	EB1603686	MW04342408EB1603686	1.08	-	7.57	-	10.7	<0.02	-	-	1.78	0.19	0.42	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	-	<0.1	<0.1	-	18.27	-
MW044	16/12/2014	Normal	ES1428296	MW04441989ES1428296	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW044	16/12/2014	Field_D	ES1428296	MW04441989ES1428296	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW044	16/12/2014	Interlab_D	443042	MW04441989443042	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	<0.01	-	-	-
MW044	10/02/2016	Normal	EB1603686	MW04442410EB1603686	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW045	17/11/2014	Normal	EB1446505	MW04541960EB1446505	-	-	-	-	0.08	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW045	8/02/2016	Normal	EB1603686	MW04542408EB1603686	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW045	23/05/2019	Normal	EB1913220	MW04543608EB1913220	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW046	18/11/2014	Interlab_D	439475	MW04641961439475	-	-	-	-	3	-	-	-	-	-	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	-
MW046	18/11/2014	Field_D	EB1446505	MW04641961EB1446505	-	-	-	-	2.15	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW046	18/11/2014	Normal	EB1446505	MW04641961EB1446505	-	-	-	-	2.96	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW046	14/07/2016	Normal	EB1618083	MW04642565EB1618083	-	-	3.21	-	1.47	-	-	-	-	-	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	4.68	-
MW046	12/07/2017	Interlab_D	AECO06/170719	MW04642928AECO06/170719/1	0.45	-	3.2	-	1.6	<0.02	0.13	0.17	0.78	0.082	0.11	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW046	12/07/2017	Field_D	EB1714320	MW04642928EB1714320	0.51	0.43	3.51	0.12	1.84	<0.02	<0.1	0.14	0.67	0.08	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	5.35	7.41
MW046	12/07/2017	Normal	EB1714320	MW04642928EB1714320	0.48	0.41	3.21	0.12	1.93	<0.02	<0.1	0.13	0.65	0.07	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	5.14	7.1
MW047	18/11/2014	Normal	EB1446505	MW04741961EB1446505	-	-	-	-	5.69	-	-	-	-	-	0.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW047	17/03/2016	Normal	EB1614434	MW04742446EB1614434	1.83	1.96	9.43	0.8	6.55	<0.02	<0.1	0.7	2.34	0.42	0.54	<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	<0.05	<0.05	<0.05	15.98	24.6
MW047	21/03/2017	Normal	EB1705926	MW04742815EB1705926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.8	-
MW047	21/03/2017	Normal	EB1705926	MW04742815EB1705926	1.37	1.68	8.69	0.66	12.1	<0.02	<0.1	0.44	2.48	0.35	0.87	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	20.79	28.6
MW047	26/04/2017	Normal	EB1708644	MW04742851EB1708644	1.69	1.35	12.1	0.52	10.2	<0.02	<0.1	0.18	0.54	0.04	0.45	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	22.3	27.1
MW047	12/07/2017	Normal	EB1714312	MW04742928EB1714312	1.45	1.42	8.21	0.54	13.4	<0.02	0.2	0.33	1.93	0.38	0.74	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	21.6	28.6
MW047	22/11/2018	Normal	EB1828776	MW04743426EB1828776	0.69	0.66	4.76	0.24	6.4	<0.02	0.2	0.26	1.25	0.17	0.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	11.2	15.0
MW048	18/11/2014	Normal	EB1446505	MW04841961EB1446505	-	-	-	-	0.25	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW048	9/02/2016	Normal	EB1603686	MW04842409EB1603686	-	-	-	-	0.32	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW048	29/03/2017	Normal	EB1706404	MW04842823EB1706404	-	-	0.62	-	0.31	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.93	-
MW049	18/11/2014	Normal	EB1446505	MW04941961EB1446505	-	-	-	-	12.4	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW049	26/05/2016	Interlab_D	503339	MW04942516503339	-	-	-	-	1.1	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.01	-	-	-
MW049	26/05/2016	Normal	EB1614016	MW04942516EB1614016	-	-	-	-	8.79	-	-	-	-	-	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW049	26/05/2016	Field_D	EB1614016	MW04942516EB1614016	-	-	-	-	8.97	-	-	-	-	-	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW050	16/12/2014	Normal	ES1428296	MW05041989ES1428296	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW050	4/02/2016	Normal	EB1603065	MW05042404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW050	22/03/2017	Normal	EB1705925	MW05042816EB1705925	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW051	16/12/2014	Normal	ES1428296	MW05141989ES1428296	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW051	4/02/2016	Normal	EB1603065	MW05142404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW051	29/03/2017	Normal	EB1706409	MW05142823EB1706409	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW052	16/12/2014	Normal	ES1428296	MW05241989ES1428296	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW052	2/02/2016	Normal	EB1603065	MW05242402EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW053	28/01/2015	Normal	EB1511608	MW05342032EB1511608	-	-	-	-	0.12	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW053	8/02/2016	Interlab_D	489126	MW05342408489126	-	-	-	-	<0.04	-	-	-	-	-	<0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.04	-	-	-
MW053	8/02/2016	Normal	EB1603686	MW05342408EB1603686	-	-	-	-	0.27	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW053	8/02/2016	Field_D	EB1603686	MW05342408EB1603686	-	-	-	-	0.29	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW053	22/03/2017	Normal	EB1705923	MW05342816EB1705923	0.18	0.15	1.17	0.04	0.47	<0.02	<0.1	<0.02	0.12	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.64	2.2
MW054	28/01/2015	Normal	EB1511608	MW05442032EB1511608	-	-	-	-	0.09	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW054	9/02/2016	Normal	EB1603686	MW05442409EB1603686	-	-	-	-	0.13	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW054	22/03/2017	Normal	EB1705922	MW05442816EB1705922	-	-	0.17	-	0.16	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.33	-
MW055	28/01/2015	Field_D	EB1511608	MW05542032EB1511608	-	-	-	-	1.61	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW055	28/01/2015	Interlab_D	446050	MW05542032446050	0.27	-	1.6	-	0.46	-	-	-	-	0.31	0.04	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	-	-	-	-	-	-	-	<0.05	<0.01	-	2.06	-
MW055	28/01/2015	Normal	EB1511608	MW05542032EB1511608	-	-	-	-	0.98	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW056	6/02/2015	Normal	EB1512362	MW05642041EB1512362	-	-	-	-	0.15	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW056	6/02/2015	Field_D	EB1512362	MW05642041EB1512362	-	-	-	-	0.18	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW056	6/02/2015	Interlab_D	446799	MW05642041446799	-	-	-	-	0.03	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.01	-	-	-
MW056	26/05/2016	Normal	EB1614021	MW05642516EB1614021	-	-	-	-	0.07	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW056	25/08/2017	Normal	EB1717512	MW05642972EB1717512	0.04	0.03	0.34	<0.02	0.08	<0.02	<0.1	0.03	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.42	0.57
MW056	17/10/2018	Normal	EB1826394	MW05643390EB1826394	0.04	0.02	0.28	<0.02	0.06	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.34	0.45
MW056	9/04/2019	Normal	EB1909645	MW05643564EB1909645	0.04	0.03	0.4	<0.02	0.07	<0.02	<0.1	0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.47	0.63
MW056	23/10/2020	Normal	EB2027826	MW05644127EB2027826	0.03	0.03	0.25	<0.02	0.06	<0.02	<0.1	0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.31	0.45
MW056	13/04/2021	Normal	EB2110940	MW05644299EB2110940	0.05	0.04	0.33	<0.02	0.12	<0.02	<0.1	0.03	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.45	0.66
MW056	14/10/2021	Normal	EB2129558	MW05644483EB2129558	0.05	0.03	0.32	<0.02	0.11	<0.02	<0.1	0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.43	0.62
MW056	12/04/2022	Normal	EB2211274	MW05644663EB2211274	0.07	0.04	0.2	<0.02	0.07	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	0.41
MW056	27/10/2022	Normal	EB2232879	MW05644861.6784722222EB2232879	0.05	0.04	0.33	<0.02	0.09	<0.02	<0.1	0.03	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.42	0.61
MW057	6/02/2015	Normal	EB1512362	MW05742041EB1512362	-	-	-	-	0.14	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW057	9/02/2016	Normal	EB1603686	MW05742409EB1603686	-	-	-	-	0.1	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW057	22/03/2017	Normal	EB1705921	MW05742816EB1705921	-	-	0.42	-	0.08	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.5	-
MW058	6/02/2015	Normal	EB1512362	MW05842041EB1512362	-	-	-	-	0.1	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW058	5/02/2016	Normal	EB1603065	MW05842405EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW058	24/03/2017	Normal	EB1705989	MW05842818EB1705989	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW059	1/07/2015	Normal	EB1522109	MW05942186EB1522109	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW059	13/07/2016	Normal	EB1618079	MW05942564EB1618079	-	-	0.26	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	0.26	-
MW059	12/07/2017	Normal	EB1714300	MW05942928EB1714300	0.15	0.16	0.37	<0.02	<0.01	<0.02	<0.1	<0.02	0.06	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.37	0.74
MW060	1/07/2015	Normal	EB1522109	MW06042186EB1522109	-	-	-	-	1.29	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW060	14/07/2016	Normal	EB1618082	MW06042565EB1618082	-	-	0.87	-	1.45	-	-	-	-	-	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	2.32	-
MW061	27/08/2015	Normal	EB1527391	MW06142243EB1527391	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW061	27/08/2015	Field_D	EB1527391	MW06142243EB1527391	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW061	27/08/2015	Interlab_D	470480	MW06142243470480	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.01	-	-	-
MW061	13/07/2016	Normal	EB1618077	MW06142564EB1618077	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.02	-
MW061	19/10/2017	Normal	EB1721732	MW06143027EB1721732	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW062	29/09/2015	Normal	EB1530552	MW06242276EB1

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW063	10/01/2017	Normal	EB1700645	MW06342745EB1700645	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW063	17/03/2017	Normal	EB1705316	MW06342811EB1705316	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW063	26/05/2017	Normal	EB1710855	MW06342881EB1710855	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW063	19/10/2017	Normal	EB1721721	MW06343027EB1721721	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW064	12/10/2015	Normal	EB1531260	MW06442289EB1531260	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW064	10/01/2017	Normal	EB1700645	MW06442745EB1700645	-	-	<0.02	-	0.02	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	-
MW064	17/03/2017	Normal	EB1705316	MW06442811EB1705316	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW064	26/05/2017	Normal	EB1710855	MW06442881EB1710855	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW064	19/10/2017	Normal	EB1721721	MW06443027EB1721721	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW065	12/10/2015	Normal	EB1531260	MW06542289EB1531260	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW066	1/02/2016	Interlab_D	488341	MW06642401488341	-	-	-	-	<0.04	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW066	1/02/2016	Normal	EB1602999	MW06642401EB1602999	-	-	-	-	0.17	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW066	1/02/2016	Field_D	EB1602999	MW06642401EB1602999	-	-	-	-	0.18	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW066	23/03/2017	Normal	EB1705995	MW06642817EB1705995	-	-	1.07	-	0.29	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.36	-
MW067	1/02/2016	Normal	EB1602999	MW06742401EB1602999	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW068	16/03/2016	Normal	EB1607661	MW06842445EB1607661	-	-	-	-	0.08	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW068	7/04/2017	Normal	EB1707207	MW06842832EB1707207	<0.02	<0.02	0.12	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.23	0.25
MW069	16/03/2016	Normal	EB1607655	MW06942445EB1607655	-	-	-	-	0.63	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW069	28/04/2017	Normal	EB1708636	MW06942853EB1708636	0.76	0.48	5.33	0.17	0.68	<0.02	<0.1	0.08	0.07	<0.02	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	6.01	7.67
MW070	16/03/2016	Normal	EB1607667	MW07042445EB1607667	-	-	-	-	0.25	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW070	16/03/2016	Field_D	EB1607667	MW07042445EB1607667	-	-	-	-	0.24	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW070	16/03/2016	Interlab_D	494201	MW07042445494201	-	-	-	-	0.46	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW070	4/04/2017	Normal	EB1707190	MW07042829EB1707190	-	-	0.54	-	0.35	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.89	-
MW070	4/04/2017	Field_D	EB1707190	MW07042829EB1707190	-	-	0.55	-	0.34	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.89	-
MW070	20/04/2017	Interlab_D	AECO06_170410	MW07042845AECO06_170410	-	-	0.44	-	0.36	-	-	-	-	-	0.033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	-
MW071	29/03/2016	Normal	EB1608597	MW07142458EB1608597	-	-	-	-	0.96	-	-	-	-	-	0.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW071	29/03/2016	Interlab_D	495209	MW07142458495209	-	-	-	-	0.49	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW071	29/03/2016	Field_D	EB1608597	MW07142458EB1608597	-	-	-	-	1.11	-	-	-	-	-	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW071	3/05/2017	Normal	EB1709206	MW07142858EB1709206	0.34	0.28	1.26	0.1	1.58	<0.02	<0.1	<0.02	0.03	0.03	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	2.84	3.76
MW072	12/04/2016	Normal	EB1609872	MW07242472EB1609872	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW073	26/05/2016	Normal	EB1614013	MW07342516EB1614013	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW074	26/05/2016	Normal	EB1614010	MW07442516EB1614010	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW075	26/05/2016	Normal	EB1614011	MW07542516EB1614011	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW076	26/05/2016	Normal	EB1614009	MW07642516EB1614009	-	-	-	-	0.73	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW077	13/07/2016	Normal	EB1618091	MW07742564EB1618091	-	-	4.36	-	5.63	-	-	-	-	-	0.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.99	-
MW077	12/07/2017	Normal	EB1714309	MW07742928EB1714309	0.62	0.54	4.54	0.21	8.18	<0.02	0.3	0.14	0.79	0.16	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	12.7	15.8
MW078	13/07/2016	Normal	EB1618084	MW07842564EB1618084	-	-	0.82	-	1.08	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-
MW079	13/07/2016	Normal	EB1618085	MW07942564EB1618085	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW079	11/07/2017	Normal	EB1714329	MW07942927EB1714329	<0.02	<0.02	0.04	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.04	0.04
MW080	19/09/2016	Interlab_D	516989	MW08042632516989	0.24	-	1.7	-	4	<0.01	<0.1	0.05	0.19	0.05	0.12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	-	-	<0.05	-	-	<0.01	<0.05	<0.01	-	5.7	-
MW080	19/09/2016	Field_D	EB1623092	MW08042632EB1623092	0.39	0.26	2.22	0.12	3.22	<0.02	<0.1	0.05	0.13	0.02	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	5.44	6.5
MW080	19/09/2016	Normal	EB1623092	MW08042632EB1623092	0.41	0.26	2.07	0.1	2.8	<0.02	<0.1	0.06	0.15	0.02	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	4.87	5.96
MW080	18/10/2017	Normal	EB1721743	MW08043026EB1721743	0.19	0.23	1.83	0.12	2.93	<0.02	<0.1	0.04	0.28	0.05	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	4.76	5.84
MW081	19/09/2016	Normal	EB1623082	MW08142632EB1623082	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW081	19/10/2017	Normal	EB1721725	MW08143027EB1721725	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW082	20/09/2016	Normal	EB1623087	MW08242633EB1623087	0.16	0.06	0.32	<0.02	0.42	<0.02	<0.1	<0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.74	1.06
MW083	20/09/2016	Normal	EB1623074	MW08342633EB1623074	0.36	0.33	2.55	0.12	3.14	<0.02	<0.1	<0.02	0.3	0.07	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	5.69	7.04
MW083	17/10/2017	Normal	EB1721746	MW08343025EB1721746	0.28	0.4	2.01	0.14	3.85	<0.02	<0.1	0.08	0.38	0.14	0.23	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	5.86	7.51
MW083	17/10/2017	Field_D	EB1721746	MW08343025EB1721746	0.2	0.27	1.54	0.1	2.83	<0.02	<0.1	0.05	0.26	0.09	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	4.37	5.51
MW083	19/10/2017	Interlab_D	AECO06_171025	MW08343027AECO06_171025_1	0.2	-	1.3	-	0.92	<0.02	0.068	0.07	0.35	0.045	0.069	<0.01	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW084	20/09/2016	Normal	EB1623089	MW08442633EB1623089	0.04	0.02	0.51	<0.02	0.41	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.92	1.01
MW084	18/10/2018	Normal	EB1826404	MW08443391EB1826404	0.06	0.04	0.34	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.46	0.59
MW084	11/04/2019	Interlab_D	RN1230420	MW08443566RN1230420	0.056	0.042	0.37	<0.01	0.13	<0.01	<0.05	<0.02	0.027	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW084	11/04/2019	Normal	EB1909700	MW08443566EB1909700	0.06	0.04	0.42	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.53	0.66
MW084	11/04/2019	Field_D	EB1909687	MW08443566EB1909687	0.06	0.03	0.41	<0.02	0.1	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.51	0.63
MW084	24/10/2019	Normal	EB1928477	MW08443762EB1928477	0.06	0.04	0.42	<0.02	0.13	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.55	0.70
MW084	26/03/2020	Normal	EB2008684	MW08443916EB2008684	0.09	0.08	0.75	<0.02	0.19	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.94	1.18
MW085	20/09/2016	Normal	EB1623091	MW08542633EB1623091	-	-	-	<0.02	-	<0.01	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW086	21/09/2016	Normal	EB1623077	MW08642634EB1623077	0.29	0.22	1.97	0.09	1.39	<0.02	<0.1	<0.02	0.25	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	3.36	4.32
MW086	17/10/2017	Normal	EB1721737	MW08643025EB1721737	0.12	0.14	1.33	0.09	1.33	<0.02	<0.1	<0.02	0.2	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	2.66	3.31
MW087	21/09/2016	Normal	EB1623076	MW08742634EB1623076	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW087	19/10/2017	Normal	EB1721724	MW08743027EB1721724	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW088	22/09/2016	Normal	EB1623094	MW08842635EB1623094	0.06	0.03	0.27	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.32	0.41
MW088	17/10/2017	Normal	EB1721742	MW08843025EB1721742	0.03	0.04	0.32	<0.02	0.07	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.39	0.51
MW089	20/10/2016	Normal	EB1625189	MW08942663EB1625189	-	-	0.45	-	0.75	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	-
MW089	18/10/2017	Normal	EB1721715	MW08943026EB1721715	0.07	0.09	0.73	0.07	1.54	<0.02	<0.1	<0.02	0.19	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	2.27	2.79
MW090	10/01/2017	Normal	EB1700652	MW09042745EB1700652	-	-	4.2	-	4.29	-	-	-	-	-	0.34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.49	-
MW090	19/10/2017	Field_D	EB1721744	MW09043027EB1721744	0.3	0.4	2.15	0.14	4.04	<0.02	<0.1	0.07	0.36	0.1	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	6.19	7.78
MW090	19/10/2017	Normal	EB1721744	MW09043027EB1721744	0.19	0.21	1.09	0.06	0.97	<0.02	<0.1	0.06	0.39	0.07	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	2.06	3.13
MW091	11/01/2017	Field_D	EB1700646	MW09142746EB1700646	-	-	1.71	-	7.88	-	-	-	-	-	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.59	-
MW091	11/01/2017	Normal	EB1700646	MW09142746EB1700646	-	-	1.56	-	6.62	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.18	-
MW091	11/01/2017	Interlab_D	530462	MW09142746530462	0.19	-	1.3	-	5.9	<0.01	0.09	0.07	0.47	0.05	0.18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	-	<0.05	-	-	-	<0.05	-	<0.01	<0.05	<0.01	7.2	-
MW091	18/10/2017	Normal	EB1721720	MW09143026EB1721720	0.19	0.2	1.38	0.16	3.48	<0.02	<0.1	0.06	0.33	0.05	0.13	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	4.86	5.98
MW091	19/04/2018	Normal	EB1809897	MW09143209EB1809897	0.3	0.26	2.1	0.21	5.5	<0.02	0.1	0.1	0.47	0.08	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	7.6	9.29
MW091	18/04/2019	Normal	EB1910274	MW09143573EB1910274	0.24	0.26	1.89	0.17	4.48	<0.02	<0.1	0.08	0.44	0.07	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	6.37	7.79
MW092	10/03/2017	Interlab_D	AECO06_170314	MW09242804AECO06_170314_2	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW092	10/03/2017	Normal	EB1704805	MW09242804B1704805	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW092	10/03/2017	Field_D	EB1704805	MW09242804B1704805	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW093	10/03/2017	Normal	EB1704806	MW09342804B1704806	-	-	0.04	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	-
MW094	21/03/2017	Interlab_D	AECO06_170328	MW09442815AECO06_170328_1	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW094	21/03/2017	Field_D	EB1705911	MW09442815EB1705911	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW094	21/03/2017	Normal	EB1705911	MW09442815EB1705911	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW095	7/04/2017	Normal	EB1707234	MW09542832EB1707234	0.03	<0.02	0.04	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.04	0.07
MW096	18/05/2017	Normal	EB1710281	MW09642873EB1710281	0.03	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	0.03
MW097	11/07/2017	Normal	EB1714323	MW09742927EB1714323	0.55	0.49	2.61	0.14	2.47	<0.02	<0.1	0.13	0.74	0.14	0.23	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	5.08	7.5
MW097	22/11/2018	Normal	EB1828775	MW09743426EB1828775	0.07	0.06	0.37	0.02	0.3	<0.02	<0.1	0.03	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.67	0.98
MW098	17/10/2017	Normal	EB1721740	MW09843025EB1721740	0.08	0.04	0.1	<0.02	<0.01	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.1	0.25
MW099	28/02/2018	Normal	EB1805779	MW09943159EB1805779	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW100	6/08/2018	Normal	EB1819012	MW10043318EB1819012	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW100	6/08/2018	Field_D	EB1819012	MW10043318EB1819012	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW100	6/08/2018	Interlab_D	AECO06_180809	MW10043318AECO06_180809	<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	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW100	17/04/2019	Normal	EB1910278	MW10043572EB1910278	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW100	22/05/2020	Normal	EB2013707	MW10043973EB2013707	<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.

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW104	29/08/2017	Normal	EB1717689	MW10442976EB1717689	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW105	10/08/2017	Normal	EB1716552	MW10542957EB1716552	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW105	29/08/2017	Normal	EB1717689	MW10542976EB1717689	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW106	26/05/2014	Normal	EB1412900	MW10641785EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW106	8/02/2016	Normal	EB1603686	MW10642408EB1603686	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW106	29/03/2017	Normal	EB1706420	MW10642823EB1706420	-	-	0.23	-	0.18	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.41	-
MW106	17/10/2018	Normal	EB1826398	MW10643390EB1826398	<0.02	<0.02	0.04	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	0.04
MW106	17/04/2019	Normal	EB1910281	MW10643572EB1910281	<0.02	<0.02	0.1	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	0.17
MW107	26/05/2014	Normal	EB1412900	MW10741785EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW107	8/02/2016	Normal	EB1603686	MW10742408EB1603686	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW107	29/03/2017	Normal	EB1706420	MW10742823EB1706420	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW107	19/04/2018	Normal	EB1809891	MW10743209EB1809891	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	0.03
MW107	17/10/2018	Normal	EB1826398	MW10743390EB1826398	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW107	17/04/2019	Normal	EB1910281	MW10743572EB1910281	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW108	29/11/2013	Normal	EB1329481	MW10841607EB1329481	-	-	-	-	0.29	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	<0.5	-	-
MW108	30/01/2014	Normal	EB1402209	MW10841669EB1402209	-	-	-	-	0.54	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-
MW108	26/05/2014	Normal	EB1412900	MW10841785EB1412900	-	-	-	-	0.25	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW108	8/02/2016	Normal	EB1603686	MW10842408EB1603686	-	-	-	-	0.79	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW108	29/03/2017	Normal	EB1706420	MW10842823EB1706420	-	-	1.04	-	0.82	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	1.86	-
MW108	17/10/2018	Normal	EB1826398	MW10843390EB1826398	0.09	0.07	0.52	0.03	0.42	<0.02	<0.1	0.03	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.94	1.31
MW108	17/04/2019	Normal	EB1910281	MW10843572EB1910281	0.08	0.1	0.73	0.03	0.73	<0.02	<0.1	0.02	0.16	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.46	1.91
MW109	29/11/2013	Interlab_D	402028	MW10941607402028	-	-	-	-	1.3	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW109	29/11/2013	Normal	EB1329481	MW10941607EB1329481	-	-	-	-	1.6	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	<0.5	-	-
MW109	29/11/2013	Field_D	EB1329481	MW10941607EB1329481	-	-	-	-	1.49	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	<0.5	-	-
MW109	30/01/2014	Normal	EB1402209	MW10941669EB1402209	-	-	-	-	2.25	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-
MW109	26/05/2014	Normal	EB1412900	MW10941785EB1412900	-	-	-	-	1	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW109	8/02/2016	Normal	EB1603686	MW10942408EB1603686	-	-	-	-	1.61	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW109	29/03/2017	Normal	EB1706420	MW10942823EB1706420	-	-	1.47	-	1.16	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	2.63	-
MW110	28/10/2014	Normal	EB1445390	MW11041940EB1445390	-	-	-	-	4.51	-	-	-	-	-	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW111	23/08/2017	Normal	EB1717729	MW11142970EB1717729	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW112	29/01/2014	Normal	EB1402209	MW11241668EB1402209	-	-	-	-	8.65	-	-	-	-	-	0.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-
MW112	22/05/2014	Normal	EB1412441	MW11241781EB1412441	-	-	-	-	1.48	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW112	10/02/2016	Normal	EB1603686	MW11242410EB1603686	-	-	-	-	1.84	-	-	-	-	-	0.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW112	23/03/2017	Field_D	EB1705972	MW11242817EB1705972	-	-	1.55	-	1.69	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	3.24	-
MW112	23/03/2017	Normal	EB1705972	MW11242817EB1705972	-	-	1.5	-	1.63	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	3.13	-
MW112	23/03/2017	Interlab_D	AECO06_170329	MW11242817AECO06_170329	-	-	0.91	-	1.2	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	2.11	-
MW112	28/02/2018	Interlab_D	AECO06_180306	MW11243159AECO06_180306_1	0.18	0.15	1.1	0.054	1.6	<0.01	0.083	0.09	0.37	0.059	0.11	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW112	28/02/2018	Normal	EB1805777	MW11243159EB1805777	0.2	0.18	1.23	0.08	1.64	<0.02	<0.1	0.11	0.47	0.08	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.87	4.10
MW112	28/02/2018	Field_D	EB1805777	MW11243159EB1805777	0.21	0.19	1.19	0.08	1.52	<0.02	<0.1	0.12	0.47	0.08	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.71	3.96
MW113	30/01/2014	Normal	EB1402209	MW11341669EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-
MW113	22/05/2014	Normal	EB1412441	MW11341781EB1412441	-	-	-	-	0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW113	5/02/2016	Normal	EB1603065	MW11342405EB1603065	-	-	-	-	0.08	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW113	24/03/2017	Normal	EB1705988	MW11342818EB1705988	-	-	0.23	-	0.07	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.3	-
MW113	11/04/2019	Field_D	EB1909687	MW11343566EB1909687	0.03	0.02	0.2	<0.02	0.09	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.29	0.39
MW113	11/04/2019	Normal	EB1909695	MW11343566EB1909695	0.02	0.03	0.2	<0.02	0.08	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.28	0.38
MW113	11/04/2019	Interlab_D	RN1230420	MW11343566RN1230420	0.029	0.03	0.17	<0.01	0.11	<0.01	<0.05	<0.02	0.042	<0.01	0.013	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.02	<0.02	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW113	27/03/2020	Normal	EB2009337	MW11343917EB2009337	0.06	0.06	0.34	0.02	0.26	<0.02	<0.1	<0.02	0.07	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.6	0.82
MW113	22/05/2020	Normal	EB2013711	MW11343973EB2013711	0.06	0.04	0.31	0.02	0.2	<0.02	<0.1	0.03	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.51	0.74
MW113	15/04/2021	Normal	EB2110946	MW11344301EB2110946	<0.10	0.05	0.3	<0.02	0.15	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.45	0.57
MW113	12/04/2022	Normal	EB2211301	MW11344663EB2211301	0.04	0.05	0.28	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.41	0.55
MW114	31/01/2014	Normal	EB1402209	MW11441670EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-
MW114	23/05/2014	Normal	EB1412619	MW11441782EB1412619	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW114	16/03/2016	Normal	EB1607673	MW11442445EB1607673	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW114	6/04/2017	Normal	EB1707195	MW11442831EB1707195	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW114	18/04/2018	Normal	EB1809895	MW11443208EB1809895	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW114	11/04/2019	Normal	EB1909709	MW11443566EB1909709	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW114	27/03/2020	Normal	EB2009343	MW11443917EB2009343	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW114	28/04/2021	Normal	EB2111764	MW11444314EB2111764	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW114	20/04/2022	Normal	EB2211294	MW11444671EB2211294	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW115	26/05/2014	Normal	EB1412900	MW11541785EB1412900	-	-	-	-	0.27	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW115	8/02/2016	Normal	EB1603686	MW11542408EB1603686	-	-	-	-	0.6	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW116	17/11/2014	Normal	EB1446505	MW11641960EB1446505	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW116	3/02/2016	Normal	EB1603065	MW11642403EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW116	23/03/2017	Normal	EB1705976	MW11642817EB1705976	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW117	26/05/2014	Normal	EB1412900	MW11741785EB1412900	-	-	-	-	0.14	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW117	8/02/2016	Normal	EB1603686	MW11742408EB1603686	-	-	-	-	0.63	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW117	29/03/2017	Normal	EB1706413	MW11742823EB1706413	-	-	1.52	-	0.76	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	2.28	-
MW118	31/01/2014	Normal	EB1402209	MW11841670EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-
MW118	5/06/2014	Normal	EB1413760	MW11841795EB1413760	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW118	16/03/2016	Normal	EB1607673	MW11842445EB1607673	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW118	6/04/2017	Normal	EB1707195	MW11842831EB1707195	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW118	18/04/2018	Normal	EB1809895	MW11843208EB1809895	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW118	11/04/2019	Normal	EB1909709	MW11843566EB1909709	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW118	27/03/2020	Normal	EB2009343	MW11843917EB2009343	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW118	28/04/2021	Normal	EB2111764	MW11844314EB2111764	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW118	20/04/2022	Normal	EB2211294	MW11844671EB2211294	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW119	6/06/2014	Normal	EB1413760	MW11941796EB1413760	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW119	19/10/2016	Normal	EB1625289	MW11942662EB1625289	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW119	16/04/2019	Normal	EB1910256	MW11943571EB1910256	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW120	27/05/2014	Normal	EB1412900	MW12041786EB1412900	-	-	-	-	0.2	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW120	16/03/2016	Normal	EB1607653	MW12042445EB1607653	-	-	-	-	1.27	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW120	7/04/2017	Normal	EB1707196	MW12042832EB1707196	-	-	0.49	-	1.11	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	1.6	-
MW121	21/05/2014	Normal	EB1412441	MW12141780EB1412441	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW122	31/01/2014	Normal	EB1402209	MW12241670EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-
MW122	23/05/2014	Normal	EB1412619	MW12241782EB1412619	-	-	-	-	0.03	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW122	16/03/2016	Normal	EB1607673	MW12242445EB1607673	-	-	-	-	0.03	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW122	6/04/2017	Normal	EB1707195	MW12242831EB1707195	-	-	0.26	-	0.22	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.48	-
MW122	18/04/2018	Normal	EB1809895	MW12243208EB1809895	0.14	0.12	0.8	0.04	0.77	<0.02	<0.1	0.06	0.18	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.57	2.18
MW122	11/04/2019	Normal	EB1909709	MW12243566EB1909709	0.08	0.08	0.53	<0.02	0.35	<0.02	<0.1	0.03	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.88	1.2
MW122	27/03/2020	Normal	EB2009343	MW12243917EB2009343	0.16	0.18	1.61	0.14	1.69	<0.02	<0.10	0.08	0.29	0.06	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	3.3	4.31
MW122	28/04/2021	Normal	EB2111764	MW12244314EB2111764	0.17	0.18	1.02	0.06	1.04	<0.02	<0.1	0.08	0.3	0.05	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.06	2.96
MW122	20/04/2022	Normal	EB2211294	MW12244671EB2211294	0.17	0.18	0.99	0.05	0.97	<0.02	<0.1	0.07	0.27	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.96	2.81
MW123	30/01/2014	Normal	EB1402209	MW12341669EB1402209	-	-	-	-	0.16	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-
MW123	22/05/2014	Normal	EB1412441	MW12341781EB1412441	-	-	-	-	0.12	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW123	5/02/2016	Normal	EB1603065	MW12342405EB1603065	-	-	-	-	0.19	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW123	24/03/2017	Normal	EB1705986	MW12342818EB1705986

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW125	22/03/2017	Normal	EB1705920	MW12542816EB1705920	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW126	29/01/2014	Field_D	EB1402209	MW12641668EB1402209	-	-	-	-	8.6	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	<0.5	-	-	-
MW126	29/01/2014	Normal	EB1402209	MW12641668EB1402209	-	-	-	-	6.26	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	<0.5	-	-	-
MW126	29/01/2014	Interlab_D	407332	MW12641668407332	-	-	-	-	0.2	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW126	22/05/2014	Interlab_D	419530	MW12641781419530	-	-	-	-	0.98	-	-	-	-	-	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.27	0.02	-	-	-
MW126	22/05/2014	Normal	EB1412441	MW12641781EB1412441	-	-	-	-	1.88	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	<0.1	-	-	-
MW126	22/05/2014	Field_D	EB1412441	MW12641781EB1412441	-	-	-	-	1.66	-	-	-	-	-	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	<0.1	-	-	-
MW126	19/10/2016	Field_D	EB1625215	MW12642662EB1625215	-	-	3.47	-	3.63	-	-	-	-	-	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.11	-	-	7.1	-
MW126	19/10/2016	Normal	EB1625215	MW12642662EB1625215	-	-	3.53	-	3.56	-	-	-	-	-	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	-	-	7.09	-
MW126	19/10/2016	Interlab_D	520881	MW12642662520881	-	-	2.7	-	4.4	-	-	-	-	-	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.09	-	-	7.1	-
MW126	11/10/2021	Normal	EB2129428	MW12644480EB2129428	0.33	0.39	6.37	1.62	25.5	<0.02	0.2	0.32	1.89	0.22	0.86	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	0.08	<0.05	<0.05	31.9	37.8
MW127	28/10/2014	Normal	EB1445390	MW12741940EB1445390	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW127	27/05/2016	Normal	EB1614019	MW12742517EB1614019	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW127	12/07/2017	Normal	EB1714305	MW12742928EB1714305	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW128	30/01/2014	Normal	EB1402209	MW12841669EB1402209	-	-	-	-	0.03	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-	-
MW128	22/05/2014	Normal	EB1412441	MW12841781EB1412441	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW128	4/02/2016	Normal	EB1603065	MW12842404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW128	22/03/2017	Normal	EB1705924	MW12842816EB1705924	-	-	<0.02	-	0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.01	-
MW129	30/01/2014	Normal	EB1402209	MW12941669EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-	-
MW129	22/05/2014	Normal	EB1412441	MW12941781EB1412441	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW129	4/02/2016	Normal	EB1603065	MW12942404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW129	23/03/2017	Normal	EB1705983	MW12942817EB1705983	-	-	0.02	-	0.02	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.04	-
MW130	17/11/2014	Normal	EB1446505	MW13041960EB1446505	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW130	2/02/2016	Normal	EB1603065	MW13042402EB1603065	-	-	-	-	0.06	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW130	22/03/2017	Normal	EB1705932	MW13042816EB1705932	-	-	0.07	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	0.07	-
MW132	30/01/2014	Normal	EB1402209	MW13241669EB1402209	-	-	-	-	8.47	-	-	-	-	-	0.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-	-
MW132	22/05/2014	Normal	EB1412441	MW13241781EB1412441	-	-	-	-	4.65	-	-	-	-	-	0.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW132	16/03/2016	Interlab_D	494199	MW13242445494199	-	-	-	-	8	-	-	-	-	-	0.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.01	-	-	-
MW132	16/03/2016	Normal	EB1607669	MW13242445EB1607669	1.7	-	14.2	-	5.97	<0.02	-	-	2.88	0.29	0.8	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	20.17	-
MW132	16/03/2016	Field_D	EB1607669	MW13242445EB1607669	-	-	-	-	6.04	-	-	-	-	-	0.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW132	2/05/2017	Normal	EB1709215	MW13242857EB1709215	2.17	2.44	15.2	0.81	11	<0.02	0.7	0.58	3.04	0.69	1.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	26.2	38
MW132	18/04/2018	Normal	EB1809901	MW13243208EB1809901	1.71	1.6	17	0.66	9.82	<0.02	0.5	0.64	2.92	0.49	0.82	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	26.8	36.2
MW132	17/04/2019	Normal	EB1910271	MW13243572EB1910271	0.72	0.74	5.36	0.3	4.61	<0.02	0.1	0.27	1.35	0.19	0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	9.97	14
MW132	27/03/2020	Normal	EB2009339	MW13243917EB2009339	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	0.04
MW132	19/04/2021	Normal	EB2110957	MW13244305EB2110957	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW132	12/04/2022	Normal	EB2211261-AB	MW13244663EB2211261-AB	<0.02	<0.02	0.09	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	0.22
MW133	30/01/2014	Normal	EB1402209	MW13341669EB1402209	-	-	-	-	1.55	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-	-
MW133	23/05/2014	Normal	EB1412619	MW13341782EB1412619	-	-	-	-	1	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW133	16/03/2016	Normal	EB1607670	MW13342445EB1607670	-	-	-	-	0.92	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW133	16/03/2016	Field_D	EB1607670	MW13342445EB1607670	-	-	-	-	0.8	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW133	16/03/2016	Interlab_D	494200	MW13342445494200	-	-	-	-	1.3	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.01	-	-	-
MW133	12/07/2017	Field_D	EB1714319	MW13342928EB1714319	0.07	0.08	0.75	0.05	1.24	<0.02	<0.1	<0.02	0.09	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.99	2.32
MW133	12/07/2017	Normal	EB1714319	MW13342928EB1714319	0.07	0.08	0.72	0.05	1.2	<0.02	<0.1	<0.02	0.09	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.92	2.25
MW133	12/07/2017	Interlab_D	AECO06/170719	MW13342928AECO06/170719	0.057	-	0.64	-	0.85	<0.02	<0.05	<0.02	0.093	0.012	0.027	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW134	27/05/2014	Normal	EB1412900	MW13441786EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW134	27/05/2014	Field_D	EB1412900	MW13441786EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW134	27/05/2014	Interlab_D	420320	MW13441786420320	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	-
MW134	4/02/2016	Normal	EB1603065	MW13442404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW134	10/03/2017	Normal	EB1704807	MW13442804EB1704807	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW134	18/10/2018	Normal	EB1826390	MW13443391EB1826390	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW134	16/04/2019	Normal	EB1910263	MW13443571EB1910263	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW134	24/10/2019	Normal	EB1928478	MW13443762EB1928478	<0.02	<0.02	0.08	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	0.12
MW134	16/01/2020	Interlab_D	RN1311048	MW13443846RN1311048	0.014	0.012	0.083	<0.01	0.073	<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	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW134	16/01/2020	Normal	EB2001202	MW13443846EB2001202	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	0.12
MW134	16/01/2020	Field_D	EB2001202	MW13443846EB2001202	<0.02	<0.02	0.06	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	0.11
MW134	26/03/2020	Normal	EB2008685	MW13443916EB2008685	<0.02	<0.02	0.05	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.09
MW134	21/10/2020	Normal	EB2027842	MW13444125EB2027842	<0.02	<0.02	0.05	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.09
MW134	19/04/2021	Normal	EB2112336	MW13444305EB2112336	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	0.04
MW134	14/10/2021	Normal	EB2129553	MW13444483EB2129553	0.02	0.02	0.13	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	0.34
MW134	14/04/2022	Normal	EB2211314	MW13444665EB2211314	0.02	<0.02	0.12	<0.02	0.1	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.22	0.24
MW134	2/11/2022	Normal	EB2232886	MW13444867.6833333333EB2232886	<0.02	<0.02	0.05	<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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.09	0.09
MW135	17/11/2014	Normal	EB1446505	MW13541960EB1446505	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW135	4/02/2016	Normal	EB1603065	MW13542404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW135	1/06/2017	Normal	EB1711296	MW13542887EB1711296	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW135	1/06/2017	Normal	EB1711987	MW13542887EB1711987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW135	5/07/2017	Normal	EB1713891	MW13542921EB1713891	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW138	30/01/2014	Normal	EB1402209	MW13841669EB1402209	-	-	-	-	0.08	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-	-
MW138	26/05/2014	Normal	EB1412900	MW13841785EB1412900	-	-	-	-	0.05	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW138	26/05/2016	Normal	EB1614020	MW13842516EB1614020	-	-	-	-	0.06	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW138	12/07/2017	Normal	EB1714307	MW13842928EB1714307	0.05	0.06	0.3	<0.02	0.08	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.38	0.54
MW138	11/04/2019	Normal	EB1909693	MW13843566EB1909693	0.05	0.05	0.37	<0.02	0.08	<0.02	<0.1	<0.02	0.06	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.45	0.61
MW139	31/01/2014	Normal	EB1402209	MW13941670EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-	-
MW139	22/05/2014	Normal	EB1412441	MW13941781EB1412441	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW140	17/11/2014	Normal	EB1446505	MW14041960EB1446505	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW140	4/02/2016	Interlab_D	488333	MW14042404488333	-	-	-	-	<0.04	-	-	-	-	-	<0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.04	-	-	-
MW140	4/02/2016	Normal	EB1603065	MW14042404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW140	4/02/2016	Field_D	EB1603065	MW14042404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW140	1/06/2017	Normal	EB1711292	MW14042887EB1711292	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW140	1/06/2017	Normal	EB1711987	MW14042887EB1711987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW140	3/07/2017	Normal	EB1713892	MW14042919EB1713892	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW141	28/08/2017	Normal	EB1717729	MW14142975EB1717729	0.06	0.08	0.7	0.03	1.03	<0.02	<0.1	<0.02	0.14	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.73	2.08
MW141	12/09/2017	Normal	EB1718836	MW14142990EB1718836	0.51	0.52	2.71	0.29	6.89	<0.02	<0.1	0.46	1.57	0.46	0.79	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.05	<0.05	<0.05	9.6	14.3
MW142	28/10/2014	Normal	EB1445390	MW14241940EB1445390	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW142	4/02/2016	Normal	EB1603065	MW14242404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW142	23/03/2017	Normal	EB1705974	MW14242817EB1705974	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW142	16/04/2019	Normal	EB1910266	MW14243571EB1910266	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW143	1/07/2015	Normal	EB1522109	MW14342186EB1522109	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW143	1/07/2015	Field_D	EB1522109	MW14342186EB1522109	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW143	1/07/2015	Interlab_D	464084	MW14342186464084	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.01	-	-	-
MW143	14/07/2016	Normal	EB1618081	MW14342565EB1618081	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.02	-
MW144	28/10/2014	Normal	EB1445390	MW14441940EB1445390	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW144	28/10/2014	Field_D	EB1445390	MW14441940EB1445390	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW144	28/10/2014	Interlab_D	437530	MW14441940437530	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	-
MW144	4/02/2016	Normal	EB1603065	MW14442404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW144	23/03/2017	Normal	EB1705917	MW14442817EB1705917	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW145	27/05/2014	Normal	EB1412900	MW14541786EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW145	3/02/2016	Normal	EB1603065	MW14542403EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW145	23/03/2017	Normal	EB1705999	MW14542817EB1705999	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	<0.02	-
MW146	28/10/2014	Normal	EB1445390	MW14641940EB1445390	-	-	-	-	0.07	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW147	18/04/2018	Normal	EB1809900	MW14743208EB1809900	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.02
MW147	22/11/2018	Normal	EB1828774	MW14743426EB1828774	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW147	17/04/2019	Normal	EB1910269	MW14743572EB1910269	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW147	24/10/2019	Normal	EB1928470	MW14743762EB1928470	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW147	27/03/2020	Normal	EB2009336	MW14743917EB2009336	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW147	21/10/2020	Normal	EB2027841	MW14744125EB2027841	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW147	13/04/2021	Normal	EB2110938	MW14744299EB2110938	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW147	14/10/2021	Normal	EB2129559	MW14744483EB2129559	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	0.03	<0.02	0.03	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.07
MW147	12/04/2022	Normal	EB2211320	MW14744663EB2211320	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW148	26/05/2014	Normal	EB1412900	MW14841785EB1412900	-	-	-	-	0.04	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW148	8/02/2016	Normal	EB1603686	MW14842408EB1603686	-	-	-	-	0.19	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW148	29/03/2017	Normal	EB1706413	MW14842823EB1706413	-	-	0.49	-	0.31	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	-
MW149	21/05/2014	Normal	EB1412441	MW14941780EB1412441	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW149	4/02/2016	Normal	EB1603065	MW14942404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW149	23/03/2017	Normal	EB1705919	MW14942817EB1705919	-	-	<0.02	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
MW149	18/04/2018	Normal	EB1809898	MW14943208EB1809898	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW149	17/04/2019	Normal	EB1910272	MW14943572EB1910272	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW149	30/03/2020	Normal	EB2009345	MW14943920EB2009345	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW149	19/04/2021	Normal	EB2110952	MW14944305EB2110952	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW149	12/04/2022	Normal	EB2211278	MW14944663EB2211278	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW150	22/05/2014	Normal	EB1412441	MW15041781EB1412441	-	-	-	-	2.53	-	-	-	-	-	0.23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW150	5/02/2016	Normal	EB1603065	MW15042405EB1603065	0.49	-	2.52	-	3.27	<0.02	-	-	0.58	0.2	0.26	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	5.79	-
MW150	29/03/2017	Normal	EB1706406	MW15042823EB1706406	-	-	2.46	-	3.9	-	-	-	-	-	0.27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.36	-
MW151	23/05/2014	Normal	EB1412619	MW15141782EB1412619	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW151	18/10/2018	Normal	EB1826397	MW15143391EB1826397	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW151	17/04/2019	Normal	EB1910267	MW15143572EB1910267	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW151	24/10/2019	Normal	EB1928473	MW15143762EB1928473	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW151	27/03/2020	Normal	EB2009335	MW15143917EB2009335	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW151	21/10/2020	Normal	EB2027840	MW15144125EB2027840	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW151	13/04/2021	Normal	EB2110934	MW15144299EB2110934	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW151	14/10/2021	Normal	EB2129560	MW15144483EB2129560	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW151	14/04/2022	Normal	EB2211304	MW15144665EB2211304	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW151	27/10/2022	Normal	EB2232881	MW15144861.6791666667EB2232881	<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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01
MW152	29/10/2014	Normal	EB1445390	MW15241941EB1445390	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW153	17/11/2014	Normal	EB1446505	MW15341960EB1446505	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW153	3/02/2016	Normal	EB1603065	MW15342403EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW153	2/05/2017	Normal	EB1709199	MW15342857EB1709199	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW154	28/10/2014	Normal	EB1445390	MW15441940EB1445390	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW154	27/05/2016	Normal	EB1614018	MW15442517EB1614018	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW154	2/05/2017	Normal	EB1709214	MW15442857EB1709214	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW155	29/10/2014	Normal	EB1445390	MW15541941EB1445390	-	-	-	-	0.29	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW155	5/02/2016	Normal	EB1603065	MW15542405EB1603065	-	-	-	-	1.34	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW155	1/06/2017	Normal	EB1711294	MW15542887EB1711294	<0.02	<0.02	0.11	<0.02	0.29	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.4	0.4
MW155	1/06/2017	Normal	EB1711987	MW15542887EB1711987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW155	6/07/2017	Normal	EB1713890	MW15542922EB1713890	0.02	<0.02	0.13	<0.02	0.42	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.55	0.61
MW156	30/01/2014	Normal	EB1402209	MW15641669EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW156	23/05/2014	Normal	EB1412619	MW15641782EB1412619	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW156	4/02/2016	Normal	EB1603065	MW15642404EB1603065	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW156	23/03/2017	Normal	EB1705997	MW15642817EB1705997	-	-	0.04	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	-
MW157	31/01/2014	Normal	EB1402209	MW15741670EB1402209	-	-	-	-	9.49	-	-	-	-	-	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW157	23/05/2014	Field_D	EB1412619	MW15741782EB1412619	-	-	-	-	6.77	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW157	23/05/2014	Normal	EB1412619	MW15741782EB1412619	-	-	-	-	7.21	-	-	-	-	-	0.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW157	16/03/2016	Normal	EB1607673	MW15742445EB1607673	0.57	-	4.54	-	7.06	<0.02	-	-	0.65	0.09	0.18	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	11.6	-
MW157	6/04/2017	Normal	EB1707195	MW15742831EB1707195	-	-	4.77	-	9.72	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.49	-
MW157	11/04/2019	Normal	EB1909709	MW15743566EB1909709	0.59	0.56	3.9	0.35	5.71	<0.02	0.1	0.19	0.79	0.13	0.24	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	9.61	12.6
MW157	26/03/2020	Normal	EB2008690	MW15743916EB2008690	0.65	0.6	3.88	0.44	7.4	<0.04	<0.2	0.2	0.87	0.14	0.28	<0.04	<0.04	<0.04	<0.04	<0.04	<0.09	<0.04	<0.09	<0.04	<0.09	<0.09	<0.04	<0.09	<0.05	<0.05	<0.05	<0.05	11.3	14.5
MW157	28/04/2021	Normal	EB2111764	MW15744314EB2111764	0.56	0.56	3.39	0.37	7.68	<0.02	0.1	0.19	0.86	0.14	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	11.1	14.1
MW157	20/04/2022	Normal	EB2211294	MW15744671EB2211294	0.58	0.67	3.82	0.46	6.54	<0.02	0.1	0.18	0.85	0.13	0.3	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	10.4	13.6
MW158	27/05/2014	Normal	EB1412900	MW15841786EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW159	29/01/2014	Normal	EB1402209	MW15941668EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW159	23/05/2014	Normal	EB1412619	MW15941782EB1412619	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW160	26/05/2014	Normal	EB1412900	MW16041785EB1412900	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW160	8/05/2019	Normal	EB1911741	MW16043593EB1911741	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW161	28/08/2017	Normal	EB1717729	MW16142975EB1717729	0.03	0.03	0.15	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.30
MW166	15/08/2017	Normal	EB1716714	MW16642962EB1716714	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW166	15/08/2017	Normal	EB1716714	MW16642962EB1716714	0.08	0.11	0.39	<0.02	0.24	<0.02	<0.1	0.05	0.16	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.63	1.05
MW167	10/03/2017	Normal	EB1705014	MW16742804EB1705014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.5	-
MW167	10/03/2017	Normal	EB1705014	MW16742804EB1705014	1.15	1.2	5.67	0.66	14.8	<0.02	<0.1	0.37	2.2	0.37	1.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	20.47	27.5
MW167	22/03/2017	Normal	ES1709078	MW16742816ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.99	-
MW167	26/04/2018	Normal	EB1810408	MW16743216EB1810408	1	0.72	4.05	0.42	12	<0.02	0.3	0.39	1.68	0.28	0.51	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	16	21.4
MW167	21/06/2018	Normal	B683485-B	MW16743272B683485-B	1.2	0.96	5.2	0.61	7.6	<0.05	<2.5	3.2	6.7	0.4	0.97	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	12.89	26.90
MW167	21/06/2018	Normal	B683485-A	MW16743272B683485-A	0.88	0.7	4	0.57	7.4	<0.01	0.29	0.4	1.6	0.32	0.85	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.032	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	11.35	16.98
MW167	22/10/2018	Normal	EB1825962	MW16743395EB1825962	0.86	0.87	4.48	0.43	9.4	<0.02	0.3	0.37	1.75	0.29	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	13.9	19.3
MW167	16/04/2019	Normal	EB1910095	MW16743571EB1910095	0.78	0.71	3.81	0.35	7.97	<0.02	0.2	0.34	1.66	0.25	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	11.8	16.5
MW167	16/04/2019	Field_D	EB1910095	MW16743571EB1910095	0.78	0.72	3.81	0.35	7.6	<0.02	0.3	0.33	1.62	0.26	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	11.4	16.2
MW167	16/04/2019	Interlab_D	RN1231103	MW16743571RN1231103	0.73	0.56	3.3	0.29	7.6	<0.01	0.32	0.24	1.3	0.22	0.37	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	0.015	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	0.029	<0.01	<0.01	-
MW167	23/05/2019	Normal	657987	MW16743608657987	0.77	0.92	3.4	0.31	9.3	<0.01	0.26	0.4	1.7	0.28	0.59	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.01	<0.01	12.7	18.25
MW167	10/07/2019	Normal	EB1918202	MW16743656EB1918202	0.676	0.708	3.11	0.503	10.2	0.0208	0.063	0.262	1.21	0.205	0.412	0.0033	0.0008	0.0007	<0.0005	<0.0005	<0.0005	0.0165	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.018	0.002	<0.001	13.3	17.4
MW167	21/10/2019	Normal	EB1928436	MW16743759EB1928436	0.76	0.69	3.67	0.31	6.86	<0.02	0.2	0.32	1.54	0.25	0.43	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	10.5	15.0
MW167	30/10/2019	Normal	EB1928975	MW16743768EB1928975	0.857	0.614	3.61	0.44	9.06	0.0295	0.138	0.322	1.57	0.209	0.473	0.0035	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	0.0139	<0.001	<0.0005	<0.001	<0.001	0.0007	<0.001	<0.001	0.019	0.002	<0.001	12.7	17.4
MW167	5/03/2020	Normal	EB2006415	MW16743895EB2006415	0.928	0.878	3.4	0.45	8.69	<0.0016	0.074	0.334	1.36	0.268	0.557	0.0046	<0.0016	<0.0016	<0.0016	<0.0016	<0.0040	0.0234	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	<0.002	0.017	<0.002	<0.002	12.1	17.0
MW167	25/03/2020	Normal	EB2008691	MW16743915EB2008691	1.05	0.8	4.34	0.48	9.18	<0.09	<0.4	0.29	1.36	0.24	0.46	<0.09	<0.09	<0.09	<0.09	<0.09	<0.23	<0.09	<0.23	<0.09	<0.23	<0.23	<0.09	<0.23	<0.09	<0.09	<0.09	<0.09	13.5	18.2
MW167	19/10/2020	Normal	EB2027817	MW16744123EB2027817	0.85	0.7	3.68	0.38	8.45	<0.02	0.28	0.4	1.74	0.28	0.52	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	12.1	17.3
MW167	17/04/2021	Normal	EB2110967	MW16744303EB2110967	0.62	0.54	2.73	0.26	5.5	<0.02	0.22	0.29	1.22	0.22	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	8.23	12.0
MW167	11/10/2021	Normal	EB2129575	MW16744480EB2129575	0.7

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW172	10/03/2017	Normal	EB1705014	MW17242804EB1705014	0.27	0.31	2.18	0.16	4.92	<0.02	<0.1	1.4	1.49	1.15	1.14	0.27	0.22	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	5.78	3.96	<0.05	7.1	23.2
MW172	19/04/2018	Normal	EB1809957	MW17243209EB1809957	0.52	0.5	3.13	0.16	3.15	<0.02	0.1	0.2	0.8	0.11	0.18	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	6.28	8.85
MW172	19/04/2018	Field_D	EB1809957	MW17243209EB1809957	0.57	0.49	3.04	0.13	3.05	<0.02	0.1	0.2	0.78	0.11	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	6.09	8.63
MW172	19/04/2018	Interlab_D	AECO06_180424	MW17243209AECO06_180424	0.38	0.32	2.5	0.089	2.4	<0.01	0.12	0.17	0.64	0.082	0.12	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	0.039	<0.01	<0.01	-	-
MW172	24/10/2018	Normal	EB1825962	MW17243397EB1825962	1.17	1.18	5.5	0.7	25	<0.02	0.6	1.23	2.57	1.3	1.55	0.17	0.2	0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.9	2.1	<0.05	30.5	44.2
MW172	5/04/2019	Normal	EB1908876	MW17243560EB1908876	0.42	0.43	4.12	0.24	3.16	<0.02	0.5	1.56	1.83	0.82	0.82	0.19	0.03	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.16	0.12	<0.05	7.28	15.4
MW172	23/10/2019	Normal	EB1928436	MW17243761EB1928436	0.42	0.4	2.18	0.16	5.34	<0.02	0.5	1.47	1.6	1.1	0.84	0.15	0.08	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1	1.49	<0.05	7.52	16.7
MW172	30/03/2020	Normal	EB2009332	MW17243920EB2009332	0.48	0.46	2.38	0.24	6.12	<0.02	0.9	2.21	1.83	1.65	1.15	0.24	0.15	0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.65	2.48	<0.05	8.5	22.0
MW172	20/10/2020	Normal	EB2027817	MW17244124EB2027817	0.33	0.34	2.05	0.15	3.96	<0.02	0.5	1.47	1.36	1.09	0.64	0.14	0.07	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.86	1.42	<0.05	6.01	14.4
MW172	14/04/2021	Field_D	EB2110967	MW17244300EB2110967	0.45	0.33	1.77	0.1	2.79	<0.02	0.56	2.02	1.37	1.54	0.72	0.13	0.07	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.86	0.86	<0.05	4.56	13.6
MW172	14/04/2021	Normal	EB2110967	MW17244300EB2110967	0.3	0.3	1.71	0.09	3.63	<0.02	0.6	1.83	1.18	1.42	0.59	0.14	0.08	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.89	1.53	<0.05	5.34	14.3
MW172	14/04/2021	Interlab_D	RN1312932	MW17244300RN1312932	0.32	0.27	1.6	0.076	2.6	<0.01	0.54	1.6	1.1	1.3	0.56	0.12	0.046	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.01	<0.01	<0.05	<0.01	0.82	0.94	<0.01	-	-
MW172	13/10/2021	Normal	EB2129575	MW17244482EB2129575	0.22	0.23	1.2	0.09	2.5	<0.02	0.4	1.06	0.79	0.66	0.36	0.08	0.04	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.42	0.24	<0.05	3.7	8.29
MW172	17/04/2022	Normal	EB2211261-AA	MW17244668EB2211261-AA	1.03	0.91	4.61	0.56	22.1	<0.05	0.9	2.34	3.99	1.7	1.88	0.13	0.08	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	7.07	1.94	<0.05	26.7	49.2
MW172	26/10/2022	Normal	EB2232878	MW17244860.6375EB2232878	1.15	1.02	5.72	0.6	18.4	<0.1	1.3	3.61	4.28	2.03	1.8	0.16	<0.1	<0.1	<0.1	<0.1	<0.25	<0.1	<0.25	<0.25	<0.25	<0.25	<0.1	<0.1	<0.1	6.22	3.04	<0.1	24.1	49.3
MW173	10/03/2017	Normal	EB1705014	MW17342804EB1705014	0.62	0.67	5	0.22	1.59	<0.02	<0.1	1.47	2.42	1	1.23	0.08	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	3.64	<0.05	<0.05	6.59	17.9
MW173	25/10/2018	Normal	EB1825962	MW17343398EB1825962	0.32	0.33	2.98	0.19	2.89	<0.02	0.3	1.09	1.4	0.58	0.62	0.15	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1	0.08	<0.05	5.87	11.9
MW173	5/04/2019	Interlab_D	ES1910860	MW17343560ES1910860	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW173	5/04/2019	Field_D	EB1908876	MW17343560EB1908876	0.17	0.14	0.93	<0.02	0.17	<0.02	<0.1	0.19	0.32	0.08	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.1	2.05
MW173	5/04/2019	Normal	EB1908876	MW17343560EB1908876	0.17	0.14	0.91	0.02	0.17	<0.02	<0.1	0.19	0.33	0.08	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.08	2.06
MW173	5/04/2019	Interlab_D	RN1229258	MW17343560RN1229258	0.15	0.11	0.82	0.018	0.16	<0.01	0.091	0.15	0.31	0.071	0.045	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.05	<0.02	<0.01	<0.05	<0.01	0.015	<0.01	<0.01	-	-
MW173	23/05/2019	Normal	657987	MW17343608657987	0.13	0.12	0.97	0.03	0.14	<0.01	0.07	0.25	0.33	0.07	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.01	<0.01	1.11	2.23
MW173	23/10/2019	Normal	EB1928436	MW17343761EB1928436	0.39	0.41	4.05	0.23	2.98	<0.02	0.4	1.46	1.74	0.83	0.84	0.2	0.03	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.4	0.12	<0.05	7.03	15.1
MW173	26/03/2020	Interlab_D	RN1270680	MW17343916RN1270680	0.35	0.32	2.6	0.16	2.3	<0.01	0.43	1.3	1.5	0.71	0.73	0.17	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	1.1	0.036	<0.01	-	-
MW173	26/03/2020	Field_D	EB2009332	MW17343916EB2009332	0.35	0.43	3.2	0.21	2.97	<0.03	0.2	1.24	1.5	0.72	0.7	0.14	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	<0.05	1.07	<0.05	<0.05	6.17	12.7
MW173	26/03/2020	Normal	EB2009332	MW17343916EB2009332	0.32	0.39	3.04	0.21	2.88	<0.03	0.2	1.18	1.44	0.66	0.7	0.14	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	<0.05	1.01	<0.05	<0.05	5.92	12.2
MW173	20/10/2020	Field_D	EB2027817	MW17344124EB2027817	0.32	0.31	2.9	0.17	1.85	<0.02	<0.35	<0.98	1.22	0.61	0.57	0.12	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.42	<0.05	<0.05	4.75	8.49
MW173	20/10/2020	Normal	EB2027817	MW17344124EB2027817	0.29	0.29	2.67	0.18	2.27	<0.02	0.3	0.97	1.28	0.58	0.56	0.12	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.54	<0.05	<0.05	4.94	10.0
MW173	20/10/2020	Interlab_D	RN1292789	MW17344124RN1292789	0.23	0.21	2.3	0.1	1.6	<0.01	0.31	0.99	0.96	0.54	0.51	0.099	0.012	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	0.34	<0.01	<0.01	-	-
MW173	14/04/2021	Normal	EB2110967	MW17344300EB2110967	0.22	0.25	2.32	0.14	2.01	<0.02	0.3	0.96	0.93	0.5	0.46	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.23	<0.05	<0.05	4.33	8.43
MW173	13/10/2021	Normal	EB2129575	MW17344482EB2129575	0.27	0.28	2.54	0.21	2.46	<0.02	0.3	1.1	1.18	0.63	0.6	0.14	0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.76	<0.05	<0.05	5	10.5
MW173	17/04/2022	Normal	EB2211261-AA	MW17344668EB2211261-AA	0.24	0.25	2.37	0.15	2.9	<0.02	0.3	0.93	1.05	0.47	0.56	0.14	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	0.66	<0.05	<0.05	5.27	10.0
MW173	24/10/2022	Normal	EB2232878	MW17344858.6305555556EB2232878	0.3	0.35	2.42	0.2	2.34	<0.02	0.4	1.07	1.47	0.55	0.49	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.43	<0.05	<0.05	4.76	10.1
MW174	29/01/2014	Normal	EB1402209	MW17441668EB1402209	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.5	-	-	-
MW174	21/05/2014	Normal	EB1412441	MW17441780EB1412441	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW174	25/04/2018	Field_D	EB1810408	MW17443215EB1810408	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW174	25/04/2018	Interlab_D	AECO06_180501	MW17443215AECO06_180501	<0.01	<0.01	0.014	<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	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW174	25/04/2018	Normal	EB1810408	MW17443215EB1810408	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW174	20/10/2018	Normal	EB1825398	MW17443393EB1825398	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW174	20/10/2018	Field_D	EB1825398	MW17443393EB1825398	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW174	20/10/2018	Interlab_D	AECO06_181024	MW17443393AECO06_181024	<0.01	<0.01	0.013	<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	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW174	17/04/2019	Normal	EB1910095	MW17443572EB1910095	0.02	<0.02	0.25	<0.02	0.34	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.59	0.67
MW174	10/07/2019	Normal	EB1918202	MW17443656EB1918202	0.0313	0.0241	0.0957	0.0046	0.0755	<0.0005	0.016	0.13	0.101	0.0267	0.0141	0.0008	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.171	0.523
MW174	22/10/2019	Field_D	EB1928436	MW17443760EB1928436	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW174	22/10/2019	Interlab_D	RN1251384	MW17443760RN1251384	<0.01	<0.01	0.012	<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	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	0.015	<0.01	<0.01	-	-
MW174	22/10/2019	Normal	EB1928436	MW17443760EB1928436	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW174	29/10/2019	Normal	EB1928975	MW17443767EB1928975	0.0406	0.0273	0.0838	0.004	0.0612	<0.0005	0.015	0.184	0.149	0.0381	0.011	0.0015	0.0013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.41	<0.001	<0.001	0.145	1.03
MW174	4/03/2020	Normal	EB2006415	MW17443894EB2006415	0.0293	0.0171	0.0588	0.0026	0.0408	<0.0005	0.012	0.264	0.092	0.0641	0.012	0.001	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.0096	<0.001	<0.001	0.0096	0.595
MW174	26/03/2020	Normal	EB2008691	MW17443916EB2008691	<0.02	<0.02	0.08	<0.02	0.08	<0.02	<0.1	0.05	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.52	<0.05	<0.05	0.16	0.76
MW174	22/05/2020	Normal	EB2013705	MW17443973EB2013705	0.02	<0.02	0.16	<0.02	0.17	<0.02	<0.10	0.05	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.29	<0.05	<0.05	0.33	0.73
MW174	19/10/2020	Normal	EB2027817	MW17444123EB2027817	<0.60	0.02	0.09	<0.02	0.09	<0.02	<0.20	0.16	0.09	0.06	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.94	<0.05	<0.05	0.18	1.45
MW174	14/04/2021	Normal	EB2110967	MW17444300EB2110967	<0.02	<0.02	0.06	<0.02	0.05	<0.02	<0.2	0.17	<0.11	0.05	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.72	<0.05	<0.05	0.11	1.05
MW174	13/10/2021	Normal	EB2129575	MW17444482EB2129575	<1.43	<0.02	0.08	<0.02	0.08	<0.02	<0.1	0.4	0.16	0.09	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.16	<0.05	<0.05	0.16	0.98
MW174	17/04/2022	Normal	EB2211261-AA	MW17444668EB2211261-AA	<0.04	<0.02	0.03	<0.02	0.03	<0.02	<0.1	0.03	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.09
MW174	2/11/2022	Normal	EB2232878	MW17444867.6618055556EB2232878	<0.02	<0.02	0.03	<0.02	0.03	<0.02	<0.1	0.09	0.04	0.03	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.06	0.22
MW176	5/11/2015	Normal	EB1534037	MW17642313EB1534037	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW176	5/11/2015	Normal		MW17642313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW176	5/11/2015	Normal	EB1534043	MW17642313EB1534043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW176	2/02/2016	Normal	EB1603057	MW17642402EB1603057	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW176	2/02/2016	Normal		MW17642402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW176	9/02/2016	Normal	EB1603672	MW17642409EB1603672	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW176	4/05/2016	Normal	EB1611808	MW17642494EB1611808	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW176	4/05/2016	Normal		MW17642494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW176	4/05/2016	Normal	EB1611805	MW17642494EB1611805	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW176	24/03/2017	Normal	EB1705969	MW17642818EB1705969	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW176	16/11/2017	Normal	EB1724162	MW17643055EB1724162	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW176	23/11/2017	Normal	EB1724901	MW17643062EB1724901	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW176	1/12/2017	Normal	EB1725515	MW17643070EB1725515	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.09
MW176	13/12/2017	Normal	EB1726841	MW17643082EB1726841	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW176	21/12/2017	Normal	EB1727394	MW17643090EB1727394	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW176	10/01/2018	Normal	EB1801708	MW17643110EB1801708	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW176	17/01/2018	Normal	EB1802116	MW17643117EB1802116	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW176	24/01/2018	Normal	EB1802712	MW17643124EB1802712	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW176	30/01/2018	Normal	EB1803286	MW17643130EB1803286	<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	<0.02	<0.05	<0.02	<0.05

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids												PFAS - Perfluoroalkyl Sulfonamides								PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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	µg/L
MW177	9/02/2016	Normal	EB1603672	MW17742409EB1603672	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW177	4/05/2016	Normal	EB1611808	MW17742494EB1611808	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW177	4/05/2016	Normal		MW17742494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW177	4/05/2016	Normal	EB1611805	MW17742494EB1611805	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW177	24/03/2017	Normal	EB1705969	MW17742818EB1705969	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	16/11/2017	Normal	EB1724162	MW17743055EB1724162	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	24/11/2017	Normal	EB1724901	MW17743063EB1724901	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	30/11/2017	Interlab_D	AEC006_171205	MW17743069AEC006_171205	<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	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW177	30/11/2017	Normal	EB1725515	MW17743069EB1725515	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW177	30/11/2017	Field_D	EB1725515	MW17743069EB1725515	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW177	14/12/2017	Field_D	EB1726841	MW17743083EB1726841	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	14/12/2017	Interlab_D	AEC006_171219	MW17743083AEC006_171219	<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	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW177	14/12/2017	Normal	EB1726841	MW17743083EB1726841	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW177	20/12/2017	Normal	EB1727394	MW17743089EB1727394	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	20/12/2017	Field_D	EB1727394	MW17743089EB1727394	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	20/12/2017	Interlab_D	AEC006_180102	MW17743089AEC006_180102	<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	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW177	10/01/2018	Field_D	EB1801708	MW17743110EB1801708	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	10/01/2018	Interlab_D	AEC006_180116	MW17743110AEC006_180116	<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	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW177	10/01/2018	Normal	EB1801708	MW17743110EB1801708	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW177	16/01/2018	Normal	EB1802116	MW17743116EB1802116	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	23/01/2018	Normal	EB1802712	MW17743123EB1802712	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	0.03
MW177	6/02/2018	Normal	EB1803821	MW17743137EB1803821	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	13/02/2018	Normal	EB1804328	MW17743144EB1804328	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	0.03
MW177	21/02/2018	Normal	EB1804815	MW17743152EB1804815	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	27/02/2018	Normal	EB1805780	MW17743158EB1805780	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	6/03/2018	Normal	EB1806160	MW17743165EB1806160	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	13/03/2018	Normal	EB1806857	MW17743172EB1806857	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	20/03/2018	Normal	EB1807454	MW17743179EB1807454	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW177	27/03/2018	Normal	EB1808121	MW17743186EB1808121	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	3/04/2018	Normal	EB1808415	MW17743193EB1808415	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW177	11/04/2018	Normal	EB1809152	MW17743201EB1809152	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	18/04/2018	Normal	EB1809906	MW17743208EB1809906	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW177	24/04/2018	Normal	EB1810407	MW17743214EB1810407	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	0.03
MW177	1/05/2018	Normal	EB1810939	MW17743221EB1810939	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW177	11/05/2018	Normal	EB1811569	MW17743231EB1811569	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW177	18/05/2018	Normal	EB1812201	MW17743238EB1812201	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW177	22/05/2018	Normal	EB1812713	MW17743242EB1812713	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW177	21/06/2018	Normal	B682895-B	MW17743272B682895-B	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05
MW177	21/06/2018	Normal	B682895-B	MW17743272B682895-B	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05
MW177	21/06/2018	Normal	B682895-A	MW17743272B682895-A	0.001	0.001	0.007	<0.001	0.014	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.021	0.023
MW177	21/06/2018	Normal	B682895-A	MW17743272B682895-A	0.001	0.001	0.008	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.008	0.015
MW177	17/07/2018	Normal	B692234-B	MW17743298B692234-B	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05
MW177	17/07/2018	Normal	B692234-A	MW17743298B692234-A	<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	<0.01	<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
MW177	11/07/2019	Normal	EB1918202	MW17743657EB1918202	<0.0005	0.0006	0.0049	<0.0005	0.0061	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	0.0116
MW177	29/10/2019	Normal	EB1928975	MW17743767EB1928975	0.0224	0.0024	0.0084	0.0011	0.0202	<0.0005	0.033	0.0047	<0.0005	0.0007	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.015	<0.001	<0.001	0.0286	0.109
MW177	4/03/2020	Normal	EB2006415	MW17743894EB2006415	<0.0005	0.001	0.0061	0.0016	0.0138	<0.0005	<0.002	0.004	0.0022	0.0008	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.008	<0.001	<0.001	0.0199	0.0387
MW178	5/11/2015	Normal	EB1534037	MW17842313EB1534037	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW178	5/11/2015	Normal		MW17842313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW178	5/11/2015	Normal	EB1534043	MW17842313EB1534043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW178	2/02/2016	Normal	EB1603057	MW17842402EB1603057	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW178	2/02/2016	Normal		MW17842402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW178	10/02/2016	Normal	EB1603672	MW17842410EB1603672	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW178	4/05/2016	Normal	EB1611808	MW17842494EB1611808	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW178	4/05/2016	Normal		MW17842494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW178	4/05/2016	Normal	EB1611805	MW17842494EB1611805	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW178	24/03/2017	Normal	EB1705969	MW17842818EB1705969	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	16/11/2017	Normal	EB1724162	MW17843055EB1724162	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	24/11/2017	Normal	EB1724901	MW17843063EB1724901	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	30/11/2017	Normal	EB1725515	MW17843069EB1725515	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	14/12/2017	Normal	EB1726841	MW17843083EB1726841	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	20/12/2017	Normal	EB1727394	MW17843089EB1727394	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	9/01/2018	Normal	EB1801708	MW17843109EB1801708	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	16/01/2018	Normal	EB1802116	MW17843116EB1802116	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	23/01/2018	Normal	EB1802712	MW17843123EB1802712	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW178	30/01/2018	Normal	EB1803286	MW17843130EB1803286	<0.02	<0.02	0.03	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.05
MW178	6/02/2018	Interlab_D	AEC006_180213	MW17843137AEC006_180213_2	<0.01	<0.01	0.025	<0.01	0.028	<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	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW178	6/02/2018	Normal	EB1803821	MW17843137EB1803821	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.06
MW178	6/02/2018	Field_D	EB1803821	MW17843137EB1803821	<0.02	<0.02	0.03	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.05
MW178	14/02/2018	Normal	EB1804328	MW17843145EB1804328	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.06
MW178	21/02/2018	Normal	EB1804815	MW17843152

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW178	17/04/2021	Normal	EB2110967	MW17844303EB2110967	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	11/10/2021	Normal	EB2129575	MW17844480EB2129575	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	17/04/2022	Normal	EB2211261-AA	MW17844668EB2211261-AA	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW178	2/11/2022	Normal	EB2232878	MW17844867.6625EB2232878	<0.04	<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	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW179	5/11/2015	Normal		MW17942313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW179	5/11/2015	Normal	EB1534043	MW17942313EB1534043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW179	5/11/2015	Normal	EB1534037	MW17942313EB1534037	-	-	-	-	1.36	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW179	10/02/2016	Normal		MW17942410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW179	10/02/2016	Normal	EB1603672	MW17942410EB1603672	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW179	10/02/2016	Normal	EB1603688	MW17942410EB1603688	-	-	-	-	1.72	-	-	-	-	-	0.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW179	4/05/2016	Normal		MW17942494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW179	4/05/2016	Normal	EB1611805	MW17942494EB1611805	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW179	4/05/2016	Normal	EB1611808	MW17942494EB1611808	-	-	-	-	0.76	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-
MW179	28/03/2017	Normal	EB1706327	MW17942822EB1706327	0.62	0.51	2.98	0.22	2.42	<0.02	<0.1	0.2	1.28	0.22	0.37	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	5.4	8.82
MW179	20/10/2018	Field_D	EB1825398	MW17943393EB1825398	0.49	0.36	1.95	0.17	2.06	<0.02	0.2	0.2	1.04	0.18	0.27	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.01	6.92
MW179	20/10/2018	Normal	EB1825398	MW17943393EB1825398	0.41	0.36	2	0.18	1.98	<0.02	0.2	0.2	1.05	0.18	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	3.98	6.82
MW179	20/10/2018	Interlab_D	AECO06_181024	MW17943393AECO06_181024	0.46	0.36	2.1	0.15	2.6	<0.01	0.23	0.24	1.1	0.18	0.25	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	0.025	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW179	6/11/2019	Normal	EB1929759	MW17943775EB1929759	0.46	0.41	2.08	0.17	1.78	<0.02	<0.1	0.22	1.06	0.2	0.27	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	3.86	6.71
MW179	23/03/2020	Normal	EB2008693	MW17943913EB2008693	0.6	0.48	2.49	0.21	2.79	<0.02	0.2	0.27	1.4	0.26	0.33	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	5.28	9.03
MW179	23/03/2020	Field_D	EB2008693	MW17943913EB2008693	0.38	0.35	1.96	0.18	2.03	<0.02	0.2	0.19	1.13	0.17	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	3.99	6.87
MW179	23/03/2020	Interlab_D	RN1271386	MW17943913RN1271386	0.49	0.38	2	0.13	1.9	<0.01	0.23	0.25	1	0.19	0.27	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW179	20/10/2020	Normal	EB2027817	MW17944124EB2027817	0.52	0.43	2.3	0.23	3.01	<0.02	0.2	0.29	1.47	0.23	0.35	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	5.31	9.03
MW179	16/04/2021	Field_D	EB2110967	MW17944302EB2110967	0.58	0.52	2.67	0.25	3.21	<0.02	0.23	0.32	1.44	0.27	0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	5.88	9.89
MW179	16/04/2021	Normal	EB2110967	MW17944302EB2110967	0.57	0.51	2.6	0.26	3.05	<0.02	0.33	0.3	1.34	0.25	0.35	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	5.65	9.56
MW179	16/04/2021	Interlab_D	RN1312932	MW17944302RN1312932	0.53	0.42	2.4	0.16	2.7	<0.01	0.22	0.25	1.3	0.19	0.28	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW179	11/10/2021	Normal	EB2129575	MW17944480EB2129575	0.62	0.56	2.76	0.31	3.89	<0.02	0.2	0.28	1.7	0.26	0.43	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	6.65	11.0
MW179	18/04/2022	Normal	EB2211261-AA	MW17944669EB2211261-AA	0.54	0.46	2.39	0.2	2.33	<0.02	0.2	0.27	1.37	0.23	0.41	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	4.72	8.40
MW179	3/11/2022	Normal	EB2232878	MW17944868.6645833333EB2232878	0.94	0.53	2.76	0.3	4.19	<0.02	0.2	0.36	1.82	0.32	0.62	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.09	<0.05	<0.05	6.95	12.1
MW180	5/11/2015	Normal		MW18042313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW180	5/11/2015	Normal	EB1534043	MW18042313EB1534043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW180	5/11/2015	Field_D	EB1534043	MW18042313EB1534043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW180	5/11/2015	Interlab_D	478996	MW18042313478996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW180	5/11/2015	Interlab_D	480012	MW18042313480012	-	-	-	-	4.7	-	-	-	-	-	0.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-
MW180	5/11/2015	Normal	EB1534037	MW18042313EB1534037	-	-	-	-	2.71	-	-	-	-	-	0.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW180	5/11/2015	Field_D	EB1534037	MW18042313EB1534037	-	-	-	-	2.76	-	-	-	-	-	0.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW180	10/02/2016	Normal		MW18042410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW180	10/02/2016	Normal	EB1603672	MW18042410EB1603672	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW180	10/02/2016	Normal	EB1603688	MW18042410EB1603688	-	-	-	-	3.82	-	-	-	-	-	0.74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW180	10/02/2016	Field_D	EB1603688	MW18042410EB1603688	-	-	-	-	3.17	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW180	10/02/2016	Interlab_D	489124	MW18042410489124	-	-	-	-	<0.04	-	-	-	-	-	0.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.04	-	-
MW180	4/05/2016	Normal		MW18042494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW180	4/05/2016	Normal	EB1611805	MW18042494EB1611805	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW180	4/05/2016	Normal	EB1611808	MW18042494EB1611808	-	-	-	-	1.82	-	-	-	-	-	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-
MW180	28/03/2017	Field_D	EB1706327	MW18042822EB1706327	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.5	-
MW180	28/03/2017	Normal	ES1709078	MW18042822ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.98	-
MW180	28/03/2017	Normal	EB1706327	MW18042822EB1706327	1.3	1.11	5.91	0.49	4.01	<0.02	0.3	0.43	2.78	0.48	0.84	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	9.92	17.6
MW180	28/03/2017	Field_D	EB1706327	MW18042822EB1706327	1.46	0.93	6.66	0.47	3.81	<0.02	0.2	0.36	2.21	0.43	0.75	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	10.47	17.28
MW180	28/03/2017	Interlab_D	AECO06_170404	MW18042822AECO06_170404	0.85	-	4.2	-	2.5	<0.02	0.43	0.42	2.5	0.43	0.53	<0.01	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	6.7	-
MW180	26/04/2018	Normal	EB1810408	MW18043216EB1810408	0.53	0.37	1.9	0.19	2.55	<0.02	0.2	0.23	1.09	0.2	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.45	7.52
MW180	26/04/2018	Field_D	EB1810408	MW18043216EB1810408	0.48	0.38	2.04	0.19	2.36	<0.02	0.2	0.23	1.06	0.19	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.4	7.39
MW180	26/04/2018	Interlab_D	AECO06_180501	MW18043216AECO06_180501	0.4	0.32	1.9	0.12	1.8	<0.01	0.18	0.19	1	0.14	0.21	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW180	16/04/2019	Normal	EB1910095	MW18043571EB1910095	0.97	0.83	4.75	0.41	3.36	<0.02	0.4	0.49	2.6	0.42	0.62	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	8.11	14.8
MW185	23/05/2014	Normal	EB1412619	MW18541782EB1412619	-	-	-	-	179	-	-	-	-	-	32.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	<0.1	-	-	-
MW185	23/05/2014	Field_D	EB1412619	MW18541782EB1412619	-	-	-	-	168	-	-	-	-	-	31.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	<0.1	-	-	-
MW185	23/05/2014	Interlab_D	419679	MW18541782419679	-	-	-	-	11	-	-	-	-	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.6	0.01	-	-	-
MW185	29/10/2014	Field_D	EB1445390	MW18541941EB1445390	-	-	-	-	330	-	-	-	-	-	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	<0.1	-	-	-
MW185	29/10/2014	Interlab_D	437530	MW18541941437530	-	-	-	-	140	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	<0.01	-	-	-
MW185	29/10/2014	Normal	EB1445390	MW18541941EB1445390	-	-	-	-	222	-	-	-	-	-	34.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	<0.1	-	-	-
MW185	10/02/2016	Normal		MW18542410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW185	10/02/2016	Normal	EB1603672	MW18542410EB1603672	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW185	10/02/2016	Field_D	EB1603672	MW18542410EB1603672	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW185	10/02/2016	Interlab_D	489138	MW18542410489138	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW185	10/02/2016	Normal	EB1603688	MW18542410EB1603688	-	-	-	-	48.5	-	-	-	-	-	6.43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	<0.1	-	-	-
MW185	5/05/2016	Normal		MW18542495	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW185	5/05/2016	Normal	EB1611805	MW18542495EB1611805	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW185	5/05/2016	Field_D	EB1611808	MW18542495EB1611808	-	-	-	-	401	-	-	-	-	-	45.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.03	<0.1	-	-	-
MW185	5/05/2016	Interlab_D	499665	MW18542495499665	-	-	-	-	260	-	-	-	-	-	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.7	0.09	-	-	-
MW185	5/05/2016	Normal	EB1611808	MW18542495EB1611808	185	153	874	54	375	<0.1	42.4	34.8	198	18.3	39.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.25	<0.1	<0.25	<0.1	<0.25	<0.25	<0.1	<0.25	<0.1	1.56	<0.1	<0.1	1,249	<0.1
MW185	28/03/2017	Normal	ES1709078	MW18542822ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	690	-
MW185	28/03/2017	Normal	EB1706327	MW18542822EB1706327	76.6	88.8	604	29.8	249	<0.02	28.6	28.6	99.2	16.8	42.5	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.91	<0.05	<0.05	853	1,260
MW186	10/03/2017	Normal	EB1705014	MW18642804EB1705014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.41	-
MW186	10/03/2017	Normal	EB1705014	MW18642804EB1705014	0.89	1.08	5.69	0.63	8.72	<0.02	<0.1	0.41	2.58	0.59	1.53	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	14.4	22.2
MW186	13/03/2017	Field_D	EB1705014	MW18642807EB1705014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.11	-
MW186	13/03/2017	Field_D	EB1705014	MW18642807EB1705014	0.85	1.01	5.16	0.6	7.95	<0.02	<0.1	0.38	2.31	0.53	1.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	13.1	20.1
MW186	13/03/2017	Interlab_D	AECO06_170316	MW18642807AECO06_170316	0.56	-	4.3	-	5.6	<0.02	0.27	0.35	1.4	0.29	0.59	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	9.9	-
MW187	28/04/2017	Normal	EB1708629	MW18742853EB1708629	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW187	28/04/2017	Normal	EB1708629	MW18742853EB1708629	0.16	0.14	1.28	0.05	0.9	<0.02	<0.1	<0.02	0.03	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.18	2.62
MW187	28/04/2017	Interlab_D	AECO06_170502	MW18742853AECO06_170502	0.13	-	1.2	-	0.97	<0.02	<0.05	0.069	0.26	0.036	0.06	<0.01	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	2.17	-
MW187	28/04/2017	Field_D	EB1708629	MW18742853EB1708629	0.16	0.13	1.31	0.05	0.89	<0.02	<0.1	<0.02	0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.2	2.61
MW187	15/11/2017	Normal	EB1724162	MW18743054EB1724162	0.17	0.29	1.9	0.03	0.78	<0.02	<0.1	0.06	0.33	0.04	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.68	3.60
MW187	23/11/2017	Field_D	EB1724901	MW18743062EB1724901	0.17	0.17	1.32	0.06	1.04	<0.02	<0.1	0.09	0.27	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.36	3.24
MW187	23/11/2017	Normal	EB1724901	MW18743062EB1724901	0.18	0.17	1.26	0.06	1.03	<0.02	<0.1	0.08	0.24	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.29	3.13
MW187	23/11/2017	Interlab_D	AECO06_171128	MW18743062AECO06_171128	0.12	0.12	1.1	0.034	0.89	<0.01	0.05	0.057	0.2	0.031	0.056	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	0.05	0.01	0.01	0.01	0.01	-	-
MW187	30/11/2017	Normal	EB1725515	MW18743069EB1725515	0.26	0.22	1.32	0.08	1.51	<0.02	<0.1	0.12	0.44	0.13	0.13	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.83	4.21
MW187	13/12/2017	Normal	EB1726841	MW18743082EB1726841	0.21	0.21	1.3	0.06	1.08	<0.02	<0.1	0.09	0.37	0.04	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.38	3.45
MW187	21/12/2017	Normal	EB1727394	MW18743090EB1727394	0.16	0.19	1.32	0.05	1.01	<0.02	<0.1	0.05	0.29	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.33	3.18
MW187	10/01/2018	Normal	EB1801708	MW18743110EB1801708	0.14	0.12	1.1	0.05	0.9	<0.02	<0.1	0.03	0.23	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2	2.67
MW187	17/01/2018	Field_D	EB1802116	MW18743117EB1802116	0.1	0.1	0.45	0.03	0.76	<0.02	<0.1	0.07	0.12	0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.21	1.72
MW187	17/01/2018	Normal	EB1802116	MW18743117EB1802116	0.09	0.11	0.41	0.04	0.74	<0.02	<0.1	0.06	0.12	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.15	1.64
MW187	17/01/2018	Interlab_D	AECO06_180123	MW18743117AECO06_180123	0.1	0.11	0.95	0.029	0.68	<0.01	<0.05	0.045	0.19	0.026	0.046	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW187	24/01/2018	Normal	EB1802712	MW18743124EB1802712	0.12	0.13	0.76	0.04	0.71	<0.02	<0.1	0.07	0.2	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.47	2.13
MW187	24/01/2018	Field_D	EB1802712	MW18743124EB1802712	0.12	0.12	0.83	0.04	0.75	<0.02	<0.1	0.06	0.2	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.58	2.19
MW187	24/01/2018	Interlab_D	AECO06_180

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW187	27/02/2018	Field_D	EB1805780	MW18743158EB1805780	0.11	0.13	0.92	0.04	0.69	<0.02	<0.1	0.06	0.2	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.61	2.21
MW187	6/03/2018	Normal	EB1806160	MW18743165EB1806160	0.11	0.13	0.86	0.04	0.61	<0.02	<0.1	0.05	0.17	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.47	2.04
MW187	6/03/2018	Field_D	EB1806160	MW18743165EB1806160	0.11	0.12	0.88	0.04	0.59	<0.02	<0.1	0.05	0.17	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.47	2.02
MW187	6/03/2018	Interlab_D	AEC006_180309	MW18743165AEC006_180309	0.093	0.1	1.1	0.024	0.92	<0.01	<0.05	0.038	0.16	0.022	0.038	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW187	13/03/2018	Normal	EB1806857	MW18743172EB1806857	0.07	0.07	1.04	0.04	0.73	<0.02	<0.1	0.04	0.14	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.77	2.18
MW187	13/03/2018	Field_D	EB1806857	MW18743172EB1806857	0.08	0.08	1.13	0.04	0.71	<0.02	<0.1	0.04	0.14	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.84	2.26
MW187	19/03/2018	Interlab_D	AEC006_180321	MW18743178AEC006_180321	0.086	0.091	0.87	0.023	0.72	<0.01	<0.05	0.037	0.16	0.019	0.032	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW187	21/03/2018	Normal	EB1807454	MW18743180EB1807454	0.11	0.12	0.89	0.04	0.66	<0.02	<0.1	0.04	0.14	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.55	2.08
MW187	21/03/2018	Field_D	EB1807454	MW18743180EB1807454	0.1	0.1	0.8	0.04	0.72	<0.02	<0.1	0.05	0.14	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.52	2.02
MW187	21/03/2018	Interlab_D	AEC006_180405	MW18743180AEC006_180405_1	0.084	0.091	0.79	0.024	0.56	<0.01	<0.05	0.034	0.14	0.019	0.034	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW187	27/03/2018	Normal	EB1808121	MW18743186EB1808121	0.11	0.12	0.89	0.04	0.65	<0.02	<0.1	0.05	0.17	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.54	2.09
MW187	27/03/2018	Interlab_D	AEC006_180405	MW18743186AEC006_180405_3	0.086	0.095	0.81	0.024	0.61	<0.01	<0.05	0.037	0.15	0.02	0.034	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW187	27/03/2018	Field_D	EB1808121	MW18743186EB1808121	0.1	0.11	0.91	0.04	0.66	<0.02	<0.1	0.05	0.17	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.57	2.09
MW187	3/04/2018	Normal	EB1808415	MW18743193EB1808415	0.08	0.06	0.88	0.03	0.58	<0.02	<0.1	0.03	0.12	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.46	1.85
MW187	3/04/2018	Field_D	EB1808415	MW18743193EB1808415	0.07	0.07	0.9	0.04	0.55	<0.02	<0.1	0.04	0.11	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.45	1.85
MW187	3/04/2018	Interlab_D	AEC006_180406	MW18743193AEC006_180406	0.095	0.1	0.81	0.023	0.55	<0.01	<0.05	0.038	0.16	0.02	0.033	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW187	11/04/2018	Normal	EB1809152	MW18743201EB1809152	0.11	0.12	0.87	0.04	0.58	<0.02	<0.1	0.04	0.17	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.45	1.98
MW187	18/04/2018	Normal	EB1809906	MW18743208EB1809906	0.11	0.12	0.91	0.02	0.66	<0.02	<0.1	0.04	0.17	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.57	2.09
MW187	24/04/2018	Normal	EB1810407	MW18743214EB1810407	0.1	0.12	0.9	0.03	0.59	<0.02	<0.1	0.04	0.16	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.49	2.00
MW187	1/05/2018	Normal	EB1810939	MW18743221EB1810939	0.1	0.1	0.84	0.03	0.61	<0.02	<0.1	0.04	0.16	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.45	1.95
MW187	11/05/2018	Normal	EB1811569	MW18743231EB1811569	0.1	0.11	0.85	0.04	0.72	<0.02	<0.1	0.04	0.16	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.57	2.08
MW187	11/05/2018	Interlab_D	AEC006_180515	MW18743231AEC006_180515_1	0.086	0.093	0.76	0.023	0.59	<0.01	<0.05	0.034	0.14	0.021	0.034	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW187	11/05/2018	Field_D	EB1811569	MW18743231EB1811569	0.1	0.11	0.82	0.03	0.62	<0.02	<0.1	0.04	0.15	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.44	1.90
MW187	18/05/2018	Field_D	EB1812201	MW18743238EB1812201	0.09	0.11	0.89	0.04	0.71	<0.02	<0.1	0.04	0.16	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.6	2.10
MW187	18/05/2018	Field_D	EB1812201	MW18743238EB1812201	0.1	0.1	0.85	0.03	0.68	<0.02	<0.1	0.04	0.17	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.53	2.03
MW187	18/05/2018	Normal	EB1812201	MW18743238EB1812201	0.1	0.12	0.89	0.04	0.68	<0.02	<0.1	0.04	0.16	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.57	2.08
MW187	23/05/2018	Field_D	EB1812713	MW18743243EB1812713	0.1	0.12	1.19	0.05	0.66	<0.02	<0.1	0.04	0.14	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.85	2.38
MW187	23/05/2018	Normal	EB1812713	MW18743243EB1812713	0.1	0.11	1.08	0.04	0.65	<0.02	<0.1	0.04	0.12	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.73	2.20
MW187	23/05/2018	Interlab_D	AEC006_180530	MW18743243AEC006_180530	0.075	0.086	0.72	0.021	0.48	<0.01	<0.05	0.031	0.13	0.019	0.031	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW187	21/06/2018	Normal	B682895-B	MW18743272B682895-B	0.1	0.1	1.1	<0.05	0.53	<0.05	<2.5	0.09	0.3	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	1.63	2.36
MW187	21/06/2018	Normal	B682895-A	MW18743272B682895-A	0.093	0.12	0.91	0.04	0.63	<0.001	0.009	0.037	0.18	0.022	0.067	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	1.5	2.1
MW187	21/06/2018	Normal	B682895-A	MW18743272B682895-A	0.082	0.11	0.84	0.038	0.63	<0.001	<0.005	0.037	<0.001	0.021	0.064	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	1.5	1.8
MW187	21/06/2018	Normal	B682895-B	MW18743272B682895-B	0.1	0.1	1	<0.05	0.5	<0.05	<2.5	0.08	0.3	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	1.52	2.24
MW187	18/07/2018	Normal	B692234-B	MW18743299B692234-B	0.08	0.2	0.71	<0.05	0.53	<0.05	<2.5	0.05	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	1.24	1.70
MW187	18/07/2018	Normal	B692234-A	MW18743299B692234-A	0.09	0.13	0.71	0.04	0.48	<0.01	<0.05	0.03	0.15	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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.2	1.7
MW187	25/10/2018	Normal	EB1825962	MW18743398EB1825962	0.08	0.13	0.97	0.04	0.58	<0.02	<0.1	0.03	0.15	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.55	2.02
MW187	25/10/2018	Interlab_D	AEC006_181030	MW18743398AEC006_181030_1	0.082	0.091	0.77	0.025	0.6	<0.01	<0.05	0.03	0.12	0.018	0.031	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW187	25/10/2018	Field_D	EB1825962	MW18743398EB1825962	0.07	0.12	0.87	0.03	0.49	<0.02	<0.1	0.03	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.36	1.76
MW187	16/04/2019	Normal	EB1910095	MW18743571EB1910095	0.07	0.09	0.73	0.02	0.39	<0.02	<0.1	0.02	0.13	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.12	1.48
MW187	11/07/2019	Field_D	EB1918202	MW18743657EB1918202	0.0571	0.091	0.536	0.0269	0.302	<0.0005	0.008	0.0217	0.127	0.0144	0.0294	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.001	<0.001	<0.001	0.838	1.22
MW187	11/07/2019	Normal	EB1918202	MW18743657EB1918202	0.0507	0.0922	0.475	0.027	0.274	<0.0005	0.005	0.0226	0.114	0.0131	0.025	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.001	<0.001	<0.001	0.749	1.10
MW187	22/10/2019	Normal	EB1928436	MW18743760EB1928436	0.06	0.09	0.71	0.02	0.31	<0.02	<0.1	0.03	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.02	1.35
MW187	29/10/2019	Normal	EB1928975	MW18743767EB1928975	0.0908	0.103	0.603	0.0394	0.339	<0.0005	0.009	0.0311	0.167	0.0159	0.032	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.002	<0.001	<0.001	0.942	1.43
MW187	4/03/2020	Normal	EB2006415	MW18743894EB2006415	0.0726	0.109	0.659	0.0317	0.373	<0.0005	<0.002	0.0256	0.111	0.0154	0.0292	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	1.03	1.43
MW187	4/03/2020	Field_D	EB2006415	MW18743894EB2006415	0.0658	0.0817	0.488	0.0281	0.284	<0.0005	<0.002	0.0227	0.0964	0.0127	0.024	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.772	1.10
MW187	25/03/2020	Normal	EB2008691	MW18743915EB2008691	<0.09	0.09	0.73	<0.09	0.38	<0.09	<0.5	<0.09	0.11	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.23	<0.09	<0.23	<0.09	<0.23	<0.23	<0.09	<0.23	<0.09	<0.09	<0.09	<0.09	1.11	1.31
MW187	25/03/2020	Interlab_D	RN1271386	MW18743915RN1271386	0.06	0.074	0.66	0.018	0.31	<0.01	<0.05	0.023	0.11	0.013	0.024	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW187	20/10/2020	Normal	EB2027817	MW18744124EB2027817	0.06	0.08	0.6	0.03	0.34	<0.02	<0.1	0.02	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.94	1.27
MW187	17/04/2021	Normal	EB2110967	MW18744303EB2110967	0.09	0.08	0.58	0.03	0.31	<0.02	<0.10	0.03	0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.89	1.25
MW187	13/10/2021	Normal	EB2129575	MW18744482EB2129575	<0.06	0.07	0.67	<0.05	0.37	<0.05	<0.2	<0.05	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	1.04	1.23
MW187	11/04/2022	Normal	EB2211261-AA	MW18744662EB2211261-AA	0.03	0.02	0.16	<0.02	0.45	<0.02	0.1	0.13	0.24	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.61	1.13
MW187	27/10/2022	Normal	EB2232878	MW18744861.6548611111EB2232878	0.05	0.06	0.41	<0.02	0.32	<0.02	<0.1	0.05	0.12	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.73	1.03
MW188	29/08/2017	Normal	EB1717689	MW18842976EB1717689	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01
MW188	16/11/2017	Normal	EB1724162	MW18843055EB1724162	<0.02	0.03	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.03	
MW188	24/11/2017	Normal	EB1724901	MW18843063EB1724901	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.06
MW188	1/12/2017	Normal	EB1725515	MW18843070EB1725515	0.05	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.12
MW188	14/12/2017	Normal	EB1726841	MW18843083EB1726841	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.07
MW188	21/12/2017	Normal	EB1727394	MW18843090EB1727394	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.07
MW188	10/01/2018	Normal	EB1801708	MW18843110EB1801708	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.08
MW188	17/01/2018	Normal	EB1802116	MW18843117EB1802116	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	0.04
MW188	24/01/2018	Normal	EB1802712	MW18843124EB1802712	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.06
MW188	30/01/2018	Normal	EB1803286	MW18843130EB1803286	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW188	6/02/2018	Normal	EB1803821	MW18843137EB1803821	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.06
MW188	15/02/2018	Normal	EB1804328	MW18843146EB1804328	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.08
MW188	21/02/2018	Normal	EB1804815	MW18843152EB1804815	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW188	27/02/2018	Normal	EB1805780	MW18843158EB1805780	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW189	27/02/2018	Normal	EB1805780	MW18943158EB1805780	<0.02	<0.02	0.09	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.17
MW189	6/03/2018	Normal	EB1806160	MW18943165EB1806160	<0.02	<0.02	0.09	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	0.14
MW189	13/03/2018	Normal	EB1806857	MW18943172EB1806857	<0.02	<0.02	0.1	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	0.17
MW189	21/03/2018	Normal	EB1807454	MW18943180EB1807454	0.02	0.02	0.09	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	0.21
MW189	27/03/2018	Normal	EB1808121	MW18943186EB1808121	<0.02	<0.02	0.1	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	0.17
MW189	3/04/2018	Normal	EB1808415	MW18943193EB1808415	<0.02	<0.02	0.1	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.15
MW189	12/04/2018	Interlab_D	AECO06_180417	MW18943202AECO06_180417_2	<0.01	0.012	0.076	<0.01	0.074	<0.01	<0.05	<0.02	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW189	12/04/2018	Normal	EB1809152	MW18943202EB1809152	<0.02	<0.02	0.11	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.19
MW189	12/04/2018	Field_D	EB1809152	MW18943202EB1809152	<0.02	<0.02	0.1	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	0.16
MW189	18/04/2018	Normal	EB1809906	MW18943208EB1809906	<0.02	<0.02	0.1	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	0.16
MW189	24/04/2018	Normal	EB1810407	MW18943214EB1810407	<0.02	<0.02	0.09	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.18	0.18
MW189	2/05/2018	Normal	EB1810939	MW18943222EB1810939	<0.02	<0.02	0.08	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.15
MW189	11/05/2018	Normal	EB1811569	MW18943231EB1811569	<0.02	<0.02	0.09	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.15
MW189	18/05/2018	Normal	EB1812201	MW18943238EB1812201	<0.02	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	0.16
MW189	23/05/2018	Normal	EB1812713	MW18943243EB1812713	<0.02	<0.02	0.11	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.19
MW189	19/06/2018	Normal	B682421-B	MW18943270B682421-B	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	0.08	0.08
MW189	19/06/2018	Normal	B682421-A	MW18943270B682421-A	0.012	0.014	0.078	0.003	0.064	<0.001	<0.005	0.004	0.02	0.002	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.14	0.20
MW189	17/07/2018	Normal	B692234-B	MW18943298B692234-B	<0.05	<0.05	0.08	<0.05	0.09	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	0.17	0.17
MW189	17/07/2018	Normal	B692234-A	MW18943298B692234-A	0.01	0.02	0.08	<0.01	0.1	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.18	0.23
MW189	20/10/2018	Normal	EB1825398	MW18943393EB1825398	<0.02	<0.02	0.08	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.07
MW189	17/04/2019	Normal	EB1910290	MW18943572EB1910290	<0.02	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	0.16
MW189	11/07/2019	Normal	EB1918202	MW18943657EB1918202	0.0072	0.0123	0.0707	0.0034	0.0645	<0.0005	<0.002	0.0027	0.0149	0.0017	0.0033	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.135	0.181
MW189	22/10/2019	Normal	EB1928436	MW18943760EB1928436	<0.02	<0.02	0.09	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.15
MW189	29/10/2019	Normal	EB1928975	MW18943767EB1928975	0.0128	0.0141	0.0957	0.0044	0.0997	<0.0005	0.002	0.0039	0.018	0.002	0.0042	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.195	0.257
MW189	4/03/2020	Normal	EB2006415	MW18943894EB2006415	0.0106	0.0144	0.0772	0.0046	0.088	<0.0005	<0.002	0.004	0.0145	0.0024	0.0047	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	0.165	0.220
MW189	25/03/2020	Normal	EB2008691	MW18943915EB2008691	<0.03	<0.03	0.08	<0.03	0.08	<0.03	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	<0.05	<0.05	<0.05	<0.05	0.16	0.16
MW189	20/10/2020	Normal	EB2027817	MW18944124EB2027817	<0.02	<0.02	0.08	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	0.20
MW189	17/04/2021	Normal	EB2110967	MW18944303EB2110967	<0.02	<0.02	0.08	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	0.20
MW189	13/10/2021	Normal	EB2129575	MW18944482EB2129575	<0.02	<0.02	0.1	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.19
MW189	11/04/2022	Normal	EB2211261-AA	MW18944662EB2211261-AA	<0.02	<0.02	0.07	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.15
MW189	27/10/2022	Normal	EB2232878	MW18944861.6513888889EB2232878	0.02	<0.02	0.07	<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	<0.02	<0.06	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	<0.05	<0.05	0.13	0.15
MW190	13/04/2017	Normal	EB1707685	MW19042838EB1707685	1.25	0.24	13.3	1.55	41.7	<0.02	<0.1	0.24	<0.02	0.03	0.72	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.09	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	55	59.1
MW190	5/05/2017	Normal	EB1709193	MW19042860EB1709193	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW191	29/08/2017	Interlab_D	AECO06/170901	MW19142976AECO06/170901	<0.01	-	<0.02	-	<0.01	<0.02	<0.05	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW191	29/08/2017	Normal	EB1717689	MW19142976EB1717689	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	29/08/2017	Field_D	EB1717689	MW19142976EB1717689	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	16/11/2017	Normal	EB1724162	MW19143055EB1724162	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	24/11/2017	Normal	EB1724901	MW19143063EB1724901	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	1/12/2017	Normal	EB1725515	MW19143070EB1725515	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW191	13/12/2017	Normal	EB1726841	MW19143082EB1726841	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	21/12/2017	Normal	EB1727394	MW19143090EB1727394	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	10/01/2018	Normal	EB1801708	MW19143110EB1801708	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	17/01/2018	Normal	EB1802116	MW19143117EB1802116	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	24/01/2018	Normal	EB1802712	MW19143124EB1802712	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	30/01/2018	Normal	EB1803286	MW19143130EB1803286	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	6/02/2018	Normal	EB1803821	MW19143137EB1803821	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	15/02/2018	Normal	EB1804328	MW19143146EB1804328	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	21/02/2018	Normal	EB1804815	MW19143152EB1804815	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	27/02/2018	Normal	EB1805780	MW19143158EB1805780	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	6/03/2018	Normal	EB1806160	MW19143165EB1806160	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	13/03/2018	Normal	EB1806857	MW19143172EB1806857	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW191	20/03/2018	Normal	EB1807454	MW19143179EB1807454	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	28/03/2018	Normal	EB1808121	MW19143187EB1808121	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	3/04/2018	Normal	EB1808415	MW19143193EB1808415	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	11/04/2018	Normal	EB1809152	MW19143201EB1809152	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	18/04/2018	Normal	EB1809906	MW19143208EB1809906	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	24/04/2018	Normal	EB1810407	MW19143214EB1810407	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	1/05/2018	Normal	EB1810939	MW19143221EB1810939	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	11/05/2018	Normal	EB1811569	MW19143231EB1811569	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	18/05/2018	Normal	EB1812201	MW19143238EB1812201	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	23/05/2018	Normal	EB1812713	MW19143243EB1812713	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW191	20/06/2018	Normal	B682895-B	MW19143271B682895-B	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05
MW191	20/06/2018	Normal	B682895-A	MW19143271B682895-A	<0.001	<0.001	0.002	<0.001	0.01	<0.001	<0.005	<0.001	<0.001	<0.001	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	0.012	0.017
MW191	17/07/2018	Normal	B692234-B	MW19143298B692234-B	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05
MW191	17/07/2018	Normal	B692234-A	MW19143298B692234-A	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
MW191	11/07/2019	Normal	EB1918202	MW19143657EB1918202	<0.0005	<0.0005	<0.0005	<0.0005	0.0017	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.0017	0.0022
MW191	29/10/2019	Normal	EB1928975	MW19143767EB1928975	<0.0005	<0.0005	0.003	<0.0005	0.0126	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	0.0034	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.0156	0.0210
MW191	30/10/2019	Field_D	EB1928975	MW19143768EB1928975	<0.0005	<0.0005	0.0016	<0.0005	0.0148	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	0.0045	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW198	5/05/2016	Normal	EB1611808	MW19842495EB1611808	-	-	-	-	53.5	-	-	-	-	-	3.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	<0.05	-	-
MW198	8/03/2017	Normal	EB1704721	MW19842802EB1704721	3.32	2.66	14.2	2.25	48.3	<0.02	2.7	2.52	3.01	1.85	3.87	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.47	<0.05	<0.05	62.5	85.2
MW198	23/04/2018	Normal	EB1810408	MW19843213EB1810408	1.54	1.76	13.8	1.73	53	<0.02	0.9	1.81	4.6	1.19	1.9	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.28	<0.05	<0.05	66.8	82.6
MW198	23/06/2018	Normal	B683754-A	MW19843274B683754-A	1.3	1.3	8.9	1.2	29	<0.01	0.78	1.5	3.9	1.1	2.2	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	0.015	<0.01	37.42	50.98
MW198	23/06/2018	Normal	B683754-B	MW19843274B683754-B	1.4	1.5	11	1.2	23	<0.05	3.8	4.2	15	1.4	2.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	33.76	64.61
MW198	26/06/2018	Normal	B684401-B	MW19843277B684401-B	0.61	0.56	3.8	0.4	2.1	<0.05	<2.5	0.68	1.4	0.2	0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	5.84	10.02
MW198	26/06/2018	Normal	B684401-A	MW19843277B684401-A	0.61	0.5	3.8	0.14	2.6	<0.01	0.098	0.26	0.75	0.091	0.21	<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	<0.05	<0.01	<0.01	6.46	9.21
MW198	21/10/2018	Normal	EB1825398	MW19843394EB1825398	1.23	1.26	8.66	1.21	33	<0.02	0.7	1.36	3.41	0.93	1.64	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.24	<0.05	<0.05	41.7	53.7
MW198	10/04/2019	Normal	EB1909359	MW19843565EB1909359	1.16	1.13	8.47	1.14	33.2	<0.02	0.8	1.37	3.55	0.97	1.74	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.23	<0.05	<0.05	41.7	53.8
MW198	22/10/2019	Normal	EB1928436	MW19843760EB1928436	1.06	1.2	9.28	1.35	30.9	<0.02	1.4	1.44	3.58	0.96	1.67	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.22	<0.05	<0.05	40.2	53.1
MW198	5/03/2020	Normal	EB2006415	MW19843895EB2006415	0.0082	0.0099	0.0804	0.0141	0.626	<0.0005	<0.002	0.0127	0.0279	0.008	0.0141	0.0012	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.002	<0.001	<0.001	0.706	0.806
MW198	25/03/2020	Normal	EB2008691	MW19843915EB2008691	1.06	1.19	8.88	1.3	28.6	<0.16	<0.8	1.33	3.31	0.88	1.38	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.40	<0.16	<0.40	<0.16	<0.40	<0.40	<0.16	<0.40	<0.16	0.19	<0.16	<0.16	37.5	48.1
MW198	19/10/2020	Normal	EB2027817	MW19844123EB2027817	0.6	0.66	4.51	0.6	14	<0.04	0.5	0.82	1.89	0.51	0.86	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.09	<0.04	<0.09	<0.04	<0.09	<0.09	<0.04	<0.09	<0.05	0.1	<0.05	<0.05	18.5	25.0
MW198	14/04/2021	Normal	EB2110967	MW19844300EB2110967	0.14	0.18	1.28	0.18	5.4	<0.02	0.1	0.19	0.43	0.14	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	6.68	8.25
MW198	11/10/2021	Normal	EB2129575	MW19844480EB2129575	0.25	0.29	2	0.33	6.73	<0.02	0.1	0.25	0.67	0.2	0.31	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	8.73	11.1
MW198	17/04/2022	Normal	EB2211261-AA	MW19844668EB2211261-AA	0.23	0.21	1.56	0.24	5.99	<0.02	0.1	0.26	0.62	0.16	0.29	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	7.55	9.66
MW198	4/11/2022	Normal	EB2232878	MW19844869.6194444444EB2232878	0.65	0.78	5.49	0.82	19.6	<0.05	0.6	1.13	2.4	0.61	0.98	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	25.1	33.2
MW199	9/03/2017	Normal	EB1704721	MW19942803EB1704721	0.95	0.66	3.65	0.26	4.64	<0.02	<0.1	0.28	0.88	0.17	0.31	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.2	<0.05	<0.05	8.29	12
MW201	13/03/2017	Normal	EB1705014	MW20142807EB1705014	3.62	4.41	24.5	1.28	19.3	<0.02	0.3	1.01	5.95	0.75	2.51	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.44	<0.05	<0.05	43.8	64.1
MW201	18/04/2019	Normal	EB1910290	MW20143573EB1910290	4.69	7.69	38.4	2.81	16.5	<0.02	0.2	1.77	8.59	1.2	2.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.36	<0.05	<0.05	54.9	84.5
MW201	10/07/2019	Normal	EB1918202	MW20143656EB1918202	3.39	4.28	24.4	1.67	10.8	<0.0005	0.236	1.19	5.56	0.804	1.63	0.0159	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0081	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.217	0.002	<0.001	35.2	54.2
MW201	22/10/2019	Field_D	EB1928436	MW20143760EB1928436	30.2	30	207	11.8	99.2	<0.02	4.1	8.86	41.3	6.3	11.4	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.8	<0.05	<0.05	306	451
MW201	22/10/2019	Normal	EB1928436	MW20143760EB1928436	31.6	30.8	203	10.4	89.1	<0.02	4.2	8.39	37.9	6.07	11.1	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.78	<0.05	<0.05	325	498
MW201	22/10/2019	Interlab_D	RN1251384	MW20143760RN1251384	28	25	200	7.9	100	<0.01	5.7	8	36	5	9.8	0.072	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	0.69	0.011	<0.01	-	-
MW201	30/10/2019	Normal	EB1928975	MW20143768EB1928975	4.12	3.64	28.7	1.24	10.4	<0.0005	0.388	1.33	6.38	0.798	1.71	0.0191	0.0011	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0101	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.196	0.001	<0.001	39.1	58.9
MW201	5/03/2020	Normal	EB2006415	MW20143895EB2006415	4.96	6.85	48	3.97	25.3	<0.0160	0.139	1.8	8.29	1.24	3.9	0.0304	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0400	<0.0160	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	<0.016	0.4	<0.016	<0.016	73.3	105
MW201	26/03/2020	Normal	EB2008691	MW20143916EB2008691	6.3	7.96	52.8	3.49	28.9	<0.07	0.6	1.97	10	1.76	3.81	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.18	<0.07	<0.18	<0.07	<0.18	<0.18	<0.07	<0.18	<0.07	0.48	<0.07	<0.07	81.7	118
MW201	23/10/2020	Normal	EB2027817	MW20144127EB2027817	10.2	10.8	69	4.06	36.2	<0.19	<0.9	3.44	16	2.29	4.36	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.47	<0.19	<0.47	<0.19	<0.47	<0.47	<0.19	<0.47	<0.19	0.41	<0.19	<0.19	105	157
MW201	15/04/2021	Normal	EB2110967	MW20144301EB2110967	11.2	14.8	67.2	3.88	33.7	<0.04	1.9	3.85	17.3	2.57	4.67	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	<0.05	0.43	<0.05	<0.05	101	162
MW201	12/10/2021	Normal	EB2129575	MW20144481EB2129575	12.6	14.3	80.2	5.58	36.5	<0.10	2.1	3.57	19.8	2.7	5.41	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.24	<0.10	<0.24	<0.10	<0.24	<0.24	<0.10	<0.24	<0.10	0.44	<0.10	<0.10	117	183
MW201	17/04/2022	Normal	EB2211261-AA	MW20144668EB2211261-AA	16.8	17.8	104	6.35	58.5	<0.05	3.2	5.33	25.7	3.34	7.46	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	0.46	<0.05	<0.05	162	249
MW201	17/04/2022	Field_D	EB2211261-AA	MW20144668EB2211261-AA	12.9	13	85.7	4.53	50.8	<0.02	3.4	4.8	18.3	2.62	5.32	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.61	<0.05	<0.05	136	202
MW201	17/04/2022	Interlab_D	RN1350926	MW20144668RN1350926	13	12	79	4.4	40	<0.01	2.5	3.8	18	4	4.3	0.041	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	0.5	<0.01	<0.01	-	-
MW201	4/11/2022	Normal	EB2232878	MW20144869.6208333333EB2232878	26.5	28.3	147	10.1	63	<0.24	5.9	9.15	43	5.2	9.2	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.6	<0.24	<0.6	<0.6	<0.6	<0.6	<0.24	<0.24	<0.24	0.55	<0.24	<0.24	210	348
MW202	13/03/2017	Normal	EB1705014	MW20242807EB1705014	31.1	32	211	14.6	294	<0.02	2.4	7.41	41.4	2.56	21.8	0.08	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.09	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	3.82	0.09	<0.05	505	662
MW202	6/11/2017	Normal	EB1723185	MW20243045EB1723185	8.61	11.6	56.9	3.68	88.1	<0.02	1.2	4.39	15.9	3.41	7.13	0.11	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.96	0.07	<0.05	145	202
MW202	17/01/2018	Normal	EB1802116	MW20243117EB1802116	15.6	16.4	69	6.9	89.6	<0.02	2.7	6.14	16.8	2.79	9.98	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.1	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.7	<0.05	<0.05	159	237
MW202	22/06/2018	Normal	B683485-B	MW20243273B683485-B	33	36	100	13	120	<0.05	24	24	73	5.5	18	0.07	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	225.39	451.64
MW202	22/06/2018	Normal	B683485-A	MW20243273B683485-A	18	17	140	9.5	200	<1.0	2	6	27	4	14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	340	430
MW202	27/06/2018	Normal	B684675-A	MW20243278B684675-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW202	27/06/2018	Normal	B684675-B	MW20243278B684675-B	28	27	110	12	120	<0.05	19	23	81	4.7	13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	229.64	438.17
MW202	27/06/2018	Normal	B684675-A	MW20243278B684675-A	14	13	120	6.7	150	<1.0	<1.0	<1.0	22	3.1	9.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	265.47	334.92
MW202	23/10/2018	Normal	EB1825962	MW20243396EB1825962	24.4	32.8	199	13.6	164	<0.50	5	8	34.8	5.4	10.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.25	<0.50	<1.25	<0.50	<1.25	<1.25	<0.50	<1.25	<0.50	1.35	<0.50	<0.50	363	499
MW202	10/04/2019	Normal	EB1909359	MW20243565EB1909359	54.2	51.6	384	24.3	331	<0.02	8.9	13.9	66.9	9	20.5	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1	<0.05	<0.05	715	965
MW202	10/04/2019	Field_D	EB1909359	MW20243565EB1909359	50.6	47.5	362	22	236	<0.02	8.5	13.3	63.8	9	20.5	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.1	<0.05	<0.05	598	834
MW202	10/04/2019	Interlab_D	RN1229846	MW20243565RN1229846	53	49	320	13	190	<0.01	9.1	17	58	7.9	18	0.11	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	0.019	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	1.1	0.014	<0.01	-	-
MW202	10/07/2019	Normal	EB1918202	MW20243656EB1918202	35.6	37	326	16.8	132	<0.0200	2.43	9.97	48.9	5.11	13.6	0.078	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0500	<0.0200	<0.050	<0.0200	<0.050	<0.050	<0.0200	<0.050	<0.020	1.03	<0.020	<0.020	458	628
MW202	22/10/2019	Normal	EB1928436	MW20243760EB1928436	3.94	5.09	32.3	1.16	9.25	<0.02	0.5	1.41	6.58	0.95	1.8	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.2	<0.05	<0.05	41.6	63.2
MW202	30/10/2019	Normal	EB1928975	MW20243768EB1928975	33.2	26.9	196	11.4	96.1	<0.0005	1.75	7.91	45.6	5.01	10.8	0.072	0.0043	<0.0005	<0.0005	<0.0005	<0.0005	0.0214	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.004	0.682	0.013	<0.001	292	435
MW202	5/03/2020	Normal	EB2006415	MW20243895EB2006415	46.8	65.4	642	81.1	928	<0.160	1.25	15.6	70	11.5	44.9	0.432	<0.160	<0.160	<0.160	<0.160	<0.400	<0.160	<0.400	<0.160	<0.400	<0.400	<0.160	<0.400	<0.160	3.06	<0.160	<0.160	1,570	1,910
MW202	30/03/2020	Normal	EB2009332	MW20243920EB2009332	12.4	17.7	143	27.5	884	<0.32	<1.6	4.74	20.2	3.72	16.2	0.58	<0.32	<0.32	<0.32	<0.32	<0.80	<0.32	<0.80	<0.32	<0.80	<0.80	<0.32	<0.80	<0.32	2.82	<0.32	<0.32	1,030	1,130
MW202	23/10/2020	Normal	EB2027817	MW20244127EB2027817	7.78	9.3	80.3	8.62	282	<0.40	<2.0	4.15	16.5	2.48	6.87	<0.40	<0.40	<0.40	<0.40	<0.40	<1.00	<0.40	<1.00	<0.40	<1.00	<1.00	<0.40	<1.00	<0.40	0.84	<0.40	<0.40	362	419
MW202	17/04/2021	Normal	EB2110967	MW20244303EB2110967	9.42	10.2	85.2	7.07	301	<0.37	2.5	4.47	17.2	2.71	7.51	<0.37	<0.37	<0.37	<0.37	<0.37	<0.92	0.55	<0.92	<0.37	<0.92	<0.92	<0.37	<0.92	<0.37	0.95	<0.37	<0.37	386	449
MW202	12/10/2021	Normal	EB2129575	MW20244481EB2129575	17.1	17.5	114	8.28	202	<0.24	3.6	6.6	31.1	4.26	9.33	0.26	<0.24	<0.24	<0.24	<0.24	<0.60	<0.24	<0.60	<0.24	<0.60	<0.60	<0.24	<0.60	<0.24	1.6	<0.24	<0.24	316	416
MW202	17/04/2022	Normal	EB2211261-AA	MW20244668EB2211261-AA	10.8	10.2	100	9.25	475	<2.50	<12.5	4	21.2	<2.50	7.75	<2.50	<2.50	<2.50	<2.50	<2.50	<6.25	<2.50	<6.25	<2.50	<6.25	<6.25	<2.50	<6.25	<2.50	<2.50	<2.50	<2.50	<2.50	575	638
MW202	24/10/2022	Normal	EB2232878	MW20244858.6326388889EB2232878	6.74	6.85	56.5	5.01	165	<0.23	1.5	3	14.3	1.98	4.45	<0.23	<0.23	<0.23	<0.23	<0.23	<0.58	0.65	<0.58	<0.58	<0.58	<0.58	<0.23	<0.23	<0.23	0.46	<0.23	<0.23	222	266
MW203	6/11/2017	Normal	EB1723185	MW20243045EB1723185	0.62	0.72	3.64	0.08	0.61	<0.02	<0.1	0.16	0.86	0.13	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.25	6.98
MW203	31/01/2018	Normal	EB1803286	MW20243131EB1803286	1.54	1.66	10.8	0.46	4.16	<0.02	0.3	0.47	2.22	0.35	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	15	22.5
MW203	21/06/2018	Normal	B683754-A	MW20243272B683754-A	1.7	2.3	11	0.49	4.6	<0.01	0.35	0.59	2.6	0.37	0.92	<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	<0.05	<0.01	<0.01	15.39	24.79
MW203	21/06/2018	Normal	B683754-B	MW20243272B683754-B	1.9	1.8	12	0.92	3.5	<0.05	<2.5	1.3	3.9	0.55	0.72	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	15.44	26.52
MW203	22/06/2018	Normal	B683485-B	MW20243273B683485-B	1.5	1.5	9.8	0.53	2.4	<0.05	<2.5	0.95	3.7	0.4	0.91	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	12.25	21.73
MW203	22/06/2018	Normal	B683485-A	MW20243273B683485-A	1.4	1.4	9.3	0.43	2.6	<0.01	0.31	0.48	2.1	0.34	0.63	<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	<0.05	<0.01	<0.01	11.93	19.02
MW203	18/04/2019	Normal	EB1910290	MW20243573EB1910290	2.03	2.58	14.1	0.85	5.42	<0.02	0.1	0.78	3.75	0.57	0.93	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.06	<0.05	<0.05	19.5	31.2
MW203	10/07/2019	Normal	EB1918202	MW20243656EB1918202	1.73	1.94	11.7	0.728	6.22	<0.0005	0.109	0.609	2.87	0.481	0.863	0.0107	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.067	0.002	<0.001	17.9	27.3
MW203	23/10/2019	Normal	EB1928436	MW20243761EB1928436	0.08	0.06	0.49	0.03	0.58	<0.02	<0.1	0.03	0.1	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.07	1.43
MW203	30/10/2019	Normal	EB1928975	MW20243768EB1928975	1.97	1.84	11.1	0.619	4.81	<0.0005	0.203	0.66	3.39	0.446	0.871	0.0114	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0018	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.064	<0.001	<0.001	15.9	26.0
MW203	5/03/2020	Normal	EB2006415	MW20243895EB2006415	1.75	1.88	11.5	0.909	6.4	<0.0016	0.086	0.746	3.46	0.53	0.98	0.0126	<0.0016	<0.0016	<0.0016	<0.0016	<0.0040	<0.0016	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	<0.002	0.063	0.002	<0.002	17.9	28.3
MW203	25/03/2020	Normal	EB2008691	MW20243915EB2008691	2.12	2.04	13	0.71	6.69	<0.06	<0.3	0.77	3.62	0.61	1.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.16	<0.06	<0.16	<0.06	<0.16	<0.16	<0.06	<0.16	<0.06	<0.06	<0.06	<0.06	<0.06	19.7	30.6
MW203	25/03/2020	Interlab_D	RN1271386	MW20243915RN1271386	1.9	1.7	11	0.47	5.1

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides						PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW205	10/07/2019	Normal	EB1918202	MW20543656EB1918202	1.57	1.77	9.08	0.513	4.66	<0.0005	0.088	0.449	2.25	0.371	0.584	0.0099	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.01	0.002	<0.001	13.7	21.4
MW205	22/10/2019	Normal	EB1928436	MW20543760EB1928436	1.9	2.06	11.4	0.45	3.88	<0.02	0.3	0.61	2.93	0.49	0.67	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	15.3	24.7
MW205	22/10/2019	Field_D	EB1928436	MW20543760EB1928436	1.72	2.07	11.4	0.42	3.94	<0.02	0.3	0.58	2.74	0.46	0.65	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	15.3	24.3
MW205	22/10/2019	Interlab_D	RN1251384	MW20543760RN1251384	1.7	1.5	9.2	0.39	3.3	<0.01	0.47	0.57	2.3	0.4	0.57	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW205	30/10/2019	Normal	EB1928975	MW20543768EB1928975	2.2	1.91	9.73	0.488	3.67	<0.0005	0.237	0.803	3.11	0.392	0.64	0.0113	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.01	<0.001	<0.001	13.4	23.2
MW205	5/03/2020	Normal	EB2006415	MW20543895EB2006415	1.97	2	11.4	0.781	4.91	<0.0016	0.098	0.606	2.89	0.458	0.702	0.0114	<0.0016	<0.0016	<0.0016	<0.0016	<0.0040	<0.0016	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	<0.002	0.007	0.002	<0.002	16.3	25.8
MW205	26/03/2020	Normal	EB2009332	MW20543916EB2009332	2.08	2.24	11.5	0.62	5.89	<0.03	0.2	0.64	3.02	0.51	0.76	<0.03	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	<0.05	0.09	<0.05	<0.05	17.4	27.6
MW205	22/10/2020	Normal	EB2027817	MW20544126EB2027817	1.41	1.5	8.79	0.52	5.72	<0.04	<0.2	0.51	2.38	0.4	0.62	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	<0.05	<0.05	<0.05	<0.05	14.5	21.8
MW205	17/04/2021	Normal	EB2110967	MW20544303EB2110967	1.39	1.5	8.6	0.5	5.58	<0.02	0.33	0.53	2.28	0.43	0.65	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	14.2	21.8
MW205	12/10/2021	Normal	EB2129575	MW20544481EB2129575	1.24	1.31	7.61	0.52	6.17	<0.02	0.3	0.42	2.25	0.37	0.6	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	13.8	20.8
MW205	14/04/2022	Normal	EB2211261-AA	MW20544665EB2211261-AA	1	1.11	6.85	0.4	5.96	<0.02	0.2	0.41	1.78	0.31	0.56	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	12.8	18.6
MW205	24/10/2022	Normal	EB2232878	MW20544858.6333333333EB2232878	9.29	9.78	42.1	0.38	1.04	<0.24	2.1	4.82	18.8	1.84	0.54	<0.24	<0.24	<0.24	<0.24	<0.24	<0.59	<0.24	<0.59	<0.59	<0.59	<0.59	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	43.1	90.7
MW206	8/03/2017	Normal	EB1704721	MW20642802EB1704721	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-
MW206	8/03/2017	Normal	EB1704721	MW20642802EB1704721	1.14	0.87	5.7	0.4	9.29	<0.02	0.3	0.38	1.53	0.51	0.96	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	14.99	21.1
MW206	19/04/2018	Normal	EB1809957	MW20643209EB1809957	0.75	0.7	5.44	0.39	6.14	<0.02	0.2	0.28	1.19	0.38	0.67	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	11.6	16.1
MW206	26/06/2018	Field_D	B684401-B	MW20643277B684401-B	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05
MW206	26/06/2018	Normal	B684401-A	MW20643277B684401-A	0.8	0.73	7.1	0.35	5.3	<0.01	0.24	0.34	1.4	0.47	0.97	<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	<0.01	12.35	17.65
MW206	26/06/2018	Normal	B684401-A	MW20643277B684401-A	0.61	0.56	5	0.25	3	<0.01	0.29	0.45	1.1	0.33	0.78	<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	<0.01	8.07	12.48
MW206	26/06/2018	Field_D	B684401-A	MW20643277B684401-A	0.62	0.57	5.1	0.26	4	<0.01	0.26	0.37	1.1	0.45	0.73	<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	<0.01	9.13	13.47
MW206	26/06/2018	Normal	B684401-B	MW20643277B684401-B	0.83	0.8	5.2	0.72	2.1	<0.05	<2.5	0.88	3.5	0.63	0.57	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	7.34	15.26
MW206	26/06/2018	Normal	B684401-B	MW20643277B684401-B	0.63	0.54	4.2	0.63	2.4	<0.05	<2.5	0.83	2.9	0.6	0.53	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	6.62	13.30
MW206	26/06/2018	Interlab_D	ME307157	MW20643277ME307157	0.91	0.94	14	0.5	16	<0.01	0.48	0.49	1.7	0.27	0.48	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	0.03	<0.01	-	-	-
MW206	21/10/2018	Normal	EB1825398	MW20643394EB1825398	0.66	0.57	4.69	0.28	4.88	<0.02	0.2	0.24	0.97	0.32	0.59	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	9.57	13.4
MW206	21/10/2018	Field_D	EB1825398	MW20643394EB1825398	0.62	0.64	4.85	0.33	4.68	<0.02	0.2	0.25	1	0.33	0.57	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	9.53	13.5
MW206	21/10/2018	Interlab_D	AECO06_181024	MW20643394AECO06_181024	0.64	0.56	4.6	0.28	4.7	<0.01	0.33	0.29	1.1	0.36	0.55	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	0.028	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
MW206	10/04/2019	Normal	EB1909359	MW20643565EB1909359	0.34	0.31	2.39	0.16	2.07	<0.02	0.2	0.22	0.65	0.17	0.27	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.46	6.78
MW206	11/07/2019	Normal	EB1918202	MW20643657EB1918202	0.572	0.698	4.65	0.307	3.7	0.0028	0.053	0.246	1.06	0.256	0.499	0.0068	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	0.0017	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.01	<0.001	<0.001	8.35	12.1
MW206	30/10/2019	Normal	EB1928975	MW20643768EB1928975	0.847	0.876	6.29	0.432	5.63	<0.0100	0.248	0.343	1.46	0.363	0.678	0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0250	<0.0100	<0.025	<0.0100	<0.025	<0.025	<0.0100	<0.025	<0.010	0.01	<0.010	<0.010	11.9	17.2
MW206	5/03/2020	Normal	EB2006415	MW20643895EB2006415	0.682	0.876	5.77	0.504	7.71	<0.0016	0.032	0.278	1.22	0.32	0.617	0.0099	0.0019	<0.0016	<0.0016	<0.0016	<0.0040	0.0037	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	<0.002	0.014	<0.002	<0.002	13.5	18.0
MW206	26/03/2020	Normal	EB2009332	MW20643916EB2009332	0.8	0.84	5.44	0.4	5.92	<0.03	<0.2	0.31	1.33	0.37	0.61	<0.03	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	<0.05	0.14	<0.05	<0.05	11.4	16.2
MW206	26/03/2020	Field_D	EB2009332	MW20643916EB2009332	0.72	0.78	5.08	0.35	5.32	<0.03	<0.2	0.28	1.23	0.34	0.54	<0.03	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	<0.05	0.13	<0.05	<0.05	10.4	14.8
MW206	26/03/2020	Interlab_D	RN1270680	MW20643916RN1270680	0.73	0.63	5	0.28	5	<0.01	0.23	0.31	1.2	0.32	0.52	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	0.21	<0.01	<0.01	-	-
MW206	19/10/2020	Normal	EB2027817	MW20644123EB2027817	0.78	0.75	5.6	0.38	5.27	<0.04	<0.2	0.35	1.43	0.36	0.61	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	<0.05	<0.05	<0.05	<0.05	10.9	15.5
MW206	14/04/2021	Normal	EB2110967	MW20644300EB2110967	0.61	0.72	4.89	0.37	6.07	<0.02	0.2	0.29	1.11	0.31	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	11	15.1
MW206	11/10/2021	Field_D	EB2129575	MW20644480EB2129575	0.79	0.82	5.26	0.41	5.13	<0.02	0.2	0.27	1.31	0.33	0.59	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	10.4	15.1
MW206	11/10/2021	Normal	EB2129575	MW20644480EB2129575	0.79	0.74	4.92	0.42	4.84	<0.02	0.2	0.28	1.3	0.33	0.52	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	9.76	14.3
MW206	11/10/2021	Interlab_D	RN1332382	MW20644480RN1332382	0.57	0.51	3.9	0.22	3.4	<0.01	0.18	0.23	0.91	0.25	0.39	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW206	21/04/2022	Normal	EB2211261-AA	MW20644672EB2211261-AA	0.54	0.57	4.11	0.38	5.08	<0.02	0.1	0.24	0.97	0.28	0.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	9.19	12.8
MW207	8/03/2017	Normal	EB1704721	MW20742802EB1704721	0.15	0.13	0.89	0.03	0.19	<0.02	<0.1	0.05	0.12	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.08	1.63
MW207	6/11/2019	Normal	EB1929759	MW20743775EB1929759	0.02	0.03	0.22	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	0.31
MW207	17/04/2022	Normal	EB2211261-AA	MW20744668EB2211261-AA	<0.04	<0.02	0.14	<0.02	0.1	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	0.27
MW207	25/10/2022	Normal	EB2232878	MW20744859.6222222222EB2232878	0.11	0.12	0.93	0.06	0.42	<0.02	<0.1	0.06	0.18	0.05	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	1.35	2
MW208	8/03/2017	Normal	EB1704721	MW20842802EB1704721	0.58	0.42	2.63	0.16	2.23	<0.02	<0.1	0.5	0.88	0.32	0.43	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.3	<0.05	<0.05	4.86	8.45
MW209	13/09/2018	Normal	B710405	MW20943356B710405	0.55	0.49	3.5	0.41	4.7	<0.01	0.22	0.15	0.73	0.12	0.25	<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	<0.05	<0.01	<0.01	8.17	11.09
MW209	13/09/2018	Normal	B710405-A	MW20943356B710405-A	0.55	0.49	3.5	0.41	4.7	<0.01	0.22	0.15	0.73	0.12	0.25	<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	<0.05	<0.01	<0.01	8.17	11.09
MW209	13/09/2018	Field_D	B710405	MW20943356B710405	0.55	0.51	3.5	0.39	4	<0.01	0.21	0.15	0.72	0.12	0.23	<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	<0.05	<0.01	<0.01	7.48	10.36
MW209	13/09/2018	Field_D	B710405-A	MW20943356B710405-A	0.55	0.51	3.5	0.39	4	<0.01	0.21	0.15	0.72	0.12	0.23	<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	<0.05	<0.01	<0.01	7.48	10.36
MW209	13/09/2018	Interlab_D	ME308150	MW20943356ME308150	0.47	0.44	2.5	0.26	3.9	<0.002	0.21	0.14	0.75	0.1	0.22	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.008	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	0.004	<0.002	-	6.4	-
MW209	13/09/2018	Field_D	B710405-B	MW20943356B710405-B	0.57	0.4	3.1	0.4	4.1	<0.05	<2.5	0.4	1.1	0.1	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	7.19	10.34
MW209	13/09/2018	Normal	B710405-B	MW20943356B710405-B	0.53	0.4	3.1	0.3	4.1	<0.05	<2.5	0.4	1.1	0.1	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	7.16	10.29
MW209	10/07/2019	Normal	EB1918202	MW20943656EB1918202	0.397	0.332	1.22	0.082	1.11	<0.0005	0.041	0.158	0.547	0.0976	0.112	0.0006	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.002	<0.001	<0.001	2.33	4.10
MW209	30/10/2019	Normal	EB1928975	MW20943768EB1928975	0.561	0.362	1.32	0.118	0.655	<0.0005	0.089	0.225	0.787	0.12	0.127	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.002	<0.001	<0.001	1.98	4.37
MW209	4/03/2020	Normal	EB2006415	MW20943894EB2006415	0.603	0.47	1.26	0.0755	0.772	<0.0016	0.019	0.282	0.718	0.122	0.127	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0040	<0.0016	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	<0.002	<0.002	<0.002	<0.002	2.03	4.45
MW210	13/09/2018	Normal	B710405	MW21043356B710405	0.24	0.21	1.3	0.098	0.89	<0.01	0.41	0.057	0.28	0.031	0.069	<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	<0.05	<0.01	<0.01	2.15	3.55
MW210	13/09/2018	Normal	B710405-A	MW21043356B710405-A	0.24	0.21	1.3	0.098	0.89	<0.01	0.41	0.057	0.28	0.031	0.069	<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	<0.05	<0.01	<0.01	2.15	3.55
MW210	13/09/2018	Normal	B710405-B	MW21043356B710405-B	0.2	0.2	1	0.1	0.82	<0.05	<2.5	0.1	0.4	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	1.85	2.85
MW210	10/07/2019	Normal	EB1918202	MW21043656EB1918202	0.243	0.271	1.62	0.184	2.42	<0.0005	0.054	0.063	0.295	0.0451	0.102	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0011	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.002	<0.001	<0.001	4.04	5.30
MW210	30/10/2019	Normal	EB1928975	MW21043768EB1928975	0.395	0.288	2.31	0.233	2.92	0.0007	0.115	0.124	0.492	0.0833	0.168	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0022	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.002	<0.001	<0.001	5.23	7.13
MW210	4/03/2020	Normal	EB2006415	MW21043894EB2006415	0.622	0.61	3.26	0.405	4.76	<0.0016	0.054	0.145	0.625	0.105	0.232	0.0021	<0.0016	<0.0016	<0.0016	<0.0016	<0.0040	0.0034	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	<0.002	0.022	<0.002	<0.002	8.02	10.8
MW211	13/09/2018	Normal	B710405	MW21143356B710405	0.58	0.53	3.5	0.34	2.6	<0.01	0.38	0.14	0.7	0.099	0.21	<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	<0.05	<0.01	<0.01	6.1	9.07
MW211	13/09/2018	Normal	B710405-A	MW21143356B710405-A	0.58	0.53	3.5	0.34	2.6	<0.01	0.38	0.14	0.7	0.099	0.21	<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	<0.05	<0.01	<0.01	6.1	9.07
MW211	13/09/2018	Normal	B710405-B	MW21143356B710405-B	0.4	0.4	2.6	0.2	1.9	<0.05	<2.5	0.3	0.94	0.08	0.1	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	4.5	7.01
MW211	10/07/2019	Normal	EB1918202	MW21143656EB1918202	0.223	0.217	1.24	0.126	1.37	<0.0005	0.039	0.057	0.261	0.0462	0.0939	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.001	<0.001	<0.001	2.61	3.67
MW211	30/10/2019	Normal	EB1928975	MW21143768EB1928975	0.297	0.209	1.47	0.133	1.3	<0.0005	0.068	0.0951	0.359	0.0485	0.099	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.002	<0.001	<0.001	2.77	4.08
MW211	5/03/2020	Normal	EB2006415	MW21143895EB2006415	0.0217	0.0091	0.0374	0.0055	0.191	<0.0005	<0.002	0.0113	0.0122	0.0019	0.0065	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.228	0.297
MW212	20/09/2018	Normal	B712066	MW21243363B712066	0.18	0.18	1.3	0.13	2.9	<0.01	<0.05	0.06	0.3	0.03	0.11	<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	<0.05	<0.01	<0.01	4.2	5.2
MW212	10/07/2019	Normal	EB1918202	MW21243656EB1918202	0.0251	0.0242	0.124	0.0109	0.24	<0.0005	<0.002	0.0119	0.0323	0.0068	0.0115	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.364	0.487
MW212	30/10/2019	Normal	EB1928975	MW21243768EB1928975	0.0353	0.0303	0.0937	0.0052	0.152	<0.0005	0.006	0.0135	0.0406	0.0061	0.0069	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.246	0.

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides						PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW221	20/10/2018	Normal	EB1825398	MW22143393EB1825398	0.36	0.34	1.88	0.15	2.07	<0.02	0.2	0.29	0.86	0.27	0.39	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	3.95	6.81
MW221	8/04/2019	Normal	EB1909359	MW22143563EB1909359	0.36	0.35	2.04	0.14	2.2	<0.02	<0.1	0.29	0.93	0.27	0.41	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.24	6.99
MW221	11/07/2019	Normal	EB1918202	MW22143657EB1918202	0.257	0.267	1.48	0.117	1.6	<0.0005	0.045	0.197	0.617	0.177	0.248	0.0082	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	0.009	<0.001	<0.001	3.08	5.02
MW221	23/10/2019	Normal	EB1928436	MW22143761EB1928436	0.32	0.35	2.07	0.14	1.65	<0.02	0.1	0.23	0.86	0.22	0.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	3.72	6.26
MW221	30/10/2019	Normal	EB1928975	MW22143768EB1928975	0.347	0.28	1.74	0.129	1.72	<0.0005	0.068	0.213	0.855	0.18	0.316	0.0113	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	0.008	<0.001	<0.001	3.46	5.87
MW221	5/03/2020	Normal	EB2006415	MW22143895EB2006415	0.317	0.382	1.94	0.182	2.23	<0.0016	0.026	0.212	0.746	0.167	0.325	0.0088	<0.0016	<0.0016	<0.0016	<0.0016	<0.0040	<0.0016	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	<0.002	<0.002	<0.002	<0.002	4.17	6.54
MW221	25/03/2020	Normal	EB2008691	MW22143915EB2008691	0.39	0.42	2.3	0.18	2.25	<0.03	<0.2	0.28	0.95	0.23	0.35	<0.03	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	<0.05	<0.05	<0.05	<0.05	4.55	7.35
MW221	19/10/2020	Normal	EB2027817	MW22144123EB2027817	0.4	0.4	2.16	0.19	2.73	<0.02	0.18	0.3	1.04	0.28	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.89	8.10
MW221	14/04/2021	Normal	EB2110967	MW22144300EB2110967	0.35	0.34	1.69	0.12	1.71	<0.02	0.2	0.28	0.92	0.25	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	3.4	6.22
MW221	12/10/2021	Field_D	EB2129575	MW22144481EB2129575	0.4	0.48	2.26	0.2	1.68	<0.02	0.2	0.26	1.04	0.28	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	3.94	7.22
MW221	12/10/2021	Normal	EB2129575	MW22144481EB2129575	0.42	0.42	2.04	0.18	1.83	<0.02	0.2	0.25	1.11	0.26	0.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	3.87	7.09
MW221	12/10/2021	Interlab_D	RN1332382	MW22144481RN1332382	0.33	0.31	1.7	0.081	1.1	<0.01	0.14	0.21	0.71	0.2	0.29	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW221	17/04/2022	Normal	EB2211261-AA	MW22144668EB2211261-AA	0.33	0.29	1.7	0.16	2.34	<0.02	0.1	0.24	0.88	0.21	0.37	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.04	6.62
MW221	25/10/2022	Normal	EB2232878	MW22144859.6215277778EB2232878	0.36	0.41	2.03	0.22	2.28	<0.02	0.2	0.24	1.12	0.25	0.39	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.31	7.5
MW222	7/03/2017	Normal	EB1704721	MW22242801EB1704721	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29.65	-
MW222	7/03/2017	Field_D	EB1704721	MW22242801EB1704721	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28.3	-
MW222	7/03/2017	Normal	EB1704721	MW22242801EB1704721	1.45	1.07	6.95	0.81	22.7	<0.02	1.2	2.47	3.74	2.19	4.34	1.34	0.12	<0.02	<0.02	<0.02	<0.05	0.06	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.41	0.9	<0.05	29.6	50.8
MW222	7/03/2017	Field_D	EB1704721	MW22242801EB1704721	1.46	1.14	6.99	0.82	21.3	<0.02	1.2	2.54	3.9	2.36	4.29	1.34	0.12	<0.02	<0.02	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.46	0.96	<0.05	28.29	49.9
MW222	7/03/2017	Interlab_D	AECO06_170314	MW22242801AECO06_170314_3	0.5	-	3.3	-	12	<0.02	0.38	1.2	2.1	1.1	1.9	0.54	0.064	<0.02	<0.02	<0.05	<0.05	0.05	-	-	-	-	-	-	-	1.1	0.37	-	15.3	-
MW222	29/09/2017	Normal	EB1720333	MW22243007EB1720333	1.09	1.11	6.73	0.86	19.5	<0.02	0.2	2.69	5.98	4.24	4.66	1.19	0.09	<0.02	<0.02	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.82	0.65	<0.05	26.2	50.8
MW222	19/04/2018	Normal	EB1809957	MW22243209EB1809957	1.43	1.42	9.36	1.06	30.9	<0.02	1.3	2.96	5.5	2.78	4.52	1.31	0.12	<0.02	<0.02	<0.02	<0.05	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.9	0.84	<0.05	40.3	65.4
MW222	26/06/2018	Normal	B684675-A	MW22243277B684675-A	1.1	1	9.9	0.69	23	<0.01	1	2.6	5.5	2.3	5.1	<0.01	0.088	<0.01	<0.01	<0.01	<0.01	0.035	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	0.45	<0.01	33.18	54.57
MW222	26/06/2018	Normal	B684675-B	MW22243277B684675-B	1.6	1.5	9.4	0.83	16	<0.05	5.3	7.1	15	3.5	5	0.79	0.06	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	25.1	65.85
MW222	20/10/2018	Normal	EB1825398	MW22243393EB1825398	1.73	1.54	10.5	1.2	26	<0.03	1.6	3.7	6.88	3.33	5.45	1.29	0.09	<0.02	<0.02	<0.02	<0.05	0.06	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	2.25	0.83	<0.05	36.5	66.4
MW222	8/04/2019	Normal	EB1909359	MW22243563EB1909359	1.7	1.71	12.9	1.21	30	<0.02	1.8	3.68	7.64	3.51	6.32	1.3	0.06	<0.02	<0.02	<0.02	<0.05	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	2.47	0.58	<0.05	42.9	74.9
MW222	11/07/2019	Normal	EB1918202	MW22243657EB1918202	1.32	1.45	9.19	0.95	15.8	<0.0200	0.464	3.04	5.82	2.11	4.52	0.89	0.026	<0.0200	<0.0200	<0.0200	<0.0500	<0.0200	<0.050	<0.0200	<0.050	<0.050	<0.0200	<0.050	<0.020	1.72	0.266	<0.020	25	47.6
MW222	11/07/2019	Field_D	EB1918202	MW22243657EB1918202	1.39	1.46	9.12	1.01	16.8	<0.0200	0.438	3.13	6.19	2.52	4.45	0.996	0.032	<0.0200	<0.0200	<0.0200	<0.0500	<0.0200	<0.050	<0.0200	<0.050	<0.050	<0.0200	<0.050	<0.020	2.09	0.29	<0.020	25.9	49.9
MW222	23/10/2019	Normal	EB1928436	MW22243761EB1928436	1.66	1.88	13.6	1.02	14.8	<0.02	1.4	3.8	7.93	3.52	5.31	0.89	0.03	<0.02	<0.02	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.88	0.22	<0.05	28.4	58.0
MW222	30/10/2019	Normal	EB1928975	MW22243768EB1928975	1.75	1.71	9.31	0.973	9.19	0.0066	0.547	3.53	7.2	2.47	4.49	0.641	0.0194	<0.0005	<0.0005	<0.0005	<0.0005	0.0186	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.002	1.61	0.173	<0.001	18.5	43.6
MW222	5/03/2020	Normal	EB2006415	MW22243895EB2006415	1.63	2.09	10.4	1.48	16.2	<0.0016	0.307	3.77	7.21	2.98	4.93	0.988	0.0309	<0.0016	<0.0016	<0.0016	<0.0040	0.037	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	0.002	1.92	0.318	<0.002	26.6	54.3
MW222	25/03/2020	Normal	EB2008691	MW22243915EB2008691	1.81	1.89	12	1.35	19.4	<0.06	0.9	3.66	7.18	3.58	5.56	1.18	<0.06	<0.06	<0.06	<0.06	<0.16	<0.06	<0.16	<0.06	<0.16	<0.16	<0.06	<0.16	<0.06	2.72	0.26	<0.06	31.4	61.5
MW222	19/10/2020	Normal	EB2027817	MW22244123EB2027817	1.67	1.95	12.1	1.17	14.6	<0.10	1.4	4.71	8.54	3.76	5.28	0.86	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.25	<0.10	<0.25	<0.25	<0.10	<0.25	<0.10	6.4	0.1	<0.10	26.7	62.5
MW222	14/04/2021	Normal	EB2110967	MW22244300EB2110967	2.17	2.34	14.4	1.51	23.6	<0.10	2.27	5.65	9.84	4.62	6.37	1.33	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.25	<0.10	<0.25	<0.25	<0.10	<0.25	<0.10	3.14	0.13	<0.10	38	77.4
MW222	12/10/2021	Field_D	EB2129575	MW22244481EB2129575	1.72	2.02	12.5	1.61	17.9	<0.02	2.1	5.06	9.38	4.35	6.8	1.04	0.02	<0.02	<0.02	<0.02	<0.05	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	3.57	0.1	<0.05	30.4	68.2
MW222	12/10/2021	Normal	EB2129575	MW22244481EB2129575	1.82	1.94	12.3	1.44	15.6	<0.05	2	5	9.61	4.17	5.83	0.88	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	3.67	0.06	<0.05	27.9	64.3
MW222	12/10/2021	Interlab_D	RN1332382	MW22244481RN1332382	1.4	1.3	8.8	0.88	11	<0.01	1.9	4	6.1	3.1	4.6	0.84	0.015	<0.01	<0.01	<0.02	<0.02	0.013	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	2.6	0.058	<0.01	-	-
MW222	17/04/2022	Normal	EB2211261-AA	MW22244668EB2211261-AA	0.74	0.7	5.34	0.6	15.9	<0.05	1	2.49	3.8	1.76	3.14	0.75	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	1.35	0.14	<0.05	21.2	37.7
MW222	17/04/2022	Field_D	EB2211261-AA	MW22244668EB2211261-AA	0.7	0.85	5.49	0.93	17.7	<0.02	1.1	2.14	3.67	2.02	3.1	0.76	0.03	<0.02	<0.02	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.68	0.21	<0.05	23.2	40.4
MW222	17/04/2022	Interlab_D	RN1350926	MW22244668RN1350926	0.73	0.71	4.6	0.7	12	<0.01	1.2	1.6	3.7	1.6	3	1.2	0.039	<0.01	<0.01	<0.02	<0.02	0.013	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	1.8	0.27	<0.01	-	-
MW222	26/10/2022	Normal	EB2232878	MW22244860.6416666667EB2232878	0.57	0.47	3.71	0.47	13.7	<0.02	0.6	1.32	2.17	1.02	1.7	0.48	0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	0.66	0.2	<0.05	17.4	27.1
MW223	7/03/2017	Normal	EB1704721	MW22342801EB1704721	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31.8	-
MW223	7/03/2017	Normal	EB1704721	MW22342801EB1704721	1	0.98	5.98	0.98	25.8	<0.02	2.4	17.6	6.41	6.58	10.1	4.4	0.07	<0.02	<0.02	<0.02	<0.05	0.1	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	11.5	0.88	<0.05	31.78	94.8
MW223	29/09/2017	Normal	EB1720333	MW22343007EB1720333	0.71	0.79	5.27	0.54	11.3	<0.02	0.7	16	11.7	9.73	9.8	1.75	0.05	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	6.25	0.49	<0.05	16.6	75.1
MW223	29/09/2017	Field_D	EB1720333	MW22343007EB1720333	0.69	0.8	4.97	0.5	10.3	<0.02	0.5	14.8	11.6	10.8	9.8	1.67	0.04	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	6.35	0.44	<0.05	15.3	73.3
MW223	22/10/2018	Normal	EB1825962	MW22343395EB1825962	0.94	0.82	5.86	0.54	8.02	<0.02	4.1	19.2	11.4	5.74	8.24	1.66	0.04	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	6.1	0.38	<0.05	13.9	73.0
MW223	8/04/2019	Normal	EB1909359	MW22343563EB1909359	1	0.97	7.16	0.6	20.7	<0.02	4.6	21.7	13	6.8	9.1	2.13	0.06	<0.02	<0.02	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	22.8	0.71	<0.05	27.9	111
MW223	11/07/2019	Normal	EB1918202	MW22343657EB1918202	0.761	0.925	5.87	0.455	6.86	0.0028	1.22	16.3	8.73	4.16	6.07	1.35	0.0349	<0.0005	<0.0005	<0.0005	<0.0005	0.0225	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.002	4.06	0.378	<0.001	12.7	57.2
MW223	23/10/2019	Normal	EB1928436	MW22343761EB1928436	0.97	1.11	8.9	0.72	18.5	<0.02	3.7	22.7	11.5	6.44	8.5	2.51	0.1	<0.02	<0.02	<0.02	<0.05	0.06	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	4.56	1.23	<0.05	27.4	91.5
MW223	31/10/2019	Normal	EB1928975	MW22343769EB1928975	0.965	1.07	7.05	0.591	7.46	0.0186	1.52	19.4	10.7	4.6	6.45	1.49	0.0401	<0.0005	<0.0005	<0.0005	<0.0005	0.0272	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.005	3.92	0.296	<0.001	14.5	65.6
MW223	5/03/2020	Normal	EB2006415	MW22343895EB2006415	1.04	1.1	8.59	0.9	9.9	<0.0016	0.829	22.8	11.8	5.94	7.95	1.75	0.0301	<0.0016	<0.0016	<0.0016	<0.0040	0.0326	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	0.002	3.73	0.418	<0.002	18.5	76.8
MW223	5/03/2020	Field_D	EB2006415	MW22343895EB2006415	1.23	0.913	6.17	0.677	7.69	<0.0016	0.926	18.7	8.8	5.44	6.03	1.48	0.0446	<0.0016	<0.0016	<0.0016	<0.0040	0.0312	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	0.002	4.25	0.45	<0.002	13.9	62.8
MW223	25/03/2020	Normal	EB2008691	MW22343915EB2008691	1.23	1.33	9.96	0.94	13.2	<0.06	2.6	22.8	11.8	6.59	8.57	2.13	<0.06	<0.06	<0.06	<0.06	<0.16	<0.06	<0.16	<0.06	<0.16	<0.16	<0.06	<0.16	<0.06	5.56	0.47	<0.06	23.2	87.2
MW223	19/10/2020	Normal	EB2027817	MW22344123EB2027817	1.02	1.11	8.66	0.8	15	<0.04	5.8	28.7	13.3	7.69	8.44	2.14	0.06	<0.04	<0.04	<0.04	<0.10	0.05	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	<0.05	5	0.61	<0.05	23.7	98.4
MW223	14/04/2021	Normal	EB2110967	MW22344300EB2110967	1.22	1.29	8.92	0.97	18.6	<0.07	6.4	37.4	15.1	10.2	9.72	2.24	<0.07	<0.07	<0.07	<0.07	<0.18	<0.07	<0.18	<0.07	<0.18	<0.18	<0.07	<0.18	<0.07	6.65	0.74	<0.07	27.5	119
MW223	12/10/2021	Normal	EB2129575	MW22344481EB2129575	0.98	1.11	8.89	0.86	14.6	<0.02	8.9	40.8	18.7	13.1	11	2.23	0.05	<0.02	<0.02	<0.02	<0.06	0.04	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	8.98	0.58	<0.05	23.5	131
MW223	13/04/2022	Normal	EB2211261-AA	MW22344664EB2211261-AA	0.77	0.78	6.4	0.62	14.8	<0.05	6.1	30.9	14.2	16.4	10.2	3.04	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	6.56	0.22	<0.05	21.2	111
MW223	13/04/2022	Field_D	EB2211261-AA	MW22344664EB2211261-AA	0.68	1.02	7.26	1.01	18	<0.02	6.2	23.3	12.7	14.3	10	2.97	0.03	<0.02	<0.02	<0.02	<0.05	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	6.47	0.4	<0.05	25.3	104
MW223	13/04/2022	Interlab_D	RN1350926	MW22344664RN1350926	0.71	0.78	5.4	0.82	15	<0.01	4.7	22	14	15	5.1	3.2	0.013	<0.01	<0.01	<0.02	<0.02	0.024	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	5.7	0.41	<0.01	-	-
MW223	26/10/2022	Normal	EB2232878	MW22344860.6402777778EB2232878	0.5	0.61	5.95	0.74	14.6	<0.05	4.7	18.8	14.5	11.6	8.86	2.3	0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	5.92	0.46	<0.05	20.6	89.6
MW224	7/03/2017	Normal	EB1704721	MW22442801EB1704721	1.3	0.9	4.41	0.17	3.42	<0.02	1.6	3.76	2.24	1.02	1.48	0.87	0.07	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	1.6	0.13	<0.05	7.83	23
MW224	23/05/2019	Normal	657987	MW22443608657987	0.48	0.67	3.1	0.12	2.7	<0.01	1	2.9	1.9	0.9	1	0.83	0.07	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.86	0.18	<0.01	5.8	16.83
MW225	9/03/2017	Field_D	EB1704721	MW22542803EB1704721	0.91	0.64	1.99	<0.02	0.02	<0.02	<0.1	0.12	0.49	0.08	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.01	4.32
MW225	9/03/2017	Normal	EB1704721	MW22542803EB1704721	0.92	0.63	1.8	<0.02	<0.01	<0.02	<0.1	0.1	0.45	0.07	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.8	4
MW225	9/03/2017	Interlab_D	AECO06_170314	MW22542803AECO06_170314_3	0.34	-	1.2	-	0.014	<0.02	<0.05	0.067	0.24	0.042	0.026	<0.01	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	1.214	-
MW226	8/03/2017	Normal	EB1704721	MW22642802EB1704721	0.3	0.18	0.83	0.04	0.31	<0.02	<0.1	0.05	0.16	0.03	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.14	1.95
MW226	26/06/2018	Normal	B684675-A	MW22643277B684675-A	0.31	0.27	0.78	0.04	0.38	<0.01	<0.05	0.033	0.17	0.027	0.056	<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	<0.05	<0.01	<0.01	1.16	2.07
MW226	26/06/2018	Normal	B684675-B	MW22643277B684675-B	0.3	0.3	0.93	<0.05	0.3	<0.05	<2.5	0.08	0.2	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	1.24	2.25
MW226	11/07/2019	Normal	EB1918202	MW22643657EB1918202	0.125	0.132	0.864	0.128	2.89	<0.0005	0.007	0.0424	0.193	0.0261	0.059	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0011	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.003	<0.001	<0.001	3.75	4.47
MW226	11/07/2019	Field_D	EB1918202	MW22643657EB1918202	0.0582	0.0671	0.273	0.0067	0.0245	<0.0005	<0.002	0.0145	0.0606	0.0069	0.0082	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.001	<0.001	<0.001	0.298	0.521
MW226	30/10/2019	Normal	EB1928975	MW22643768EB1928975	0.0577	0.0359	0.223	0.0

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW230	23/05/2019	Normal	657987	MW23043608657987	0.93	1.1	6.2	0.87	8.6	<0.01	4.1	18	11	6.2	5.7	0.86	0.02	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.5	0.13	<0.01	**14.8**	65.32
MW230	11/07/2019	Normal	EB1918202	MW23043657EB1918202	0.688	0.82	5.1	0.42	5.32	<0.0005	0.845	12.2	7.77	3.28	3.72	0.527	0.0156	<0.0005	<0.0005	<0.0005	<0.0005	0.0115	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.003	1.64	0.11	<0.001	**10.4**	42.5
MW230	23/10/2019	Normal	EB1928436	MW23043761EB1928436	0.92	0.98	5.91	0.46	4.12	<0.02	2.8	16.2	9.48	5.46	4.6	0.57	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	2.05	0.08	<0.05	**10**	53.6
MW230	30/10/2019	Normal	EB1928975	MW23043768EB1928975	0.94	0.978	5.49	0.612	6.53	0.002	1.15	13.7	8.91	4.2	4.47	0.672	0.0183	<0.0005	<0.0005	<0.0005	<0.0005	0.0068	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.004	1.92	0.117	<0.001	**12**	49.7
MW230	31/10/2019	Field_D	EB1928975	MW23043769EB1928975	0.696	0.667	3.59	0.411	4.7	0.0008	1.08	9.01	6.3	2.85	3.01	0.492	0.0193	<0.0005	<0.0005	<0.0005	<0.0005	0.0151	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.003	1.34	0.082	<0.001	**8.29**	34.3
MW230	11/03/2020	Normal	EB2006832	MW23043901EB2006832	1.14	0.867	4.25	0.478	4.76	<0.0016	0.649	15.2	8.32	4.92	3.89	0.494	0.0154	<0.0016	<0.0016	<0.0016	<0.0040	0.0134	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	0.003	1.94	0.088	<0.002	**9.01**	47.0
MW230	25/03/2020	Normal	EB2008691	MW23043915EB2008691	1.1	1.16	6.61	0.7	7.74	<0.03	1.9	15.5	9.34	5.35	4.94	0.7	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	<0.05	2.61	0.11	<0.05	**14.4**	57.8
MW230	19/10/2020	Normal	EB2027817	MW23044123EB2027817	1.11	1.11	6.72	0.77	8.61	<0.04	5	22.9	11.9	6.27	5.32	0.65	<0.04	<0.04	<0.04	<0.04	<0.10	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	<0.05	2.36	<0.05	<0.05	**15.3**	72.7
MW230	14/04/2021	Field_D	EB2110967	MW23044300EB2110967	1.02	1.01	5.45	0.6	8.4	<0.04	5.1	25.2	12.8	6.82	5.96	0.86	<0.04	<0.04	<0.04	<0.04	<0.09	<0.04	<0.09	<0.04	<0.09	<0.09	<0.04	<0.09	<0.05	2.76	<0.05	<0.05	**13.8**	76.0
MW230	14/04/2021	Normal	EB2110967	MW23044300EB2110967	1.11	1.2	6.31	0.78	11	<0.04	4.8	25.3	12.3	7.22	5.87	0.94	<0.04	<0.04	<0.04	<0.04	<0.09	<0.04	<0.09	<0.04	<0.09	<0.09	<0.04	<0.09	<0.05	2.93	<0.05	<0.05	**17.3**	79.8
MW230	14/04/2021	Interlab_D	RN1312932	MW23044300RN1312932	0.94	0.83	4.4	0.49	6.4	<0.01	3.7	16	8.3	4.8	3.6	0.72	0.017	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	0.011	<0.01	-	-
MW230	12/10/2021	Normal	EB2129575	MW23044481EB2129575	0.98	0.96	6.66	0.74	10.3	<0.02	4.7	22.5	13.4	8.33	7.44	1.73	0.04	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	4.35	0.18	<0.05	**17**	82.3
MW230	17/04/2022	Normal	EB2211261-AA	MW23044668EB2211261-AA	0.53	0.55	4.5	0.34	5.8	<0.02	3.8	13.9	7.67	6.59	5.87	1.56	0.05	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	2.55	0.2	<0.05	**10.3**	53.9
MW230	26/10/2022	Normal	EB2232878	MW23044860.6388888889EB2232878	0.34	0.37	2.28	0.14	0.99	<0.02	0.2	0.4	0.96	0.28	0.4	0.07	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.08	<0.05	<0.05	**3.27**	6.51
MW231	27/07/2015	Field_D	ES1527144	MW23142212ES1527144	-	-	-	-	5.49	-	-	-	-	-	1.23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW231	27/07/2015	Normal	ES1527144	MW23142212ES1527144	-	-	-	-	5.34	-	-	-	-	-	1.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW231	27/07/2015	Interlab_D	466639	MW23142212466639	-	-	-	-	0.8	-	-	-	-	-	0.74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.01	-	-	-
MW231	20/10/2016	Normal	EB1625184	MW23142663EB1625184	-	-	13	-	7.87	-	-	-	-	-	1.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	**20.87**	-
MW232	14/03/2017	Normal	EB1705326	MW23242808EB1705326	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW232	14/03/2017	Normal	ES1709078	MW23242808ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**12.78**	-
MW232	14/03/2017	Normal	EB1705326	MW23242808EB1705326	0.92	0.91	5.87	0.27	10.2	<0.02	0.6	2.05	3.27	2.25	2.95	0.51	0.29	<0.02	<0.02	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.98	2.21	<0.05	**16.1**	33.3
MW232	16/04/2018	Normal	EB1809957	MW23243206EB1809957	0.1	0.11	0.99	0.17	8.82	<0.02	0.5	1.21	0.67	0.62	0.58	0.47	0.38	<0.02	<0.02	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.22	2.16	<0.05	**9.81**	17.0
MW232	24/10/2018	Normal	EB1825962	MW23243397EB1825962	0.13	0.24	2.18	0.29	11.7	<0.02	0.4	1.02	0.94	0.79	1.11	0.4	0.3	<0.02	<0.02	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.16	1.78	<0.05	**13.9**	21.5
MW232	24/10/2018	Interlab_D	AECO06_181030	MW23243397AECO06_181030_1	0.14	0.19	2	0.34	11	<0.01	0.39	0.94	0.84	0.75	1	0.38	0.29	<0.01	<0.01	<0.02	<0.02	0.019	<0.02	<0.01	<0.05	<0.05	<0.02	<0.01	<0.05	<0.01	0.15	<0.01	<0.01	-	-
MW232	24/10/2018	Field_D	EB1825962	MW23243397EB1825962	0.12	0.21	1.94	0.25	11.6	<0.02	0.3	0.84	0.81	0.71	0.95	0.35	0.27	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.14	1.48	<0.05	**13.5**	20.0
MW232	4/04/2019	Normal	EB1908876	MW23243559EB1908876	0.2	0.19	1.49	0.24	18	<0.02	0.3	0.65	0.72	0.47	0.76	0.52	0.4	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.24	2.65	<0.05	**19.5**	26.8
MW232	23/10/2019	Normal	EB1928436	MW23243761EB1928436	0.32	0.45	3.33	0.18	21.2	<0.02	0.7	3.31	2.05	1.3	1.28	0.43	0.97	<0.02	<0.02	<0.02	<0.05	0.06	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.2	6.54	<0.05	**24.5**	42.3
MW232	1/04/2020	Normal	EB2009332	MW23243922EB2009332	0.33	0.37	2.53	0.33	12.4	<0.02	0.7	1.86	1.52	1.1	1.11	0.38	0.4	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.2	1.7	<0.05	**14.9**	24.9
MW232	20/10/2020	Normal	EB2027817	MW23244124EB2027817	0.23	0.32	2.82	0.28	14.3	<0.04	0.8	2.31	1.56	1.08	1.16	0.38	0.45	<0.04	<0.04	<0.04	<0.09	0.04	<0.09	<0.04	<0.09	<0.09	<0.04	<0.09	<0.05	0.18	1.78	<0.05	**17.1**	27.7
MW232	14/04/2021	Normal	EB2110967	MW23244300EB2110967	0.33	0.49	3.52	0.44	21.2	<0.04	0.7	2.34	1.71	1.2	1.42	0.37	0.42	<0.04	<0.04	<0.04	<0.10	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	<0.05	0.24	2.55	<0.05	**24.7**	36.9
MW232	13/10/2021	Normal	EB2129575	MW23244482EB2129575	0.08	0.12	1.19	0.04	4.54	<0.02	0.5	2.09	1.32	0.68	0.59	0.12	0.35	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	0.09	1.38	<0.05	**5.73**	13.1
MW232	17/04/2022	Normal	EB2211261-AA	MW23244668EB2211261-AA	0.63	0.72	5.85	0.42	14.9	<0.05	0.9	2.63	2.34	1.1	1.5	0.29	0.22	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	0.13	1.36	<0.05	**20.8**	33.0
MW232	27/10/2022	Normal	EB2232878	MW23244861.6506944444EB2232878	0.67	0.76	6.5	0.27	9.67	<0.05	1.4	3.59	2.39	1.17	1.56	0.25	0.25	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	0.13	1.21	<0.05	**16.2**	29.8
MW233	13/03/2017	Normal	EB1705014	MW23342807EB1705014	0.3	0.28	0.85	<0.02	0.25	<0.02	<0.1	0.04	0.28	0.03	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**1.1**	2.04
MW233	25/04/2018	Normal	EB1810408	MW23343215EB1810408	0.21	0.17	0.84	<0.02	0.1	<0.02	<0.1	0.05	0.17	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.94**	1.61
MW233	23/10/2018	Normal	EB1825962	MW23343396EB1825962	0.56	0.46	2.32	0.03	0.61	<0.02	0.3	0.36	1.19	0.17	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**2.93**	6.17
MW233	17/04/2019	Normal	EB1910290	MW23343572EB1910290	0.24	0.21	1.17	<0.02	0.47	<0.02	<0.1	0.15	0.43	0.06	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**1.64**	2.82
MW233	24/10/2019	Normal	EB1928436	MW23343762EB1928436	0.1	0.1	1.11	0.05	0.63	<0.02	<0.1	0.06	0.16	0.04	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**1.74**	2.47
MW233	26/03/2020	Normal	EB2008691	MW23343916EB2008691	0.2	0.18	0.82	<0.02	0.45	<0.02	<0.1	0.06	0.25	0.04	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**1.27**	2.05
MW233	21/10/2020	Normal	EB2027817	MW23344125EB2027817	0.21	0.18	1	<0.02	0.27	<0.02	<0.10	<0.06	0.19	0.04	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**1.27**	1.94
MW233	17/04/2021	Normal	EB2110967	MW23344303EB2110967	0.21	0.17	0.96	0.03	0.54	<0.02	<0.10	0.06	0.21	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**1.5**	2.29
MW233	14/10/2021	Normal	EB2129575	MW23344483EB2129575	0.17	0.16	1.06	0.05	0.91	<0.02	<0.1	0.06	0.22	0.04	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**1.97**	2.76
MW233	20/04/2022	Field_D	EB2211261-AA	MW23344671EB2211261-AA	0.16	0.1	0.66	<0.02	0.22	<0.02	<0.1	0.03	0.13	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.88**	1.35
MW233	20/04/2022	Normal	EB2211261-AA	MW23344671EB2211261-AA	0.16	0.12	0.63	<0.02	0.22	<0.02	<0.1	0.04	0.13	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.85**	1.35
MW233	20/04/2022	Interlab_D	RN1350926	MW23344671RN1350926	0.16	0.12	0.64	<0.01	0.17	<0.01	0.056	0.035	0.092	0.013	0.014	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW233	24/11/2022	Normal	EB2235603	MW23344889EB2235603	0.11	0.1	0.59	<0.02	0.15	<0.02	<0.1	0.03	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	**0.74**	1.11
MW235	14/03/2017	Normal	EB1705326	MW23542808EB1705326	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW235	24/10/2018	Normal	EB1825962	MW23543397EB1825962	5.48	3.92	10.4	0.24	6.49	<0.02	0.6	1.15	6.49	0.31	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**16.9**	35.3
MW235	24/10/2018	Normal	EB1825962	MW23543397EB1825962	4.86	4.59	11.2	0.25	5.59	<0.02	1.3	1.67	7.88	0.5	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**16.8**	38.2
MW235	3/04/2019	Normal	EB1908876	MW23543558EB1908876	5.21	4.74	14.8	0.27	5.32	<0.02	1.5	1.8	8.63	0.63	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**20.1**	43.4
MW235	23/10/2019	Normal	EB1928436	MW23543761EB1928436	6.06	6.66	23	0.32	4.83	<0.02	1.4	2.32	11.1	1.13	0.91	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**27.8**	57.7
MW235	1/04/2020	Field_D	EB2009332	MW23543922EB2009332	4.89	4.56	16.7	0.37	4.78	<0.02	1.6	2.08	9.58	0.8	0.56	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**21.5**	45.9
MW235	1/04/2020	Normal	EB2009332	MW23543922EB2009332	4.9	4.67	16.4	0.35	4.81	<0.02	1.5	2.11	9.32	0.79	0.54	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**21.2**	45.4
MW235	1/04/2020	Interlab_D	RN1270680	MW23543922RN1270680	4.1	3.3	12	0.24	3	<0.01	1.7	1.5	7.4	0.61	0.49	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW235	20/10/2020	Normal	EB2027817	MW23544124EB2027817	4.86	4.77	13.7	0.28	4.38	<0.04	1.4	1.97	9.48	0.67	0.54	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	<0.05	<0.05	<0.05	<0.05	**18.1**	42.0
MW235	14/04/2021	Normal	EB2110967	MW23544300EB2110967	6.73	7.34	20.1	0.4	5.29	<0.04	1.8	2.72	12.8	1.26	1.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.09	<0.04	<0.09	<0.04	<0.09	<0.09	<0.04	<0.09	<0.05	<0.05	<0.05	<0.05	**25.4**	59.5
MW235	13/10/2021	Normal	EB2129575	MW23544482EB2129575	6.94	8.2	22.1	0.61	5.19	<0.02	1.9	2.53	13.7	1.27	1.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**27.3**	63.5
MW235	20/04/2022	Normal	EB2211261-AA	MW23544671EB2211261-AA	1.81	1.8	5.9	0.1	4.8	<0.05	0.5	0.77	3.1	0.22	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	**10.7**	19.2
MW235	26/10/2022	Normal	EB2232878	MW23544860.638194444444EB2232878	3.94	3.2	9.12	0.28	5.16	<0.02	1.2	1.57	7.78	0.4	0.3	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	**14.3**	33
MW236	14/03/2017	Normal	EB1705326	MW23642808EB1705326	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW236	14/03/2017	Normal	ES1709078	MW23642808ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**19.33**	-
MW236	14/03/2017	Normal	EB1705326	MW23642808EB1705326	6.35	4.18	19	0.89	9.64	<0.02	0.9	1.18	6.82	0.66	1.35	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**28.6**	51
MW236	17/04/2018	Field_D	EB1809957	MW23643207EB1809957	4.8	3.22	15.1	0.77	9.8	<0.02	1.2	1.22	5.85	0.61	1.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**24.9**	43.6
MW236	17/04/2018	Normal	EB1809957	MW23643207EB1809957	4.83	3.34	14.8	0.76	9.6	<0.02	1.3	1.25	5.82	0.62	1.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**24.4**	43.4
MW236	17/04/2018	Interlab_D	AECO06_180424	MW23643207AECO06_180424	3.1	2	9.8	0.49	5.8	<0.01	1.1	0.95	4.1	0.47	0.77	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.05	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW236	24/10/2018	Normal	EB1825962	MW23643397EB1825962	3.99	3.51	15	0.84	8.94	<0.02	1.1	1.25	5.94	0.7	1.43	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**23.9**	42.7
MW236	3/04/2019	Normal	EB1908876	MW23643558EB1908876	4.16	3.22	15.1	0.74	7.82	<0.02	1.3	1.25	5.85	0.67	1.27	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**22.9**	41.4
MW236	23/10/2019	Normal	EB1928436	MW23643761EB1928436	3.26	2.62	15.4	0.6	6.61	<0.02	0.8	0.96	4.66	0.54	1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**22**	36.4
MW236	1/04/2020	Normal	EB2009332	MW23643922EB2009332	1.76	1.47	7.17	0.47	4.98	0.02	0.8	0.58	2.54	0.35	0.86	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**12.2**	21.0
MW236	20/10/2020	Normal	EB2027817	MW23644124EB2027817	3.43	2.3	8.96	0.56	6.29	<0.02	1.21	1.15	5.06	0.49	0.89	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**15.2**	30.3
MW236	14/04/2021	Normal	EB2110967	MW23644300EB2110967	3.56	2.64	9.33	0.52	5.08	<0.02	0.98	1.09	4.55	0.48	0.75	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**14.4**	29.0
MW236	13/10/2021	Field_D	EB2129575	MW23644482EB2129575	6.94	7.24	21	0.48	4.87	<0.02	2	2.42	13.4	1.25	1.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	**25.9**	60.7
MW236	13/10/2021	Normal	EB2129575	MW23644482EB2129575	3.36	2.2	7.57

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW242	3/05/2016	Field_D	EB1611808	MW24242493EB1611808	-	-	-	-	0.84	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW242	28/03/2017	Normal	EB1706327	MW24242822EB1706327	0.22	0.22	1.73	0.08	1.62	<0.02	<0.1	0.05	0.28	0.04	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**3.35**	4.36
MW242	2/05/2018	Normal	EB1810943	MW24243222EB1810943	0.16	0.18	1.21	0.07	1.78	<0.02	<0.1	0.08	0.3	0.05	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**2.99**	3.91
MW242	29/11/2018	Normal	EB1829217	MW24243433EB1829217	0.15	0.14	1.35	0.06	1.53	<0.02	<0.1	0.09	0.33	<0.02	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**2.88**	3.76
MW242	15/04/2019	Normal	EB1910095	MW24243570EB1910095	0.15	0.17	1.24	0.06	1.22	<0.02	<0.1	0.07	0.3	0.04	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**2.46**	3.34
MW242	22/10/2019	Normal	EB1928436	MW24243760EB1928436	1.9	2.02	15.1	0.56	4.63	<0.02	0.3	0.7	3.36	0.52	0.95	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**19.7**	30.0
MW242	26/03/2020	Normal	EB2008691	MW24243916EB2008691	<0.09	<0.09	0.19	<0.09	0.29	<0.09	<0.5	0.14	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.23	<0.09	<0.23	<0.09	<0.23	<0.23	<0.09	<0.23	<0.09	0.33	<0.09	<0.09	**0.48**	0.95
MW242	23/10/2020	Normal	EB2027817	MW24244127EB2027817	0.03	<0.02	0.12	<0.02	0.21	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.1	<0.05	<0.05	**0.33**	0.50
MW242	20/04/2021	Normal	EB2110967	MW24244306EB2110967	0.07	0.08	0.47	0.03	0.7	<0.02	<0.1	0.04	0.12	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**1.17**	1.57
MW242	11/10/2021	Normal	EB2129575	MW24244480EB2129575	0.1	0.09	0.59	0.04	0.75	<0.02	<0.1	0.04	0.16	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**1.34**	1.83
MW242	18/04/2022	Normal	EB2211261-AA	MW24244669EB2211261-AA	<0.02	<0.02	<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	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	0.05	0.05
MW242	24/11/2022	Normal	EB2235603	MW24244889EB2235603	<0.02	<0.02	<0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	<0.05	<0.05	0.02	0.02
MW245	2/02/2016	Normal	EB1603057	MW24542402EB1603057	-	-	-	-	0.09	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW245	2/02/2016	Normal		MW24542402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW245	10/02/2016	Normal	EB1603672	MW24542410EB1603672	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW245	3/05/2016	Normal	EB1611808	MW24542493EB1611808	0.03	0.02	0.18	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<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	<0.05	<0.05	<0.05	**0.26**	<0.01
MW245	3/05/2016	Normal		MW24542493	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW245	3/05/2016	Normal	EB1611805	MW24542493EB1611805	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW245	28/03/2017	Normal	EB1706327	MW24542822EB1706327	0.07	0.07	0.49	0.02	0.18	<0.02	<0.1	<0.02	0.07	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.67**	0.91
MW245	2/05/2018	Normal	EB1810943	MW24543222EB1810943	0.04	0.05	0.34	<0.02	0.17	<0.02	<0.1	0.02	0.07	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.51**	0.70
MW245	29/11/2018	Field_D	EB1829217	MW24543433EB1829217	0.04	0.04	0.34	<0.02	0.16	<0.02	<0.1	<0.02	0.07	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.5**	0.65
MW245	29/11/2018	Normal	EB1829217	MW24543433EB1829217	0.04	0.04	0.29	<0.02	0.17	<0.02	<0.1	0.02	0.07	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.46**	0.63
MW245	17/04/2019	Normal	EB1910290	MW24543572EB1910290	0.04	0.04	0.3	<0.02	0.13	<0.02	<0.1	<0.02	0.07	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.43**	0.59
MW245	23/10/2019	Normal	EB1928436	MW24543761EB1928436	0.04	0.04	0.28	<0.02	0.1	<0.02	<0.1	<0.02	0.06	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.38**	0.52
MW245	26/03/2020	Normal	EB2008691	MW24543916EB2008691	0.04	0.04	0.31	<0.03	0.18	<0.03	<0.2	<0.03	0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	<0.05	<0.05	<0.05	<0.05	**0.49**	0.63
MW245	20/10/2020	Interlab_D	RN1292789	MW24544124RN1292789	0.028	0.027	0.19	<0.01	0.11	<0.01	<0.05	<0.02	0.042	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	0.012	<0.01	<0.01	-	-
MW245	20/10/2020	Field_D	EB2027817	MW24544124EB2027817	0.04	0.04	0.23	<0.02	0.13	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.36**	0.51
MW245	20/10/2020	Normal	EB2027817	MW24544124EB2027817	0.04	0.04	0.22	<0.02	0.13	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.35**	0.50
MW245	20/04/2021	Normal	EB2110967	MW24544306EB2110967	0.03	0.04	0.2	<0.02	0.12	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.32**	0.46
MW245	11/10/2021	Interlab_D	RN1332382	MW24544480RN1332382	0.031	0.031	0.19	<0.01	0.082	<0.01	<0.05	<0.02	0.044	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW245	11/10/2021	Field_D	EB2129575	MW24544480EB2129575	0.04	0.05	0.26	<0.02	0.13	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.39**	0.55
MW245	11/10/2021	Normal	EB2129575	MW24544480EB2129575	0.04	0.04	0.24	<0.02	0.14	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.38**	0.53
MW245	18/04/2022	Normal	EB2211261-AA	MW24544669EB2211261-AA	<0.02	<0.02	0.18	<0.02	0.1	<0.02	<0.1	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	**0.28**	0.32
MW245	18/04/2022	Interlab_D	RN1350926	MW24544669RN1350926	0.031	0.033	0.21	<0.01	0.38	<0.01	<0.05	<0.02	0.046	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW245	18/04/2022	Field_D	EB2211261-AA	MW24544669EB2211261-AA	0.03	0.04	0.2	<0.02	0.12	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**0.32**	0.44
MW245	3/11/2022	Normal	EB2232878	MW24544868.6638888889EB2232878	0.03	0.04	0.19	<0.02	0.12	<0.02	<0.1	<0.02	0.06	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	**0.31**	0.44
MW247	16/03/2017	Normal	EB1705326	MW24742810EB1705326	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW247	16/03/2017	Normal	EB1705326	MW24742810EB1705326	0.51	0.35	1.26	0.02	0.33	<0.02	<0.1	0.14	0.66	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**1.59**	3.33
MW249	16/03/2017	Normal	EB1705326	MW24942810EB1705326	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW249	16/03/2017	Normal	EB1705326	MW24942810EB1705326	0.66	0.66	3.75	0.04	0.07	<0.02	<0.1	0.2	0.98	0.09	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**3.82**	6.54
MW249	17/04/2018	Normal	EB1809957	MW24943207EB1809957	0.64	0.63	3.03	0.05	0.12	<0.02	0.1	0.26	1.02	0.1	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**3.15**	6.03
MW249	25/10/2018	Normal	EB1825962	MW24943398EB1825962	0.6	0.66	2.39	0.03	0.04	<0.02	0.2	0.3	1.2	0.11	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**2.43**	5.58
MW249	3/04/2019	Normal	EB1908876	MW24943558EB1908876	0.7	0.8	3.5	0.05	0.08	<0.02	0.2	0.34	1.3	0.13	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**3.58**	7.19
MW249	23/10/2019	Normal	EB1928436	MW24943761EB1928436	0.6	0.72	3.12	0.04	0.09	<0.02	0.1	0.3	1.16	0.13	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**3.21**	6.33
MW249	1/04/2020	Normal	EB2009332	MW24943922EB2009332	0.82	1.04	3.92	0.06	0.12	<0.02	0.3	0.42	1.47	0.2	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**4.04**	8.46
MW249	1/04/2020	Field_D	EB2009332	MW24943922EB2009332	0.86	0.98	3.62	0.06	0.12	<0.02	0.3	0.42	1.52	0.2	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**3.74**	8.19
MW249	1/04/2020	Interlab_D	RN1270680	MW24943922RN1270680	0.73	0.74	2.9	0.025	0.068	<0.01	0.24	0.39	1.4	0.12	0.077	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW249	20/10/2020	Normal	EB2027817	MW24944124EB2027817	0.82	0.93	3.95	0.05	0.13	<0.02	0.2	0.41	1.62	0.17	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**4.08**	8.38
MW249	14/04/2021	Normal	EB2110967	MW24944300EB2110967	0.71	0.94	4.04	0.06	0.15	<0.02	0.2	0.43	1.41	0.17	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**4.19**	8.22
MW249	13/10/2021	Normal	EB2129575	MW24944482EB2129575	0.91	1.03	4.34	0.08	0.18	<0.02	0.3	0.51	1.82	0.21	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**4.52**	9.52
MW249	19/04/2022	Field_D	EB2211261-AA	MW24944670EB2211261-AA	0.49	0.53	2.52	0.03	0.11	<0.02	0.2	0.27	0.98	0.11	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**2.63**	5.32
MW249	19/04/2022	Normal	EB2211261-AA	MW24944670EB2211261-AA	0.57	0.57	2.58	<0.02	0.11	<0.02	<0.1	0.3	0.99	0.11	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	**2.69**	5.30
MW249	19/04/2022	Interlab_D	RN1350926	MW24944670RN1350926	0.48	0.52	2.1	0.021	0.082	<0.01	0.22	0.22	0.84	0.09	0.06	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW249	26/10/2022	Normal	EB2232878	MW24944860.6409722222EB2232878	0.65	0.71	3.22	0.06	0.17	<0.02	0.2	0.37	1.46	0.16	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	**3.39**	7.09
MW250	5/11/2015	Field_D	EB1534037	MW25042313EB1534037	-	-	-	-	0.04	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW250	5/11/2015	Interlab_D	480012	MW25042313480012	0.04	-	0.2	-	0.09	<0.01	<0.05	0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	-	-	<0.05	-	-	<0.01	<0.05	<0.01	-	**0.29**	-
MW250	5/11/2015	Normal	EB1534037	MW25042313EB1534037	0.05	-	0.2	-	0.06	<0.02	-	-	0.05	<0.02	<0.01	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	**0.26**	-
MW250	5/11/2015	Normal		MW25042313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW250	16/03/2017	Normal	EB1705326	MW25042810EB1705326	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW250	16/03/2017	Normal	EB1705326	MW25042810EB1705326	1.24	1.22	10.8	0.31	2.73	<0.02	<0.1	0.33	1.63	0.21	0.48	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**13.5**	19
MW252	14/03/2017	Normal	EB1705326	MW25242808EB1705326	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW252	14/03/2017	Normal	ES1709078	MW25242808ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**10.85**	-
MW252	14/03/2017	Normal	EB1705326	MW25242808EB1705326	0.46	0.46	4.43	0.34	11.7	<0.02	<0.1	0.13	0.46	0.12	0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**16.1**	18.5
MW252	17/04/2018	Normal	EB1809957	MW25243207EB1809957	0.25	0.26	2.01	0.16	6.56	<0.02	0.1	0.12	0.31	0.08	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**8.57**	10.0
MW252	24/10/2018	Normal	EB1825962	MW25243397EB1825962	2.1	2.74	12.9	0.94	23.8	<0.02	0.6	1.12	3.66	0.66	1.09	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**36.7**	49.6
MW252	3/04/2019	Normal	EB1908876	MW25243558EB1908876	0.61	0.63	3.42	0.22	8.14	<0.02	0.3	0.37	0.94	0.16	0.29	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**11.6**	15.1
MW252	23/10/2019	Normal	EB1928436	MW25243761EB1928436	1.65	2.03	13.2	0.76	26.3	<0.02	0.4	0.91	2.8	0.56	1.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**39.5**	49.7
MW252	1/04/2020	Normal	EB2009332	MW25243922EB2009332	1.4	1.99	9.78	1.07	20.4	<0.02	0.5	0.74	2.14	0.56	0.94	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**30.2**	39.6
MW252	20/10/2020	Normal	EB2027817	MW25244124EB2027817	1.16	1.12	6.55	0.46	16.3	<0.10	<0.50	0.65	1.55	0.38	0.68	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.25	<0.10	<0.25	<0.25	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10	**22.8**	28.8
MW252	14/04/2021	Normal	EB2110967	MW25244300EB2110967	2.41	2.7	11.5	0.64	17	<0.10	0.83	1.55	3.43	0.76	0.97	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.25	<0.10	<0.25	<0.25	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10	**28.5**	41.8
MW252	13/10/2021	Normal	EB2129575	MW25244482EB2129575	0.97	1.21	6.13	0.47	11.2	<0.02	0.3	0.51	1.22	0.31	0.53	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**17.3**	22.9
MW252	20/04/2022	Interlab_D	RN1350926	MW25244671RN1350926	0.32	0.25	1.3	0.051	3.4	<0.01	0.18	0.16	0.36	0.07	0.12	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW252	20/04/2022	Field_D	EB2211261-AA	MW25244671EB2211261-AA	0.28	0.24	1.3	0.08	4.05	<0.02	0.1	0.19	0.34	0.08	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**5.35**	6.78
MW252	20/04/2022	Normal	EB2211261-AA	MW25244671EB2211261-AA	0.3	0.2	1.25	0.05	4.2	<0.05	<0.2	0.15	0.37	0.07	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	**5.45**	6.69
MW252	26/10/2022	Normal	EB2232878	MW25244860.6458333333EB2232878	0.11	0.08	0.5	0.03	2.23	<0.02	<0.1	0.06	0.13	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	**2.73**	3.2
MW253	14/03/2

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW255	25/04/2018	Normal	EB1810408	MW25543215EB1810408	<0.02	<0.02	0.13	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.19
MW255	18/10/2018	Normal	EB1826398	MW25543391EB1826398	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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	0.16
MW255	11/04/2019	Interlab_D	RN1230420	MW25543566RN1230420	0.021	0.021	0.12	<0.01	0.052	<0.01	<0.05	<0.02	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.02	<0.02	<0.05	<0.01	0.017	<0.01	<0.01	-	-
MW255	11/04/2019	Normal	EB1909687	MW25543566EB1909687	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	0.16
MW255	23/10/2019	Normal	EB1928436	MW25543761EB1928436	0.02	0.02	0.14	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.18	0.22
MW255	26/03/2020	Normal	EB2008693	MW25543916EB2008693	0.02	0.02	0.14	<0.02	0.06	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	0.26
MW255	21/10/2020	Normal	EB2027817	MW25544125EB2027817	<0.02	0.02	0.12	<0.02	0.07	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.23
MW255	13/04/2021	Interlab_D	RN1312932	MW25544299RN1312932	0.02	0.019	0.11	<0.01	0.042	<0.01	<0.05	<0.02	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW255	13/04/2021	Normal	EB2110967	MW25544299EB2110967	<0.02	0.02	0.11	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.17
MW255	13/04/2021	Field_D	EB2110967	MW25544299EB2110967	<0.02	0.02	0.1	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	0.16
MW255	15/10/2021	Normal	EB2129575	MW25544484EB2129575	0.03	0.03	0.15	<0.02	0.07	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.22	0.30
MW255	15/04/2022	Normal	EB2211261-AA	MW25544666EB2211261-AA	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	0.04
MW256	4/11/2015	Normal	EB1534037	MW25642312EB1534037	-	-	-	-	0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW256	4/11/2015	Normal		MW25642312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW256	3/02/2016	Normal	EB1603057	MW25642403EB1603057	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-
MW256	3/02/2016	Normal		MW25642403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW256	4/05/2016	Normal	EB1611808	MW25642494EB1611808	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-
MW256	4/05/2016	Normal		MW25642494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW256	21/03/2017	Interlab_D	AECO06_170328	MW25642815AECO06_170328	0.011	-	0.04	-	<0.01	<0.02	<0.05	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	0.04	-
MW256	21/03/2017	Normal	EB1705900	MW25642815EB1705900	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.05
MW256	21/03/2017	Field_D	EB1705900	MW25642815EB1705900	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.05
MW257	4/11/2015	Normal	EB1534037	MW25742312EB1534037	0.08	-	0.29	-	0.31	<0.02	-	-	0.07	<0.02	<0.01	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	0.6	-
MW257	4/11/2015	Normal		MW25742312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW257	3/02/2016	Normal	EB1603057	MW25742403EB1603057	-	-	-	-	0.38	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW257	3/02/2016	Normal		MW25742403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW257	4/05/2016	Normal	EB1611808	MW25742494EB1611808	-	-	-	-	0.24	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW257	4/05/2016	Normal		MW25742494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW257	21/03/2017	Normal	EB1705900	MW25742815EB1705900	0.03	0.03	0.33	<0.02	0.38	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.71	0.82
MW257	2/05/2018	Normal	EB1810943	MW25743222EB1810943	<0.02	0.02	0.2	<0.02	0.28	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.48	0.52
MW257	22/10/2018	Normal	EB1825962	MW25743395EB1825962	<0.02	<0.02	0.2	<0.02	0.23	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.43	0.45
MW257	15/04/2019	Interlab_D	RN1231105	MW25743570RN1231105	<0.01	<0.01	0.052	<0.01	0.076	<0.01	<0.05	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.05	<0.01	0.067	<0.01	<0.01	-	-
MW257	15/04/2019	Normal	EB1910255	MW25743570EB1910255	<0.02	<0.02	0.04	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	0.11
MW257	15/04/2019	Field_D	EB1910255	MW25743570EB1910255	<0.02	<0.02	0.05	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	0.11
MW257	23/10/2019	Normal	EB1928436	MW25743761EB1928436	<0.02	<0.02	0.18	<0.02	0.17	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.35	0.35
MW257	26/03/2020	Interlab_D	RN1271386	MW25743916RN1271386	0.012	0.012	0.17	<0.01	0.18	<0.01	<0.05	<0.02	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW257	26/03/2020	Field_D	EB2008693	MW25743916EB2008693	<0.02	<0.02	0.2	<0.02	0.27	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.47	0.47
MW257	26/03/2020	Normal	EB2008693	MW25743916EB2008693	<0.02	<0.02	0.18	<0.02	0.23	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.41	0.42
MW257	21/10/2020	Normal	EB2027817	MW25744125EB2027817	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.06
MW257	17/04/2021	Normal	EB2110967	MW25744303EB2110967	<0.02	<0.02	0.09	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	0.17
MW257	14/10/2021	Normal	EB2129575	MW25744483EB2129575	<0.02	<0.02	0.14	<0.02	0.1	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	0.24
MW257	15/04/2022	Normal	EB2211261-AA	MW25744666EB2211261-AA	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW257	27/10/2022	Normal	EB2232878	MW25744861.6493055556EB2232878	<0.02	<0.02	0.12	<0.02	0.11	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	0.23	0.23
MW258	4/11/2015	Normal		MW25842312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW258	4/11/2015	Normal	EB1534037	MW25842312EB1534037	0.23	-	1.69	-	1.02	<0.02	-	-	0.26	0.04	0.1	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	2.71	-
MW258	3/02/2016	Normal		MW25842403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW258	3/02/2016	Normal	EB1603057	MW25842403EB1603057	-	-	-	-	1.09	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW258	4/05/2016	Normal		MW25842494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW258	4/05/2016	Normal	EB1611808	MW25842494EB1611808	0.1	0.1	0.95	0.06	0.83	<0.02	<0.1	<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	<0.05	<0.05	1.78	<0.01
MW258	21/03/2017	Normal	EB1705900	MW25842815EB1705900	0.2	0.26	2.61	0.16	3.1	<0.02	<0.1	<0.02	0.33	0.04	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	5.71	6.81
MW261	4/11/2015	Normal	EB1534037	MW26142312EB1534037	0.03	-	0.11	-	0.07	<0.02	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	0.18	-
MW261	4/11/2015	Normal		MW26142312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW261	3/02/2016	Normal	EB1603057	MW26142403EB1603057	-	-	-	-	0.06	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW261	3/02/2016	Normal		MW26142403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW261	4/05/2016	Normal	EB1611808	MW26142494EB1611808	-	-	-	-	0.04	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW261	4/05/2016	Normal		MW26142494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW261	21/03/2017	Normal	EB1705900	MW26142815EB1705900	0.02	<0.02	0.15	<0.02	0.1	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.25	0.27
MW262	4/11/2015	Normal	EB1534037	MW26242312EB1534037	0.03	-	0.16	-	0.08	<0.02	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	-	<0.1	<0.1	-	0.24	-
MW262	4/11/2015	Normal		MW26242312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW262	2/02/2016	Interlab_D	488339	MW26242402488339	-	-	-	-	<0.04	-	-	-	-	-	<0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.04	-	-	-
MW262	3/02/2016	Normal	EB1603057	MW26242403EB1603057	-	-	-	-	0.09	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW262	3/02/2016	Field_D	EB1603057	MW26242403EB1603057	-	-	-	-	0.06	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW262	3/02/2016	Normal		MW26242403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW262	4/05/2016	Normal	EB1611808	MW26242494EB1611808	-	-	-	-	0.09	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW262	4/05/2016	Normal		MW26242494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW262	21/03/2017	Normal	EB1705900	MW26242815EB1705900	0.02	0.02	0.18	<0.02	0.12	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.3	0.34
MW262	24/04/2018	Normal	EB1810403	MW26243214EB1810403	0.03	<0.02	0.16	<0.02	0.17	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.33	0.36
MW262	18/10/2018	Normal	EB1826398	MW26243391EB1826398	0.03	<0.02	0.14	<0.02	0.13	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	0.30
MW262	11/04/2019	Normal	EB1909641	MW26243566EB1909641	0.03	0.02	0.2	<0.02	0.19	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.39	0.45
MW262	21/10/2019	Normal	EB1928436	MW26243759EB1928436	0.04	0.04	0.27	<0.02	0.19	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.46	0.60
MW262	24/03/2020	Normal	EB2008693	MW26243914EB2008693	0.05	0.04	0.28	<0.02	0.34	<0.02	<0.1	<0.02	0.04	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.62	0.78
MW262	21/10/2020	Normal	EB2027817	MW26244125EB2027817	0.07	0.02	0.13	<0.02	0.06	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.32
MW262	19/04/2021	Normal	EB2110967	MW26244305EB2110967	0.05	0.04	0.24	0.02	0.26	<0.02	<0.1	<0.02	0.04	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	0.68
MW262	19/04/2021	Interlab_D	RN1312932	MW26244305RN1312932	0.049	0.039	0.23	0.013	0.2	<0.01	<0.05	<0.02	0.038	0.013	0.022	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW262	14/10/2021	Normal	EB2129575	MW26244483EB2129575	0.05	0.05	0.24	<0.02	0.18	<0.02	<0.1	<0.02	0.04	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.42	0.59
MW262	16/04/2022	Normal	EB2211261-AA	MW26244667EB2211261-AA	0.05	0.04	0.26	<0.02	0.27	<0.02	<0.1	<0.02	0.05	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.53	0.70
MW262	2/11/2022	Normal	EB2232878	MW26244867.6604166667EB2232878	0.08	0.04	0.2	<0.02	0.14	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.34	0.53
MW263	4/11/2015	Normal	EB1534037	MW26342312EB1534037	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW263	4/11/2015	Normal		MW26342312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW263	3/02/2016	Normal	EB1603057	MW26342403EB1603057	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW263	3/02/2016	Normal		MW26342403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW263	4/05/2016	Normal	EB1611808	MW26342494EB1611808	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW263	4/05/2016	Normal		MW26342494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW263	21/03/2017	Normal	EB1705900	MW26342815EB1705900	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW264	4/11/2015	Normal	EB1534037	MW26442312EB1534037	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW264	4/11/2015	Normal		MW26442312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW264	3/02/2016	Normal	EB1603057	MW26442403EB1603057	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-
MW264	3/02/2016	Normal		MW26442403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW264	4/05/2016	Normal	EB1611808	MW26442494EB1611808	-	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-
MW264	4/05/2016	Normal		MW26442494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW264	21/03/2017	Normal	EB1705900	MW26442815EB1705900	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW264	19/04/2018	Normal	EB1809892	MW26443209EB1809892	<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	<0.05	<0.02	<0.05	<0.02	<0.05

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW265	25/10/2018	Normal	EB1825962	MW26543398EB1825962	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.05
MW265	12/04/2019	Normal	EB1909687	MW26543567EB1909687	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW265	23/03/2020	Normal	EB2008693	MW26543913EB2008693	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW265	12/04/2021	Normal	EB2110967	MW26544298EB2110967	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW265	16/04/2022	Normal	EB2211261-AA	MW26544667EB2211261-AA	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW266	22/03/2017	Normal	ES1709078	MW26642816ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.63	-
MW266	22/03/2017	Normal	EB1705900	MW26642816EB1705900	0.76	0.69	3.98	0.22	3.01	<0.02	<0.1	0.13	1.33	0.18	0.3	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	6.99	10.6
MW266	19/04/2018	Field_D	EB1809892	MW26643209EB1809892	0.7	0.56	2.34	0.12	2.08	<0.02	0.2	0.24	1.03	0.15	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.42	7.62
MW266	19/04/2018	Normal	EB1809892	MW26643209EB1809892	0.72	0.57	2.57	0.14	1.9	<0.02	0.2	0.24	1.04	0.15	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.47	7.72
MW266	19/04/2018	Interlab_D	AECO06_180424	MW26643209AECO06_180424	0.49	0.39	2	0.077	1.6	<0.01	0.19	0.2	0.84	0.12	0.13	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW266	12/04/2019	Normal	EB1909687	MW26643567EB1909687	0.51	0.5	2.45	0.12	1.93	<0.02	0.2	0.21	1	0.14	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.38	7.25
MW266	23/03/2020	Normal	EB2008693	MW26643913EB2008693	0.76	0.73	3.64	0.22	3.88	<0.02	0.3	0.28	1.27	0.24	0.31	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	7.52	11.6
MW266	20/04/2021	Normal	EB2110967	MW26644306EB2110967	0.78	0.69	3.38	0.22	3.19	<0.02	0.24	0.32	1.28	0.23	0.34	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	6.57	10.7
MW266	16/04/2022	Normal	EB2211261-AA	MW26644667EB2211261-AA	0.59	0.51	2.6	0.18	3.08	<0.02	0.2	0.22	0.96	0.16	0.27	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	5.68	8.77
MW267	28/04/2017	Normal	EB1708633	MW26742853EB1708633	<0.02	<0.02	0.03	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.15
MW267	19/06/2018	Normal	EB1814822	MW26743270EB1814822	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.50	<1.00	<2.50	<1.00	<2.50	<2.50	<1.00	<2.50	<1.00	1.5	<1.00	<1.00	<1.00	1.50
MW267	17/04/2019	Normal	EB1910106	MW26743572EB1910106	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	0.04
MW267	25/03/2020	Normal	EB2008692	MW26743915EB2008692	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05
MW267	15/04/2021	Normal	EB2110947	MW26744301EB2110947	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.2	<0.30	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	0.04
MW267	13/04/2022	Normal	EB2211310	MW26744664EB2211310	0.11	0.04	0.22	<0.02	0.25	<0.02	<0.1	0.05	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.47	0.80
MW268	22/06/2017	Normal	EB1713107	MW26842908EB1713107	0.09	0.06	0.5	0.04	1.32	<0.02	<0.1	<0.02	0.13	0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.82	2.22
MW268	23/04/2018	Normal	EB1810404	MW26843213EB1810404	0.1	0.06	0.21	<0.02	0.11	<0.02	<0.1	0.04	0.15	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.32	0.67
MW268	19/06/2018	Normal	EB1814822	MW26843270EB1814822	0.1	<0.10	0.53	<0.10	0.6	<0.10	<0.5	<0.10	0.13	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.25	<0.10	<0.25	<0.25	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10	1.13	1.36
MW268	9/04/2019	Normal	EB1909368	MW26843564EB1909368	0.07	0.07	0.43	<0.02	0.46	<0.02	<0.1	0.02	0.13	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.89	1.19
MW268	25/03/2020	Normal	EB2008692	MW26843915EB2008692	0.06	0.06	0.4	<0.02	0.33	<0.02	<0.1	0.02	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.73	1.00
MW268	15/04/2021	Normal	EB2110947	MW26844301EB2110947	0.04	0.04	0.25	<0.02	0.18	<0.02	<0.1	<0.02	0.07	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.43	0.59
MW268	13/04/2022	Normal	EB2211310	MW26844664EB2211310	0.04	0.05	0.39	<0.02	0.15	<0.02	<0.1	<0.02	0.07	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.54	0.71
MW269	23/06/2017	Normal	EB1713107	MW26942909EB1713107	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW269	24/04/2018	Normal	EB1810404	MW26943214EB1810404	0.02	<0.02	0.12	<0.02	0.12	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	0.31
MW269	19/06/2018	Field_D	EB1814822	MW26943270EB1814822	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.50	<1.00	<2.50	<1.00	<2.50	<2.50	<1.00	<2.50	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
MW269	19/06/2018	Normal	EB1814822	MW26943270EB1814822	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.25	<0.10	<0.25	<0.25	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
MW269	19/06/2018	Interlab_D	AECO06_180620	MW26943270AECO06_180620	0.012	<0.01	0.085	<0.01	0.074	<0.01	0.096	<0.02	0.026	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW269	25/07/2018	Normal	AECO06_180727	MW26943306AECO06_180727	0.012	0.011	0.071	<0.01	0.064	<0.01	<0.05	<0.02	0.026	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW269	25/07/2018	Field_D	AECO06_180727	MW26943306AECO06_180727	0.014	0.014	0.085	<0.01	0.076	<0.01	<0.05	<0.02	0.032	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW269	25/07/2018	Interlab_D	EB1818067	MW26943306EB1818067	<0.02	<0.02	0.09	<0.02	0.07	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	0.19
MW269	20/09/2018	Interlab_D	AECO06_180925	MW26943363AECO06_180925	<0.01	<0.01	0.011	<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	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW269	20/09/2018	Normal	EB1822863	MW26943363EB1822863	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW269	20/09/2018	Field_D	EB1822863	MW26943363EB1822863	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.01
MW269	20/09/2018	Normal	EB1822863	MW26943363EB1822863	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.07
MW269	19/10/2018	Normal	EB1826388	MW26943392EB1826388	<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	0.04	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.12
MW269	10/04/2019	Normal	EB1909368	MW26943565EB1909368	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	0.13
MW269	25/10/2019	Normal	EB1928469	MW26943763EB1928469	<0.02	<0.02	0.06	<0.02	0.07	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.19	<0.05	<0.05	0.13	0.35
MW269	25/03/2020	Normal	EB2008692	MW26943915EB2008692	<0.02	<0.02	0.06	<0.02	0.07	<0.02	<0.1	<0.16	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.09	<0.05	<0.05	0.13	0.22
MW269	21/10/2020	Normal	EB2027838	MW26944125EB2027838	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.08
MW269	15/04/2021	Normal	EB2110947	MW26944301EB2110947	<0.02	<0.02	0.04	<0.02	0.1	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	0.14
MW269	15/10/2021	Normal	EB2129565	MW26944484EB2129565	<0.02	<0.02	0.04	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	0.12
MW269	13/04/2022	Normal	EB2211310	MW26944664EB2211310	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.08
MW269	2/11/2022	Normal	EB2232884	MW26944867.6826388889EB2232884	<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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.1	0.1
MW270	12/04/2017	Interlab_D	AECO06_170420	MW27042837AECO06_170420	<0.01	-	0.033	-	<0.01	<0.02	<0.05	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	0.033	-
MW270	12/04/2017	Normal	EB1707726	MW27042837EB1707726	<0.02	<0.02	0.05	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.06
MW270	12/04/2017	Field_D	EB1710042	MW27042837EB1710042	<0.02	<0.02	0.04	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	0.04
MW270	12/04/2017	Normal	EB1708729	MW27042837EB1708729	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.12	-
MW270	12/04/2017	Normal	EB1710671	MW27042837EB1710671	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.12	-
MW270	23/04/2018	Normal	EB1810404	MW27043213EB1810404	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW270	9/04/2019	Normal	EB1909368	MW27043564EB1909368	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	0.03
MW270	25/03/2020	Normal	EB2008692	MW27043915EB2008692	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.07	<0.05	<0.05	<0.01	0.07
MW270	15/04/2021	Normal	EB2110947	MW27044301EB2110947	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW270	13/04/2022	Normal	EB2211310	MW27044664EB2211310	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW271	3/05/2017	Interlab_D	AECO06_170508	MW27142858AECO06_170508_1	<0.01	-	<0.02	-	<0.01	<0.02	<0.05	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	-	-	-	-	-	-	<0.05	<0.05	<0.05	-	<0.02	-
MW271	3/05/2017	Normal	EB1709197	MW27142858EB1709197	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW271	3/05/2017	Field_D	EB1709197	MW27142858EB1709197	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW271	24/04/2018	Normal	EB1810404	MW27143214EB1810404	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW271	9/04/2019	Normal	EB1909368	MW27143564EB1909368	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW271	25/03/2020	Normal	EB2008692	MW27143915EB2008692	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.04	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.32	<0.05	<0.05	<0.01	0.32
MW271	15/04/2021	Normal	EB2110947	MW27144301EB2110947	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW271	13/04/2022	Normal	EB2211310	MW27144664EB2211310	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW272	21/03/2017	Normal	EB1705900	MW27242815EB1705900	0.04	0.04	0.26	<0.02	0.08	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.34	0.47
MW272	18/04/2018	Interlab_D	AECO06_180424	MW27243208AECO06_180424	0.035	0.035	0.25	<0.01	0.1	<0.01	<0.05	<0.02	0.049	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	0.017	<0.01	<0.01	-	-
MW272	18/04/2018	Normal	EB1809892	MW27243208EB1809892	0.05	0.04	0.3	<0.02	0.13	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.43	0.59
MW272	18/04/2018	Field_D	EB1809892	MW27243208EB1809892	0.05	0.04	0.28	<0.02	0.13	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW276	22/03/2017	Normal	ES1709078	MW27642816ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**10.57**	-
MW276	22/03/2017	Normal	EB1705900	MW27642816EB1705900	0.87	0.96	7.87	0.5	9.02	<0.02	<0.1	0.13	1.56	0.2	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**16.89**	21.6
MW276	25/04/2018	Normal	EB1810408	MW27643215EB1810408	1.2	1.25	9.85	0.66	12.2	<0.02	0.4	0.41	1.9	0.31	0.63	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**22**	28.8
MW276	11/04/2019	Normal	EB1909687	MW27643566EB1909687	0.74	0.8	5.74	0.27	4.28	<0.02	0.3	0.28	1.41	0.19	0.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**10**	14.3
MW276	23/10/2019	Normal	EB1928436	MW27643761EB1928436	0.84	1.07	8.54	0.48	9.26	<0.02	0.2	0.32	1.58	0.25	0.52	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**17.8**	23.1
MW276	23/03/2020	Field_D	EB2008693	MW27643913EB2008693	1.09	1.45	9.23	0.73	12.7	<0.04	<0.2	0.32	1.65	0.27	0.61	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	<0.05	<0.05	<0.05	<0.05	**21.9**	28.0
MW276	26/03/2020	Normal	EB2008693	MW27643916EB2008693	1.24	1.52	8.05	1.04	12.7	<0.02	0.3	0.41	2.24	0.35	0.69	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**20.8**	28.5
MW276	26/03/2020	Interlab_D	RN1271386	MW27643916RN1271386	0.9	0.9	7.5	0.43	8.7	<0.01	0.35	0.36	1.6	0.25	0.56	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW276	21/10/2020	Normal	EB2027817	MW27644125EB2027817	0.96	1.16	8.9	0.63	10.9	<0.02	0.35	0.38	1.78	0.29	0.56	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**19.8**	25.9
MW276	19/04/2021	Field_D	EB2110967	MW27644305EB2110967	1.01	1.33	9.08	0.63	13.5	<0.05	0.4	0.41	1.91	0.3	0.66	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	**22.6**	29.2
MW276	19/04/2021	Normal	EB2110967	MW27644305EB2110967	0.83	1.17	8.05	0.66	11.5	<0.02	0.3	0.35	1.57	0.26	0.57	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**19.6**	25.3
MW276	19/04/2021	Interlab_D	RN1312932	MW27644305RN1312932	0.84	0.84	6.3	0.4	7.8	<0.01	0.27	0.29	1.2	0.2	0.42	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW276	14/10/2021	Normal	EB2129575	MW27644483EB2129575	1.09	1.38	8.98	0.71	11.6	<0.02	0.4	0.47	1.94	0.34	0.68	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	**20.6**	27.6
MW276	15/04/2022	Normal	EB2211261-AA	MW27644666EB2211261-AA	0.83	1	7.78	0.6	11.2	<0.02	0.3	0.34	1.67	0.25	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**19**	24.5
MW276	24/11/2022	Normal	EB2235603	MW27644889EB2235603	0.82	1.12	7.16	0.51	9.39	<0.02	0.2	0.32	1.65	0.22	0.54	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**16.6**	21.9
MW278	12/04/2017	Normal	EB1710043	MW27842837EB1710043	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW278	24/04/2018	Normal	EB1810403	MW27843214EB1810403	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW278	24/04/2018	Field_D	EB1810403	MW27843214EB1810403	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW278	24/04/2018	Interlab_D	AECO06_180501	MW27843214AECO06_180501	<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	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW278	15/04/2019	Normal	EB1910095	MW27843570EB1910095	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW278	25/03/2020	Normal	EB2008693	MW27843915EB2008693	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW278	16/04/2021	Normal	EB2110967	MW27844302EB2110967	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW278	16/04/2022	Normal	EB2211261-AA	MW27844667EB2211261-AA	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW279	22/03/2017	Normal	EB1705900	MW27942816EB1705900	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW279	24/04/2018	Normal	EB1810403	MW27943214EB1810403	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW279	15/04/2019	Normal	EB1910255	MW27943570EB1910255	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW279	25/03/2020	Normal	EB2008693	MW27943915EB2008693	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW279	16/04/2021	Normal	EB2110967	MW27944302EB2110967	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW279	15/04/2022	Normal	EB2211261-AA	MW27944666EB2211261-AA	<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	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02
MW280	22/03/2017	Normal	EB1705900	MW28042816EB1705900	<0.02	<0.02	0.05	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.08
MW280	24/04/2018	Normal	EB1810403	MW28043214EB1810403	<0.02	<0.02	0.11	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	0.17
MW280	12/04/2019	Normal	EB1909687	MW28043567EB1909687	<0.02	<0.02	0.13	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	0.2
MW280	24/03/2020	Normal	EB2008693	MW28043914EB2008693	<0.02	<0.02	0.11	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	0.20
MW280	17/04/2021	Normal	EB2110967	MW28044303EB2110967	0.04	0.02	0.16	<0.02	0.09	<0.02	<0.10	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.25	0.31
MW280	16/04/2022	Normal	EB2211261-AA	MW28044667EB2211261-AA	<0.02	<0.02	0.16	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.28	0.28
MW281	22/03/2017	Normal	ES1709078	MW28142816ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.24**	-
MW281	22/03/2017	Normal	EB1705900	MW28142816EB1705900	0.52	0.47	2.8	0.21	4.11	<0.02	<0.1	<0.02	0.64	0.15	0.34	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**6.91**	9.24
MW281	24/04/2018	Normal	EB1810403	MW28143214EB1810403	0.42	0.37	2.06	0.17	3.21	<0.02	0.1	0.11	0.48	0.13	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**5.27**	7.30
MW281	18/04/2019	Normal	EB1910255	MW28143573EB1910255	0.36	0.3	1.79	0.13	2.62	<0.02	<0.1	0.09	0.4	0.1	0.24	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**4.41**	6.03
MW281	2/04/2020	Normal	EB2010564	MW28143923EB2010564	0.35	0.31	1.78	0.13	2.22	<0.02	<0.10	0.09	0.4	0.12	0.23	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**4**	5.63
MW281	20/04/2021	Normal	EB2110959	MW28144306EB2110959	0.26	0.28	1.33	0.14	2.35	<0.02	<0.1	0.1	0.38	0.1	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**3.68**	5.14
MW281	14/04/2022	Normal	EB2211316	MW28144665EB2211316	0.27	0.27	1.38	0.13	1.98	<0.02	<0.1	0.07	0.29	0.08	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**3.36**	4.67
MW282	22/03/2017	Normal	EB1705900	MW28242816EB1705900	0.04	0.04	0.36	<0.02	1.28	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.64	1.73
MW282	24/04/2018	Normal	EB1810403	MW28243214EB1810403	0.04	0.04	0.31	<0.02	1.3	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.61	1.69
MW282	15/04/2019	Normal	EB1910255	MW28243570EB1910255	0.05	<0.02	0.34	<0.02	0.8	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.14	1.19
MW282	24/03/2020	Normal	EB2008693	MW28243914EB2008693	0.07	0.06	0.39	<0.02	0.51	<0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.9	1.05
MW282	15/04/2021	Normal	EB2110967	MW28244301EB2110967	0.08	0.07	0.43	<0.02	0.54	<0.02	<0.1	<0.02	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.97	1.16
MW282	15/04/2021	Field_D	EB2110967	MW28244301EB2110967	0.07	0.06	0.37	<0.02	0.49	<0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.86	1.01
MW282	15/04/2021	Interlab_D	RN1312932	MW28244301RN1312932	0.084	0.056	0.4	0.01	0.42	<0.01	<0.05	<0.02	0.017	<0.01	0.019	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW282	14/04/2022	Field_D	EB2211261-AA	MW28244665EB2211261-AA	0.05	0.03	0.34	<0.02	0.8	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.14	1.22
MW282	15/04/2022	Interlab_D	RN1350926	MW28244666RN1350926	0.05	0.038	0.35	<0.01	0.75	<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	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW282	15/04/2022	Normal	EB2211261-AA	MW28244666EB2211261-AA	0.06	0.04	0.34	<0.02	0.86	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.2	1.30
MW283	28/04/2017	Normal	EB1708627	MW28342853EB1708627	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW283	19/04/2018	Normal	EB1810254	MW28343209EB1810254	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW313	11/10/2021	Normal	EB2129428	MW31344480EB2129428	0.18	0.2	0.99	0.03	0.22	<0.02	0.2	0.63	0.63	0.28	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.5	<0.05	<0.05	1.21	3.94
MW329	11/10/2021	Normal	EB2129428	MW32944480EB2129428	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW329	11/10/2021	Field_D	EB2129428	MW32944480EB2129428	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW329	11/10/2021	Interlab_D	RN1332384	MW32944480RN1332384	<0.01	<0.01	0.012	<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	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW401D	11/10/2021	Normal	EB2129428	MW401D44480EB2129428	0.28	0.27	1.4	0.06	0.95	<0.02	<0.1	0.12	0.46	0.06	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**2.35**	3.68
MW401S	11/10/2021	Normal	EB2129428	MW401S44480EB2129428	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	0.2	0.14	0.83	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	1.19
MW402D	11/10/2021	Normal	EB2129428	MW402D44480EB2129428	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.04	0.2	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.21
MW402S	11/10/2021	Normal	EB2129428	MW402S44480EB2129428	0.67	0.85	4.49	0.32	4.19	<0.02	0.2	0.3	1.58	0.23	0.41	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**8.68**	13.2
MW402S	11/10/2021	Field_D	EB2129428	MW402S44480EB2129428	0.66	0.8	4.59	0.31	4.32	<0.02	0.3	0.3	1.46	0.23	0.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**8.91**	13.4
MW402S	11/10/2021	Interlab_D	RN1332384	MW402S44480RN1332384	0.6	0.57	3	0.18	2.8	<0.01	0.26	0.27	1.1	0.19	0.3	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW403D	11/10/2021	Normal	EB2129428	MW403D44480EB2129428	0.31	0.38	2.31	0.14	3.03	<0.02	0.1	0.14	0.62	0.1	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	**5.34**	7.32
MW403S	11/10/2021	Normal	EB2129428	MW403S44480EB2129428	0.08	0.1	0.55	0.02	0.25	<0.02	<0.1	0.04	0.19	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.8	1.28
MW283	11/04/2019	Normal	EB1909874	MW28343566EB1909874	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	0.04
MW283	23/05/2019	Normal	EB1913217	MW28343608EB1913217	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW283	25/03/2020	Normal	EB2008683	MW28343915EB2008683	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW290	21/04/2021	Normal	EB2110962	MW29044307EB2110962	0.02	0.02	0.23	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.25	0.31
MW290	21/04/2022	Normal	EB2211311	MW29044672EB2211311	0.21	0.19	0.42	<0.02	<0.03	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.42	0.87
MW291	28/04/2017	Normal	EB1708626	MW29142853EB1708626	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW291	17/04/2018	Normal	EB1809905	MW29143207EB1809905	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW291	11/04/2019	Normal	EB1909640	MW29143566EB1909640	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW291	25/03/2020	Normal	EB2008681	MW29143915EB2008681	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.28	<0.05	<0.05	<0.01	0.28
MW291	22/10/2020	Normal	EB2027833	MW29144126EB2027833	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.05	<0.05	<0.05	<0.01	0.05
MW291	21/04/2021	Normal	EB2110962	MW29144307EB2110962	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.07	<0.05	<0.05	0.03	0.10
MW291	21/04/2022	Normal	EB2211311	MW29144672EB2211311	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	0.03
MW292	13/04/2017	Normal	EB1711576	MW29242838EB1711576	<0.02	<0.02	0.16	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.19
MW292	13/04/2017	Normal	EB1711530	MW29242838EB1711530	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW292	18/05/2017	Normal	EB1710282	MW29242873EB1710282	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW292	16/04/2018	Normal	EB1809907	MW29243206EB1809907	<0.02	<0.02	0.23	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.28	0.30
MW292	10/04/2019	Normal	EB1909642	MW29243565EB1909642	<0.02	<0.02	0.18	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	0.27
MW292	25/03/2020	Normal	EB2008682	MW29243915EB2008682	<0.02	<0.02	0.16	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.32	0.32
MW292	19/04/2021	Normal	EB2110954	MW29244305EB2110954	<0.02	<0.02	0.17	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.31	0.31
MW292	14/04/2022	Interlab_D	RN1350929	MW29244665RN1350929	<0.01	0.012	0.15	<0.01	0.11	<0.01	<0.05	<0.02	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW292	14/04/2022	Normal	EB2211297	MW29244665EB2211297	<0.02	<0.02	0.18	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.34	0.34
MW292	14/04/2022	Field_D	EB2211297	MW29244665EB2211297	<0.02	<0.02	0.18	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.34	0.34
MW293	28/04/2017	Normal	EB1708625	MW29342853EB1708625	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	0.03
MW293	17/04/2018	Normal	EB1809907	MW29343207EB1809907	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW293	19/10/2018	Normal	EB1826396	MW29343392EB1826396	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW293	10/04/2019	Normal	EB1909642	MW29343565EB1909642	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW293	25/03/2020	Normal	EB2008682	MW29343915EB2008682	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW293	19/04/2021	Normal	EB2110954	MW29344305EB2110954	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02
MW293	14/04/2022	Normal	EB2211297	MW29344665EB2211297	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW294	28/04/2017	Normal	EB1708633	MW29442853EB1708633	0.07	0.06	0.64	0.03	0.94	<0.02	0.4	0.46	0.11	0.04	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.58	2.91
MW294	23/04/2018	Normal	EB1810404	MW29443213EB1810404	0.06	0.06	0.46	0.03	0.61	<0.02	0.4	0.56	0.3	0.15	0.15	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.07	2.84
MW294	9/04/2019	Normal	EB1909368	MW29443564EB1909368	0.05	0.04	0.33	<0.02	0.48	<0.02	0.3	0.47	0.25	0.13	0.14	0.07	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.81	2.26
MW294	25/03/2020	Normal	EB2008692	MW29443915EB2008692	0.1	0.1	0.66	0.04	0.66	<0.02	0.5	0.77	0.37	0.2	0.16	0.08	0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.32	3.66
MW294	15/04/2021	Normal	EB2110947	MW29444301EB2110947	0.08	0.1	0.62	0.04	0.65	<0.02	0.4	0.77	0.36	0.22	0.13	0.05	0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.27	3.44
MW294	15/04/2022	Normal	EB2211310	MW29444666EB2211310	0.06	0.06	0.58	<0.05	1.08	<0.02	0.3	0.34	0.32	0.16	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.66	3.05
MW295	28/04/2017	Normal	EB1708633	MW29542853EB1708633	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW295	24/04/2018	Normal	EB1810404	MW29543214EB1810404	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW295	10/04/2019	Normal	EB1909368	MW29543565EB1909368	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.1	<0.05	<0.05	0.02	0.12
MW295	25/03/2020	Normal	EB2008692	MW29543915EB2008692	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.06	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.5	<0.05	<0.05	<0.01	0.50
MW295	21/10/2020	Normal	EB2027838	MW29544125EB2027838	<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	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.25	<0.05	<0.05	<0.01	0.25
MW295	15/04/2021	Normal	EB2110947	MW29544301EB2110947	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.21	<0.05	<0.05	<0.01	0.21
MW295	13/04/2022	Normal	EB2211310	MW29544664EB2211310	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW295	13/04/2022	Field_D	EB2211310	MW29544664EB2211310	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW296	25/06/2017	Normal	EB1713073	MW29642911EB1713073	0.26	0.27	1.43	0.06	0.6	<0.02	<0.1	<0.02	0.28	0.04	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.03	2.99
MW296	16/04/2018	Normal	EB1809902	MW29643206EB1809902	0.22	0.22	1.38	0.04	0.58	<0.02	<0.1	0.07	0.3	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.96	2.88
MW296	8/04/2019	Interlab_D	RN1230420	MW29643563RN1230420	0.17	0.19	1.3	0.028	0.54	<0.01	0.051	0.058	0.27	0.026	0.048	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.05	<0.02	<0.02	<0.01	<0.05	<0.01	0.092	<0.01	<0.01	-	-
MW296	10/04/2019	Normal	EB1909639	MW29643565EB1909639	0.26	0.22	1.56	0.06	0.63	<0.02	<0.1	<0.02	0.37	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.08	<0.05	<0.05	2.19	3.29
MW296	10/04/2019	Field_D	EB1909638	MW29643565EB1909638	0.19	-	0.944	-	0.529	-	<0.002	0.0498	0.233	0.03	0.0542	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	0.075	<0.001	<0.001	1.47	-
MW296	25/03/2020	Normal	EB2008679	MW29643915EB2008679	0.2	0.2	1.41	0.08	0.99	<0.02	<0.1	0.07	0.3	0.03	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.4	3.34
MW296	15/04/2021	Normal	EB2110942	MW29644301EB2110942	0.22	0.23	1.33	0.06	0.62	<0.02	<0.1	0.07	0.32	0.04	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.95	2.95
MW297	25/06/2017	Normal	EB1713073	MW29742911EB1713073	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW297	17/04/2018	Normal	EB1809902	MW29743207EB1809902	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW297	11/04/2019	Normal	EB1909639	MW29743566EB1909639	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW297	25/03/2020	Normal	EB2008679	MW29743915EB2008679	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.08	<0.05	<0.05	<0.01	0.08
MW297	22/05/2020	Normal	EB2013704	MW29743973EB2013704	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.14	<0.05	<0.05	<0.01	0.14
MW297	22/10/2020	Normal	EB2027831	MW29744126EB2027831	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW297	15/04/2021	Normal	EB2110942	MW29744301EB2110942	<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	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW298	11/03/2017	Normal	EB1705014	MW29842805EB1705014	1.18	1.3	3.65	0.09	0.91	<0.02	<0.1	0.4	1.83	0.2	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.56	9.84
MW298	29/09/2017	Normal	EB1720333	MW29843007EB1720333	1.17	1.38	3.28	0.1	1.24	<0.02	<0.1	0.57	2.08	0.37	0.26	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.52	10.4
MW298	27/06/2018	Normal	B684675-A	MW29843278B684675-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW298	27/06/2018	Normal	B684675-A	MW29843278B684675-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW298	27/06/2018	Normal	B684675-B	MW29843278B684675-B	1.7	2	4.4	0.08	0.4	<0.05	2.8	1.9	3.6	0.4	0.57	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<0.1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	4.8	17.86
MW298	27/06/2018	Normal	B684675-B	MW29843278B684675-B	1.7	2	4.7	0.07	0.3	<0.05	2.8	1.6	3.6	0.4	0.51	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	5	17.62
MW298	27/06/2018	Normal	B684675-A	MW29843278B684675-A	1.3	1.6	4.5	0.068	0.41	<0.01	0.29	0.41	2	0.38	0.31	<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	<0.05	<0.01	<0.01	<0.01	4.89	11.26
MW298	27/06/2018	Normal	B684675-A	MW29843278B684675-A	1.2	1.5	4.1	0.062	0.49	<0.01	0.28	0.39	1.8	0.35	0.29	<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	<0.05	<0.01	<0.01	<0.01	4.54	10.50
MW298	10/07/2019	Normal	EB1918202	MW29843656EB1918202	1.56	2.09	5.27	0.0628	0.362	<0.0005	0.083	0.657	2.48	0.396	0.347	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.002	<0.001	<0.001	5.63	13.3
MW298	10/07/2019	Field_D	EB1918202	MW29843656EB1918202	1.31	2	5.21	0.0809	0.314	<0.0005	0.171	0.571	2.26	0.299	0.284	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.002	<0.001	<0.001	5.52	12.5
MW298	30/10/2019	Normal	EB1928975	MW29843768EB1928975	1.86	2.26	7.09	0.0714	0.365	<0.0005	0.21	0.696	3.31	0.396	0.369	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.021	<0.001	<0.001	7.46	16.6
MW298	5/03/2020	Normal	EB2006415	MW29843895EB2006415	1.94	2.3	5.46	0.0787	0.186	<0.0016	0.084	0.754	2.84	0.518	0.424	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0040	<0.0016	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	<0.002	<0.002	<0.002	<0.002	5.65	14.6
MW299	11/03/2017	Normal	EB1705014	MW29942805EB1705014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	104.1	-
MW299	11/03/2017	Normal	EB1705014	MW29942805EB1705014	15.1	14	57.6	3.5	46.5	<0.02	2	4.2	27	3.9	10.6	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05	0.09	<0.05	<0.05	104	184
MW299	29/09/2017	Normal	EB1720333	MW29943007EB1720333	12.6	11.3	42.5	4.19	66.5	<0.02	0.7	6.67	36.4	10.7	12.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.19	<0.05	<0.05	109	204
MW299	18/04/2018	Normal	EB1809957	MW29943208EB1809957	6.38	5.67	23.6	1.4	18.4	<0.02	1.8	2.58	12.2	2.41	4.13	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.11	<0.05	<0.05	42	78.7
MW299	27/06/2018	Normal	B684675-A	MW29943278B684675-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW299	27/06/2018	Normal	B684675-A	MW29943278B

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - Perfluoroalkyl Sulfonamides							PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	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)	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)	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
MW300	30/10/2019	Normal	EB1928975	MW30043768EB1928975	1.49	1.18	4.48	0.28	3.33	<0.0005	0.159	0.576	2.77	0.368	0.671	0.0108	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	0.003	0.102	0.002	<0.001	7.81	15.4
MW300	5/03/2020	Normal	EB2006415	MW30043895EB2006415	16.5	16	51.6	4.59	43.5	<0.0160	0.866	7.61	32.8	5.3	8.67	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0400	<0.0160	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	<0.016	0.093	<0.016	<0.016	95.1	188
MW300	24/03/2020	Normal	EB2008691	MW30043914EB2008691	16.1	14.5	50	4.07	40.6	<0.19	3.3	6.16	27.2	5.24	7.33	<0.19	<0.19	<0.19	<0.19	<0.19	<0.48	<0.19	<0.48	<0.19	<0.48	<0.48	<0.19	<0.48	<0.19	<0.19	<0.19	<0.19	90.6	174
MW300	20/10/2020	Normal	EB2027817	MW30044124EB2027817	11.2	11.9	48.2	3.98	45.6	<0.18	3.4	5.16	24.1	4.87	8.02	<0.18	<0.18	<0.18	<0.18	<0.18	<0.44	<0.18	<0.44	<0.18	<0.44	<0.44	<0.18	<0.44	<0.18	<0.18	<0.18	<0.18	93.8	166
MW300	17/04/2021	Field_D	EB2110967	MW30044303EB2110967	8.93	9.83	42.4	4	63.3	<0.08	3	4.42	18.4	4.12	8.83	<0.08	<0.08	<0.08	<0.08	<0.08	<0.21	<0.08	<0.21	<0.08	<0.21	<0.21	<0.08	<0.21	<0.08	0.12	<0.08	<0.08	106	167
MW300	17/04/2021	Normal	EB2110967	MW30044303EB2110967	9.74	10.3	47.8	4.37	59.8	<0.10	3.46	4.59	19.1	4.29	8.36	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.25	<0.10	<0.25	<0.25	<0.10	<0.25	<0.10	0.16	<0.10	<0.10	108	172
MW300	17/04/2021	Interlab_D	RN1312932	MW30044303RN1312932	7.3	6.1	34	2	37	<0.01	2.5	2.9	12	2.6	5.1	0.013	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	0.12	<0.01	<0.01	-	-
MW300	12/10/2021	Normal	EB2129575	MW30044481EB2129575	9.58	9.84	42.9	4.27	44.1	<0.05	3.5	4.75	19.3	4.48	8.59	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	0.13	<0.05	<0.05	87	151
MW300	17/04/2022	Normal	EB2211261-AA	MW30044668EB2211261-AA	4.94	5.35	36.6	4.14	83.6	<0.27	1.4	2.81	12.4	2.89	9.03	<0.27	<0.27	<0.27	<0.27	<0.27	<0.68	<0.27	<0.68	<0.27	<0.68	<0.68	<0.27	<0.68	<0.27	<0.27	<0.27	<0.27	120	163
MW300	26/10/2022	Normal	EB2232878	MW30044860.64375EB2232878	5.28	5.14	30.4	3.86	70.2	<0.1	1.8	2.76	11.8	3.06	8.56	<0.1	<0.1	<0.1	<0.1	<0.1	<0.24	<0.1	<0.24	<0.24	<0.24	<0.24	<0.1	<0.1	<0.1	0.16	<0.1	<0.1	101	143
MW301	24/01/2019	Normal	EB1902057	MW30143489EB1902057	0.02	0.02	0.14	<0.02	0.54	<0.02	<0.1	<0.02	0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.68	0.77
MW301	5/03/2020	Interlab_D	RN1267043	MW30143895RN1267043	0.02	0.019	0.12	<0.01	0.074	<0.01	<0.05	<0.02	0.024	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	-	-
MW301	5/03/2020	Field_D	EB2006420	MW30143895EB2006420	0.02	0.02	0.15	<0.02	0.09	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	0.31
MW301	5/03/2020	Normal	EB2006420	MW30143895EB2006420	0.02	0.02	0.15	<0.02	0.08	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.23	0.30
MW303	24/01/2019	Normal	EB1902057	MW30343489EB1902057	0.05	0.05	0.34	0.03	1.1	<0.02	<0.1	0.22	0.29	0.19	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.44	2.42
MW304	24/01/2019	Normal	EB1902057	MW30443489EB1902057	0.18	0.18	1.06	0.11	2.46	<0.02	0.2	0.6	0.89	0.46	0.46	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.1	<0.05	<0.05	3.52	6.76
MW305	24/01/2019	Normal	EB1902057	MW30543489EB1902057	0.37	0.35	2.07	0.2	2.32	<0.02	0.2	0.62	1.32	0.46	0.66	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.1	<0.05	<0.05	4.39	8.70
MW306	17/04/2019	Normal	EB1911014	MW30643572EB1911014	0.231	0.263	1.45	0.2	2.62	<0.0005	0.067	0.695	1.12	0.424	0.677	0.0534	0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0038	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.103	0.028	<0.001	4.07	7.94
MW306	4/09/2019	Normal	EB1923359	MW30643712EB1923359	0.46	0.48	2.88	0.32	7.83	<0.02	0.6	1.74	2.15	0.73	1.09	0.08	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.14	<0.05	<0.05	10.7	18.5
MW307	3/04/2019	Rinsate	EB1910258	MW30743558EB1910258	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0003	<0.0003
MW307	17/04/2019	Normal	EB1911014	MW30743572EB1911014	0.229	0.258	1.32	0.144	0.999	<0.0005	0.056	0.327	0.704	0.225	0.372	0.0446	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.028	<0.001	<0.001	2.32	4.71
MW307	18/09/2019	Normal	EB1924571	MW30743726EB1924571	0.341	0.339	2.15	0.109	1.25	<0.0005	0.116	0.369	1.07	0.302	0.436	0.0301	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.021	<0.001	<0.001	3.4	6.53
MW308	17/04/2019	Normal	EB1911014	MW30843572EB1911014	0.642	0.694	3.43	0.598	8.92	0.0044	0.136	1.49	2.46	0.774	1.2	0.0584	0.0051	<0.0005	<0.0005	<0.0005	<0.0005	0.0084	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.11	0.044	<0.001	12.4	20.6
MW309	17/04/2019	Normal	EB1911014	MW30943572EB1911014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW309	17/04/2019	Normal	EB1911014	MW30943572EB1911014	0.157	0.172	0.974	0.154	2.82	<0.0005	0.105	0.218	0.472	0.127	0.222	0.0062	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	0.0113	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	0.02	0.006	<0.001	3.79	5.46
MW310	3/07/2019	Normal	EB1917426	MW31043649EB1917426	0.0016	0.0018	0.0157	<0.0005	0.0147	<0.0005	<0.002	0.0027	0.0023	<0.0005	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.002	<0.001	<0.001	<0.001	0.0304	0.0420
MW311	3/07/2019	Normal	EB1917426	MW31143649EB1917426	0.0026	0.0023	0.017	0.0008	0.0283	<0.0005	0.008	0.0078	0.0081	0.0019	0.0036	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.0453	0.0804
MW311	15/08/2019	Normal	EB1921470	MW31143692EB1921470	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW311	30/10/2019	Normal	EB1928975	MW31143768EB1928975	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.0005	0.0005
MW311	5/03/2020	Normal	EB2006415	MW31143895EB2006415	<0.0005	<0.0005	0.002	<0.0005	0.0092	<0.0005	0.004	0.0022	0.0027	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0014	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	0.0112	0.0222
MW312	23/05/2019	Normal	657987	MW3124360865 7987	0.2	0.24	1.1	0.08	0.91	<0.01	0.22	0.59	0.9	0.15	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.29	<0.01	<0.01	2.01	4.89
MW313	23/05/2019	Normal	657987	MW3134360865 7987	0.12	0.13	0.64	0.02	0.11	<0.01	0.12	0.6	0.54	0.22	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.39	<0.01	<0.01	0.75	3
MW313	13/04/2021	Normal	EB2110564	MW31344299EB2110564	0.2	0.18	0.85	0.02	0.18	<0.02	0.2	0.92	0.78	0.32	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.4	<0.05	<0.05	1.03	4.16
MW313	13/04/2021	Field_D	EB2110564	MW31344299EB2110564	0.19	0.18	0.85	<0.02	0.16	<0.02	0.2	0.9	0.79	0.32	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	0.46	<0.05	<0.05	1.01	4.16
MW313	13/04/2021	Interlab_D	RN1312036	MW31344299RN1312036	0.16	0.14	0.79	<0.01	0.11	<0.01	0.22	0.78	0.69	0.31	0.087	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.05	<0.02	<0.01	<0.05	<0.01	0.39	<0.01	<0.01	-	-
MW314	23/05/2019	Normal	657987	MW3144360865 7987	0.09	0.1	0.54	0.03	0.15	<0.01	<0.05	0.02	0.1	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.01	<0.01	0.69	1.12
MW316	13/09/2018	Normal	B710405-B	MW3164335687 10405-B	0.2	0.2	1.3	0.1	1.6	<0.05	<2.5	0.2	0.5	0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	2.87	4.09
MW316	13/09/2018	Normal	B710405	MW3164335687 10405	0.059	0.049	0.31	0.027	1.2	<0.01	0.058	0.044	0.11	0.03	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	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	1.54	1.97
MW316	13/09/2018	Normal	B710405-A	MW3164335687 10405-A	0.059	0.049	0.31	0.027	1.2	<0.01	0.058	0.044	0.11	0.03	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	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	1.54	1.97
MW316	13/09/2018	Normal	B710405-B	MW3164335687 10405-B	0.05	<0.05	0.3	<0.05	1.2	<0.05	<2.5	0.09	0.3	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.05	<1	<0.25	<0.05	<1	<0.05	<0.25	<0.05	<0.05	1.5	1.96
MW317	13/09/2018	Normal	B710405	MW3174335687 10405	0.2	0.19	1.3	0.13	1.7	<0.01	0.34	0.057	0.28	0.039	0.088	<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	<0.05	<0.01	<0.01	2.94	4.26
MW317	13/09/2018	Normal	B710405-A	MW3174335687 10405-A	0.2	0.19	1.3	0.13	1.7	<0.01	0.34	0.057	0.28	0.039	0.088	<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	<0.05	<0.01	<0.01	2.94	4.26
MW329	14/04/2021	Normal	EB2110564	MW32944300EB2110564	<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	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
MW401D	20/04/2021	Normal	EB2110910	MW401D44306EB2110910	0.26	0.24	1.23	0.06	0.83	<0.02	<0.1	0.12	0.4	0.05	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	2.06	3.26
MW401S	20/04/2021	Interlab_D	RN1312581	MW401S44306RN1312581	<0.01	<0.01	0.022	<0.01	<0.02	<0.01	0.23	0.13	0.77	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.05	<0.05	<0.02	<0.01	<0.05	<0.01	0.014	<0.01	<0.01	-	-
MW401S	20/04/2021	Normal	EB2110910	MW401S44306EB2110910	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	0.2	0.18	0.91	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	1.31
MW401S	20/04/2021	Field_D	EB2110910	MW401S44306EB2110910	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	0.2	0.17	0.9	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	1.29
MW402D	20/04/2021	Normal	EB2110910	MW402D44306EB2110910	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	0.13	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.13
MW402S	20/04/2021	Normal	EB2110910	MW402S44306EB2110910	0.62	0.8	4.14	0.29	4.03	<0.02	0.3	0.36	1.58	0.25	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	8.17	12.8
MW403D	20/04/2021	Normal	EB2110910	MW403D44306EB2110910	0.25	0.3	2.15	0.13	1.98	<0.02	<0.10	<0.16	0.54	0.09	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	4.13	5.59
MW403S	20/04/2021	Normal	EB2110910	MW403S44306EB2110910	0.12	0.13	0.86	0.03	0.24	<0.02	<0.10	0.07	0.3	0.04	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	1.1	1.85
MW562	20/04/2022	Normal	EB2211261-AA	MW5624671EB2211261-AA	3.3	2.37	8.81	<0.14	0.61	<0.02	0.9	1.57	4.49	0.43	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	9.42	23.0
MW562	3/11/2022	Normal	EB2232878	MW5624486 8.663194444EB2232878	2.72	2.66	14.4	0.19	0.39	<0.02	0.7	1.19	4.69	0.68	0.74	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	14.8	28.4
MW563	20/04/2022	Normal	EB2211261-AA	MW5634467 1EB2211261-AA	<0.02	<0.02	<0.07	<0.02	<0.02	<0.02	<0.1	0.22	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	0.26
MW563	3/11/2022	Normal	EB2232878	MW5634486 8.663194444EB2232878	0.05	0.04	0.1	<0.02	0.01	<0.02	<0.1	0.18	0.09	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.11	0.48

				PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				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)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluoropentanoic acid (PFPeA)	Perfluorodecanoic acid (PFDA)	Perfluorononanoic acid (PFNA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoroundecanoic acid (PFUnDA)	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	0.05	0.01	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.02	0.01	0.05	0.01	0.01
PFAS NEMP 2020 Drinking Water													0.56																		0.07	
PFAS NEMP 2020 Recreational Water													**10**																		**2**	
Location Code	**Date**	**Sample Type**	**Lab Report**																													
MW001	29/09/2015	Normal	EB1530503	-	-	-	-	<0.02	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-
MW001	15/03/2017	Normal	EB1713888	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	0.15	0.07	0.05	0.22	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.56
MW001	6/02/2018	Normal	EB1803820	0.06	0.05	0.24	<0.02	0.05	<0.02	<0.1	0.2	0.06	0.02	0.2	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.29	0.88
MW001	2/04/2019	Normal	EB1908876	0.06	0.03	0.27	<0.02	0.03	<0.02	<0.1	0.26	0.08	0.02	0.32	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.3	1.07
MW001	20/04/2022	Normal	EB2211260	0.09	0.08	0.31	<0.02	0.1	<0.02	<0.1	0.25	0.07	0.03	0.28	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.06	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.41	1.27
MW002	15/03/2017	Normal	EB1713888	0.06	0.04	0.17	<0.02	0.07	<0.02	<0.1	0.1	0.04	0.04	0.19	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.24	0.71
MW002	6/02/2018	Normal	EB1803820	0.04	0.02	0.04	<0.02	<0.01	<0.02	0.1	0.21	0.08	0.04	0.49	<0.02	0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.06	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	1.1
MW002	2/04/2019	Normal	EB1908876	0.1	0.06	0.2	<0.02	0.02	<0.02	0.1	0.36	0.15	0.04	0.57	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.06	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.22	1.66
MW002	1/04/2020	Normal	EB2009331	0.28	0.16	0.52	<0.02	0.04	<0.02	0.2	0.84	0.19	0.06	1.38	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	1.13	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.56	4.8
MW002	16/04/2021	Interlab_D	RN1312580	0.32	0.18	0.5	<0.01	<0.02	<0.01	0.45	1.4	0.29	0.051	2.6	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	0.74	0.018	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
MW002	16/04/2021	Normal	EB2110965	0.31	0.25	0.56	<0.02	0.03	<0.02	0.4	1.69	0.36	0.07	3.35	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.7	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.59	7.72
MW002	16/04/2021	Field_D	EB2110965	0.31	0.24	0.56	<0.02	0.03	<0.02	0.4	1.72	0.35	0.07	3.36	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.77	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.59	7.81
MW002	19/04/2022	Normal	EB2211260	0.75	0.52	1.6	<0.02	<0.04	<0.02	2.3	18.7	6.61	0.3	24	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	1.6	54.8
MW003	29/09/2015	Normal	EB1530503	-	-	-	-	6.14	-	-	-	-	0.62	-	-	-	-	-	-	-	-	0.2	<0.1	-	-	-	-	-	-	-	-	-	-
MW003	15/03/2017	Normal	EB1713888	1.4	1.45	7.45	0.33	4.49	<0.02	<0.1	1.44	0.35	0.61	0.93	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.17	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	11.9	18.6
MW003	15/03/2017	Normal	ES1709078	0.81	0.74	2.51	0.19	3.7	<0.002	0.94	1.3	0.33	0.52	0.72	0.002	0.009	<0.002	<0.002	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	6.21	11.8
MW003	8/02/2018	Normal	EB1803820	1.93	1.77	8.68	0.37	7.76	<0.02	0.6	2.94	0.78	0.93	1.25	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.17	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	16.4	27.2
MW003	3/04/2019	Normal	EB1908876	1.76	1.81	8.6	0.3	5.29	<0.02	0.5	3.19	0.86	0.78	1.22	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.16	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	13.9	24.5
MW003	1/04/2020	Normal	EB2009331	2.23	2.18	11	0.44	7.05	<0.03	0.3	4.28	1.07	1.36	1.41	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.05	<0.05	0.15	<0.05	<0.05	<0.05	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	18	31.5
MW003	16/04/2021	Normal	EB2110965	1.98	2.49	8.89	0.35	4.08	<0.02	0.5	4.38	1.1	1.33	1.67	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.16	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	13	26.9
MW003	19/04/2022	Normal	EB2211260	4	4.37	20.5	1.19	18	<0.02	0.7	6.11	1.47	2.71	1.81	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.05	<0.05	0.21	<0.05	<0.05	<0.05	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	38.5	61.1
MW004	7/02/2018	Normal	EB1803820	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW004	1/04/2019	Normal	EB1908876	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01
MW004	1/04/2020	Normal	EB2009331	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.08
MW004	16/04/2021	Normal	EB2110965	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.06
MW004	19/04/2022	Normal	EB2211260	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW005	7/02/2018	Normal	EB1803820	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW005	1/04/2019	Normal	EB1908876	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW005	20/04/2022	Normal	EB2211260	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW006	7/02/2018	Normal	EB1803820	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW006	2/04/2019	Normal	EB1908876	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW006	1/04/2020	Normal	EB2009331	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.78	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.78
MW006	16/04/2021	Normal	EB2110965	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW006	20/04/2022	Normal	EB2211260	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW007	7/02/2018	Normal	EB1803820	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW007	2/04/2019	Normal	EB1908876	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW007	1/04/2020	Normal	EB2009331	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW007	16/04/2021	Normal	EB2110965	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.1
MW007	19/04/2022	Normal	EB2211260	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW008	7/02/2018	Normal	EB1803820	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW008	2/04/2019	Normal	EB1908876	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW008	1/04/2020	Normal	EB2009331	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW008	16/04/2021	Normal	EB2110965	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW008	19/04/2022	Normal	EB2211260	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW009	15/03/2017	Normal	EB1713888	1.9	1.74	9	0.34	3.55	<0.02	0.2	2.51	0.6	0.82	0.83	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	0.17	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	12.6	21.7
MW009	15/03/2017	Normal	ES1709078	2.08	1.08	4.77	0.32	2.36	<0.002	1.18	1.95	0.54	0.71	1.59	<0.002	0.004	<0.002	<0.002	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	7.13	16.6
MW009	8/02/2018	Normal	EB1803820	1.11	0.95	4.42	0.2	3.62	<0.02	0.3	1.61	0.4	0.43	0.82	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	0.1	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	8.04	14
MW009	3/04/2019	Normal	EB1908876	0.83	0.75	3.76	0.16	3.12	<0.02	0.2	1.34	0.36	0.32	0.69	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	0.07	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	6.88	11.6
MW009	1/04/2020	Interlab_D	RN1270682	0.85	0.79	3.3	0.15	2.9	<0.01	0.25	1.4	0.39	0.47	0.68	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	0.085	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
MW009	1/04/2020	Normal	EB2009331	0.96	0.93	4.64	0.25	5.06	<0.03	<0.2	1.56	0.4	0.56	0.64	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.05	0.08	<0.05	<0.05	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	9.7	15.1
MW009	1/04/2020	Field_D	EB2009331	0.92	1	4.58	0.26	4.94	<0.03	<0.2	1.53	0.41	0.55	0.64	<0.03	<0.03	<0.03	<0.03	<0.08	<0.03	<0.05	0.1	<0.05	<0.05	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	9.52	14.9
MW009	16/04/2021	Normal	EB2110965	0.92	1.16	4.99	0.31	4.35	<0.02	0.2	1.79	0.44	0.64	0.83	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	0.08	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	9.34	15.7
MW009	19/04/2022	Normal	EB2211260	1.61	1.75	8.01	0.48	6.68	<0.02	0.2	2.34	0.57	1.01	0.72	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	0.09	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	14.7	23.5
MW010	15/03/2017	Normal	EB1713888	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01
MW010	8/02/2018	Normal	EB1803820	0.03	0.02	0.12	<0.02	<0.01	<0.02	<0.1	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.12	0.21
MW010	1/04/2019	Normal	EB1908876	0.06	0.05	0.24	<0.02	0.06	<0.02	<0.1	0.1	0.02	0.01	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.3	0.58
MW010	1/04/2020	Normal	EB2009331	0.25	0.2	0.95	0.04	0.23	<0.02	<0.1	0.43	0.1	0.1	0.17	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	0.14	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	1.18	2.61
MW010	16/04/2021	Normal	EB2110965	0.27	0.25	0.73	0.02	0.11	<0.02	<0.1	0.48	0.12	0.11	0.2	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.84	2.29
MW010	19/04/2022	Interlab_D	RN1350928	0.23	0.2	0.71	<0.01	0.054	<0.01	0.071	0.41	0.083	0.069	0.18	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
MW010	19/04/2022	Normal	EB2211260	0.29	0.25	0.81	0.02	0.1	<0.02	<0.1	0.44	0.11	0.1	0.19	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.91	2.31
MW010	19/04/2022	Field_D	EB2211260	0.3	0.24	0.8	<0.02	0.1	<0.02	<0.1	0.44	0.11	0.1	0.2	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.9	2.29
MW011	16/03/2017	Normal	EB1713888	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02
MW011	7/02/2018	Normal	EB1803820	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.08
MW011	1/04/2019	Normal	EB1908876	<0.02	<0.02	0.07	<0.02	0.06	<0.02	<0.1	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.13	0.17
MW011	1/04/2020	Interlab_D	RN1270682	0.019	0.016	0.073	<0.01	<0.02	<0.01	<0.05	0.033	0.011	<0.01	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	0.63	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
MW011	1/04/2020	Field_D	EB2009331	0.02	0.02	0.09	<0.02	0.02	<0.02	<0.1	0.05	<0.02	0.01	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	0.73	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.11	0.97
MW011	1/04/2020	Normal	EB2009331	0.02	<0.02	0.09	<0.02	0.01	<0.02	<0.1	0.05	<0.02	0.01	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	0.68	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.1	0.88
MW011	16/04/2021	Normal	EB2110965	0.03	0.03	0.1	<0.02	0.01	<0.02	<0.1	0.05	<0.02	0.01	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.11	0.26
MW011	19/04/2022	Normal	EB2211260	0.02	0.02	0.1	<0.02	<0.01	<0.02	<0.1	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.1	0.18
MW012	16/03/2017	Normal	EB1713888	1	0.81	3.98	0.18	2.12	<0.02	<0.1	1.3	0.28	0.34	0.4	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	0.08	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	6.1	10.5
MW012	7/02/2018	Normal	EB1803820	1.03	0.77	3.03

Property ID	Location ID	Location	Sample Date	DO (mg/L) *Field measurement*	EC (µS/cm) *Field measurement*	pH *Field measurement*	E_r (mV) *Field measurement*	E_h (mV)	Temp (°C) *Field measurement*	Turbidity	Water Colour	Odour	Sheen	Sample Method / Comments
0207	SW004	Oakey Creek	14/04/2022	8.08	1055	8.23	118.3	323.3	23.3	Medium	Clear	No odour	No sheen	Grab sample
0207	SW009	Drain 2	18/04/2022	4.88	94.8	8.92	82.7	287.7	18.1	Medium	Clear	No odour	No sheen	Grab sample
0207	SW010	Oakey Creek	16/04/2022	3.66	365.6	7.56	107.6	312.6	20.6	Medium	Clear	No odour	No sheen	Grab sample
0207	SW011	Oakey Creek	15/04/2022	2.98	386.3	7.34	132.3	337.3	22.4	Medium	Clear	No odour	No sheen	Grab sample
0207	SW012	Oakey Creek	15/04/2022	1.97	417.6	7.59	131.8	336.8	21.4	Medium	Clear	No odour	No sheen	Grab sample
0207	SW013	Oakey Creek	16/04/2022	3.26	470	7.82	118	323	21.8	Medium	Brown	No odour	No sheen	Grab sample
0207	SW019	Drain 3	22/03/2022	8.16	180.6	8.38	21.9	226.9	24.3	Medium	Clear	No odour	No sheen	Grab sample
0207	SW021	Drain 3	22/03/2022	0.68	349.9	7.31	16	221	28.9	Medium	Clear	No odour	No sheen	Grab sample
0207	SW024	Drain 2	22/03/2022	9.68	138.1	7.71	10.4	215.4	27	Low	Clear	No odour	Biosheen	Grab sample
0207	SW025	Drain 2	22/03/2022	14.78	171.7	8.84	-5.3	199.7	28.6	Medium	Clear	No odour	No sheen	Grab sample
0207	SW026	Drain 1	22/03/2022	5.92	175.8	7.74	4.9	209.9	26	Turbid	Clear	No odour	Biosheen	Grab sample
0207	SW027	Drain 2	22/03/2022	4.07	153	7.87	-2.4	202.6	25.2	Low	Clear	No odour	Biosheen	Grab sample
0207	SW032	Oakey Creek	13/04/2022	4.69	576	7.9	117.1	322.1	23	Clear	Brown	No odour	No sheen	Grab sample
0207	SW040	Oakey Creek	22/03/2022	4.49	709	7.86	2.6	207.6	25.2	Medium	Clear	No odour	No sheen	Grab sample
0207	SW043	Doctor Creek	22/03/2022	6.74	444.2	7.95	2.7	207.7	29	Turbid	Clear	No odour	Biosheen	Grab sample
0207	SW056	Oakey Creek	15/04/2022	4.14	516	8.58	100.4	305.4	19.7	Clear	Clear	No odour	No sheen	Grab sample
0207	SW057	Drain 3	13/04/2022	-	-	-	-	-	-	-	-	-	-	Grab sample. Field parameter data lost due to EDCA fault.
0207	SW059	Oakey Creek	13/04/2022	8.55	1055	8.01	94.7	299.7	24	Clear	Clear	No odour	No sheen	Grab sample
0207	SW063	Drain 3	22/03/2022	-	-	-	-	-	-	Turbid	Clear	No odour	No sheen	Grab sample. Insufficient water for parameter measurements.
0207	SW065	Drain 1	22/03/2022	1	231.3	7.94	-98.6	106.4	22.8	Medium	Clear	No odour	No sheen	Grab sample
0207	SW066	Drain 1	22/03/2022	3.48	176.1	7.28	-21.6	183.4	23.7	Low	Clear	No odour	No sheen	Grab sample
0207	SW087	Westbrook Creek	16/04/2022	8.94	1016	8.32	96.8	301.8	21.1	Medium	Clear	No odour	No sheen	Grab sample

DO is dissolved oxygen
EC is electrical conductivity
E_h is oxidation reduction potential
Oxidation reducation potential (E_r) measured with a platinum electrode and a silver/silver chloride reference electrode (E_r) and converted to E_h by $E_h = E_r + 205$ mV (based on a groundwater temperature of 21°C)
Temp is Temperature
µS/cm is microsiemens per centrimetre
ºC is degrees Celcius
mV is millivolts

				PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
				Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	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				0.001	0.0005	0.0005	0.0005	0.0005	0.0001	0.001	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001	0.0005	0.001	0.001	0.0005	0.001	0.0003	0.0003
PFAS NEMP 2020 Freshwater 99%									0.00023							19																			
PFAS NEMP 2020 Recreational Water																**10**																		**2**	
SW646	5/12/2019	Normal	EB1932828	-	2.44	1.48	10.1	0.949	43.8	-	0.227	<0.016	0.939	2.17	0.088	0.267	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0400	<0.016	<0.016	<0.016	<0.016	0.125	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**53.9**	62.6
SW646	5/12/2019	Normal	EB1932828	-	0.486	0.265	1.74	0.238	15.1	-	0.116	0.04	0.213	0.412	0.0158	0.0533	0.0043	0.0046	0.0098	0.0034	<0.0016	<0.0040	<0.002	<0.002	<0.002	<0.002	0.146	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	**16.8**	18.8
SW639	4/12/2019	Normal	EB1932828	-	1.45	0.707	4.21	0.384	16	-	0.291	0.106	0.666	1.2	0.048	0.109	<0.0160	0.0336	0.056	<0.0160	<0.0160	<0.0400	<0.016	<0.016	<0.016	<0.016	0.258	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**20.2**	25.5
SW639	4/12/2019	Normal	EB1932828	-	0.838	0.432	2.76	0.285	10.1	-	0.179	<0.016	0.368	0.64	0.0272	0.0672	<0.0160	0.0224	0.04	<0.0160	<0.0160	<0.0400	<0.016	<0.016	<0.016	<0.016	0.146	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**12.9**	15.9
SW638	5/12/2019	Normal	EB1932828	-	0.78	0.206	1.13	0.087	8.65	-	0.0776	0.237	0.562	0.753	0.0176	0.0547	0.0058	0.0082	0.009	0.0024	<0.0016	<0.0040	<0.002	<0.002	0.004	<0.002	0.0483	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	**9.78**	12.6
SW638	5/12/2019	Normal	EB1932828	-	0.343	0.106	0.633	0.0525	5.15	-	0.0678	0.149	0.254	0.337	0.009	0.0304	0.0032	0.0043	0.0062	0.0022	<0.0016	<0.0040	<0.002	<0.002	<0.002	<0.002	0.0328	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	**5.78**	7.18
SW638	5/12/2019	Interlab_D	692172	0.4	0.37	0.12	0.76	<0.1	4.5	<0.1	<0.001	0.25	0.26	0.38	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.19	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**5.26**	7.33
SW638	5/12/2019	Field_D	EB1932828	-	0.33	0.0979	0.593	0.0469	4.11	-	0.0464	0.107	0.237	0.314	0.009	0.0309	0.0038	0.005	0.0066	0.0026	<0.0016	<0.0040	<0.002	<0.002	<0.002	<0.002	0.0328	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	**4.7**	5.97
SW636	5/12/2019	Field_D	EB1932828	-	1.42	1.54	29.5	1.1	130	-	1.54	<0.016	1.69	9.29	0.43	2	0.242	0.917	0.323	0.182	<0.0160	<0.0400	<0.016	0.12	1.31	1.14	1.25	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**160**	184
SW636	5/12/2019	Normal	EB1932828	-	1.1	1.19	26	0.89	116	-	0.941	0.018	1.24	7.28	0.349	1.74	0.227	0.922	0.205	0.0864	<0.0160	<0.0400	<0.016	0.091	1.28	0.552	0.928	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**142**	161
SW636	5/12/2019	Interlab_D	692172	0.95	1.6	1.3	31	0.73	88	0.83	<0.001	1	2.9	9.8	0.51	2.2	0.37	0.86	0.25	0.19	0.27	0.61	<0.1	0.21	1.7	0.33	0.55	<0.1	0.15	<0.1	<0.1	0.12	<0.1	**119**	146.43
SW636	5/12/2019	Normal	EB1932828	-	0.322	0.365	10.2	0.376	71.2	-	0.611	<0.016	0.358	2.21	0.13	0.832	0.131	0.654	0.163	0.0448	<0.0160	<0.0400	<0.016	0.043	0.877	0.336	1.17	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**81.4**	90
SW635	4/12/2019	Normal	EB1932828	-	1.35	0.766	5.7	0.286	15.5	-	0.0454	<0.002	0.876	1.39	0.0331	0.0982	0.0165	0.0118	0.0189	0.0096	<0.0016	<0.0040	<0.002	<0.002	0.009	<0.002	0.0299	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	**21.2**	26.1
SW635	4/12/2019	Normal	EB1932828	-	0.554	0.328	3.12	0.202	14.5	-	0.0432	<0.016	0.363	0.603	0.0192	0.0544	<0.0160	<0.0160	0.016	<0.0160	<0.0160	<0.0400	<0.016	<0.016	<0.016	<0.016	0.0464	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**17.6**	19.8
SW629	4/12/2019	Normal	EB1932828	-	2	1.18	7.59	0.434	43.4	-	0.45	<0.016	0.936	1.93	0.101	0.306	0.0272	0.056	0.088	0.016	<0.0160	<0.0400	<0.016	0.026	0.027	<0.016	0.621	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**51**	59.2
SW629	4/12/2019	Normal	EB1932828	-	1.37	0.771	5.49	0.342	36.4	-	0.52	<0.016	0.642	1.29	0.0704	0.219	0.0224	0.0464	0.0944	<0.0160	<0.0160	<0.0400	<0.016	0.016	0.034	<0.016	0.674	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**41.9**	48
SW628	4/12/2019	Normal	EB1932828	-	2.28	0.922	6.04	0.322	21.9	-	0.131	<0.016	0.931	1.82	0.048	0.166	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0400	<0.016	<0.016	<0.016	<0.016	0.136	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**27.9**	34.7
SW628	4/12/2019	Normal	EB1932828	-	0.683	0.309	2.58	0.13	9.92	-	0.109	<0.016	0.259	0.563	0.0176	0.056	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0400	<0.016	<0.016	<0.016	<0.016	0.102	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**12.5**	14.7
SW626	5/12/2019	Normal	EB1932828	-	0.281	0.12	0.928	0.0717	5.87	-	0.049	0.015	0.325	0.331	0.0198	0.0661	0.0134	0.0133	0.0133	0.0029	<0.0016	<0.0040	<0.002	<0.002	0.002	<0.002	0.0173	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	**6.8**	8.14
SW626	5/12/2019	Normal	EB1932828	-	0.102	0.0533	0.461	0.0334	2.72	-	0.0251	0.009	0.113	0.114	0.0082	0.0275	0.005	0.0042	0.0077	0.0034	<0.0016	<0.0040	<0.002	<0.002	<0.002	<0.002	0.0096	<0.004	<0.0016	<0.004	<0.004	<0.0016	<0.004	**3.18**	3.7
SW621	3/12/2019	Normal	EB1932828	-	1.18	0.403	3.79	0.17	17.3	-	0.158	<0.016	0.992	1.94	0.0528	0.205	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0400	<0.016	<0.016	<0.016	<0.016	0.0656	<0.040	<0.0160	<0.040	<0.040	<0.0160	<0.040	**21.1**	26.2
SW101	16/06/2021	Normal	EB2119024	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<0.02	0.3	0.53	1.17	0.04	<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	2.04
SW101	16/06/2021	Normal	EB2117541	-	<0.02	<0.02	0.1	<0.02	0.41	-	<0.02	0.4	0.88	1.55	0.27	0.09	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.07	0.33	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.51	4.12
SW101	16/06/2021	Normal	EB2117541	-	<0.02	<0.02	<0.02	<0.02	0.23	-	<0.02	0.3	0.62	1.35	0.05	<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	2.55
SW101	16/06/2021	Normal	EB2117541	-	<0.02	<0.02	<0.02	<0.02	0.04	-	<0.02	0.3	0.66	1.35	0.06	<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	2.41
SW101	16/06/2021	Normal	EB2117541	-	<0.02	<0.02	<0.02	<0.02	0.02	-	<0.02	0.4	0.61	1.37	0.06	<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	2.46
SW100	16/06/2021	Normal	EB2119024	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<0.02	0.3	0.54	1.2	0.04	<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	2.08
SW100	16/06/2021	Interlab_D	RN1320070	-	0.042	0.039	0.94	0.11	5	<0.01	<0.01	0.38	0.61	1.1	0.056	0.068	0.021	0.014	<0.01	<0.01	<0.02	<0.02	<0.01	0.012	0.078	<0.01	<0.01	<0.02	<0.01	<0.05	<0.05	<0.02	<0.01	<0.05	-	-
SW100	16/06/2021	Normal	EB2117541	-	0.06	0.08	1.52	0.24	10.6	-	<0.04	0.4	0.77	1.41	0.1	0.11	0.05	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	<0.05	0.1	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**12.1**	15.4
SW100	16/06/2021	Normal	EB2117541	-	0.05	0.07	1.08	0.18	9.32	-	<0.04	0.4	0.78	1.4	0.08	0.08	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	<0.05	0.08	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**10.4**	13.5
SW100	16/06/2021	Field_D	EB2117549	-	0.06	0.05	1.03	0.14	8.14	-	<0.05	0.5	0.76	1.4	0.09	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	0.12	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	**9.17**	12.4
SW100	16/06/2021	Normal	EB2117541	-	<0.04	0.05	0.88	0.17	8.03	-	<0.04	0.4	0.71	1.36	0.07	0.06	<0.04	<0.04	<0.04	<0.04	<0.04	<0.10	<0.05	<0.05	0.06	<0.05	<0.04	<0.10	<0.04	<0.10	<0.10	<0.04	<0.10	**8.91**	11.8
SW099	16/06/2021	Normal	EB2119024	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<0.02	0.3	0.54	1.2	0.04	<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	2.08
SW099	16/06/2021	Normal	EB2117541	-	2.96	1.2	6.08	0.13	2.25	-	<0.05	11.6	10.9	6.83	0.16	0.24	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	**8.33**	42.4
SW099	16/06/2021	Normal	EB2117541	-	2.48	0.92	4.84	0.15	3.34	-	<0.05	19	11.4	5	0.1	0.12	<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	**8.18**	47.4
SW099	16/06/2021	Normal	EB2117541	-	2.71	1.14	5.43	0.09	1.47	-	<0.04	10.1	10.1	6.84	0.16	0.21	<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	**6.9**	38.2
SW099	16/06/2021	Normal	EB2117541	-	1.37	0.54	2.85	0.07	0.81	-	<0.04	5.9	6.54	4.62	0.1	0.12	<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	**3.66**	22.9
SW098	16/06/2021	Normal	EB2117541	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<0.02	0.4	0.62	1.35	0.05	<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	2.42
SW098	16/06/2021	Normal	EB2117541	-	0.11	0.06	0.5	0.04	2.45	-	<0.02	0.5	0.86	1.59	0.08	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	0.04	<0.05	**2.95**	6.28
SW098	16/06/2021	Normal	EB2117541	-	0.1	0.06	0.42	0.02	0.57	-	<0.02	0.4	0.75	1.52	0.06	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	3.93
SW098	16/06/2021	Normal	EB2117541	-	0.02	<0.02	0.12	<0.02	0.14	-	<0.02	0.4	0.61	1.38	0.05	<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	0.26	2.72
SW098	16/06/2021	Normal	EB2117541	-	<0.02	<0.02	0.06	<0.02	0.1	-	<0.02	0.4	0.65	1.46	0.05	<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	2.72
SW097	17/06/2021	Normal	EB2119024	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<0.02	0.3	0.54	1.17	0.04	<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	2.05
SW097	17/06/2021	Normal	EB2117541	-	1.04	0.31	2.81	0.1	5.61	-	0.34	7.3	4.98	3.78	0.18	0.22	0.05	0.08	0.04	0.04	<0.02	<0.05	<0.05	<0.05	0.11	<0.05	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**8.42**	27
SW097	17/06/2021	Normal	EB2117541	-	0.73	0.21	2	0.08	3.35	-	0.23	5.1	3.67	3	0.14	0.14	0.03	0.06	0.03	0.02	<0.02	<0.05	<0.05	<0.05	0.06	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**5.35**	18.9
SW097	17/06/2021	Normal	EB2117541	-	0.45	0.13	1.37	0.06	2.79	-	0.19	3.3	2.49	2.33	0.1	0.09	0.02	0.04	0.03	0.03	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**4.16**	13.4
SW097	17/06/2021	Normal	EB2117541	-	0.25	0.06	0.6	0.02	1.43	-	0.3	2.9	2.39	1.84	0.07	0.02	<0.02	0.04	0.12	0.15	0.04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**2.03**	10.2
SW096	16/06/2021	Normal	EB2119024	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<0.02	0.3	0.55	1.18	0.04	<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	2.07
SW096	16/06/2021	Interlab_D	RN1320070	-	0.36	0.12	0.73	0.048	6.3	0.15	0.19	1.3	1.2	1.2	0.055	0.15	0.064	0.11	0.039	0.019	<0.02	<0.02	<0.01	0.017	0.099	<0.01	0.11	<0.02	<0.01	<0.05	<0.05	<0.02	<0.01	-	-
SW096	16/06/2021	Normal	EB2117549	-	0.46	0.13	0.81	0.06	8.25	-	0.15	1.4	1.4	1.98	0.1	0.19	0.09	0.12	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	0.1	<0.05	0.12	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	**9.06**	15.4
SW096	16/06/2021	Field_D	EB2117549	-	0.3	0.11	0.66	<0.05	6.11	-	0.38	1.1	1.16	1.89	0.1	0.14	0.06	0.08	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	0.08	<0.05	0.12	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	**6.77**	12.3
SW096	16/06/2021	Normal	EB2117549	-	0.26	0.08	0.31	0.02	2.57	-	0.31	1.2	1.14	1.68	0.06	0.06	0.02	0.04	<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	**2.88**	7.79
SW096	16/06/2021	Normal	EB2117549	-	0.18	0.04	0.16	<0.02	1.47	-	0.18	0.9	0.97	1.57	0.05	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	1.63	5.59
SW096	16/06/2021	Normal	EB2117549	-	0.11	0.03	0.13	<0.02	1.09	-	0.14	0.7	0.84	1.47	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	1.22	**4.58**
SW095	17/06/2021	Normal	EB2119024	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<0.02	0.3	0.53	1.18	0.04	<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	2.05
SW095	17/06/2021	Normal	EB2117541	-	0.02	<0.02	0.13	<0.02	0.34	-	<0.02	0.8	1.8	1.61	0.35	0.23	0.19	0.24	0.25	0.58	0.48	0.58	<0.05	0.12	0.21	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.47	7.93
SW095	17/06/2021	Normal	EB2117541	-	<0.02	<0.02	0.07	<0.02	0.23	-	<0.02	0.8	1.28	1.41	0.88	0.94	0.8	0.61	0.61	1.78	1.66	2.17	<0.05	0.52	0.98	0.11	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.3	14.8
SW095	17/06/2021	Normal	EB2117541	-	<0.02	<0.02	0.06	<0.02	0.08	-	<0.02	0.5	0.86	1.42	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	0.14	3.02
SW095	17/06/2021	Normal	EB2117541	-	0.02	<0.02	0.07	<0.02	0.07	-	<0.02	0.6	0.86	1.44	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	0.14	3.16
SW094	17/06/2021	Normal	EB2119024	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<0.02	0.3	0.53	1.15	0.04	<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	2.02
SW094	17/06/2021	Normal	EB2117541	-	0.02	<0.02	0.04	<0.02	0.15	-	<0.02	1.7	1.13	1.36	0.06	0.03	0.02	0.1	0.08	0.09	0.02	<0.05	<0.05	<0.05	0.14	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.19	4.94
SW094	17/06/2021	Normal	EB2117541	-	<0.02	<0.02	0.03	<0.02	0.16	-	<0.02	1.2	0.92	1.4	0.06	0.02	0.02	0.1	0.07	0.07	0.02	<0.05	<0.05	<0.05	0.16	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.19	4.23
SW094	17/06/2021	Normal	EB2117541	-	<0.02	<0.02	0.02	<0.02	0.1	-	<0.02	0.9	0.81	1.32	0.06	0.01	<0.02	0.05	0.03	0.02	<0.02	<0.05	<0.05	<0.05	0.08	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.12	3.4
SW094	17/06/2021	Normal	EB2117541	-	<0.02	<0.02	<0.02	<0.02	0.02	-	<0.02	0.4	0.64	1.43	0.09	0.1	0.08	0.08	0.07	0.07	0.03	0.05	<0.05	0.08	2.12	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	5.26
SW093	18/06/2021	Normal	EB2119024	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<0.02	0.3	0.53	1.15	0.04	<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	2.02
SW093	18/06/2021	Normal	EB2117541	-	0.26	0.07	0.39	0.02	6.98	-	0.55	0.8	0.93	1.54	0.06	0.02	0.02	0.03	0.03	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**7.37**	11.7
SW093	18/06/2021	Normal	EB2117549	-	0.12	0.03	0.12	<0.02	4.08	-	0.28	0.6	0.8	1.49	0.06	<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	**4.2**	7.58
SW093	18/06/2021	Normal	EB2117549	-	0.06	<0.02	0.06	<0.02	2.22	-	0.15	0.4	0.67	1.38	0.04	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.

				PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
				Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	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
SW072	11/04/2017	Normal	EB1708845	-	<0.02	<0.02	<0.02	<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	0.07	0.07
SW071	11/04/2017	Normal	EB1708845	-	<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
SW071	11/04/2017	Field_D	EB1708845	-	<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
SW071	11/04/2017	Interlab_D	AECO06/170505	-	<0.01	-	<0.02	-	<0.02	-	<0.02	<0.05	<0.02	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	-	<0.05	<0.05	-	<0.02	-	-	-	-	-	-	-	-
SW070	4/04/2017	Normal	EB1712197	-	<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
SW069	4/04/2017	Normal	EB1712197	-	<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	0.09
SW068	28/03/2017	Normal	EB1706327	-	<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
SW067	2/02/2017	Normal	EB1702117	-	0.14	0.13	0.86	0.06	2.32	-	<0.02	<0.1	0.12	0.17	0.05	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.11	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**3.18**	4.05
SW067	24/03/2017	Normal	EB1705969	-	0.27	0.16	1.11	0.07	2.78	-	<0.02	<0.1	<0.02	0.26	0.05	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	**3.89**	4.81
SW066	27/01/2017	Normal	EB1701752	-	0.15	0.15	1.44	0.08	3.08	-	0.1	<0.1	0.1	0.24	0.07	0.14	<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	**4.52**	5.59
SW066	24/03/2017	Normal	EB1705969	-	0.22	0.11	0.72	0.04	2.06	-	<0.02	<0.1	<0.02	0.18	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	**2.78**	3.42
SW066	9/04/2019	Normal	EB1909663	-	0.134	-	0.4	-	0.33	-	-	<0.002	0.0592	0.12	0.0158	0.0308	-	-	-	-	-	<0.002	0.012	0.009	<0.002	-	-	-	-	-	-	-	0.73	-
SW066	25/02/2020	Normal	EB2005415	-	0.05	0.04	0.26	<0.02	0.31	-	<0.02	<0.10	0.07	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.57	0.84
SW066	23/03/2021	Normal	EB2108522	-	0.07	0.06	0.32	0.02	0.96	-	<0.02	<0.1	0.04	0.13	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	1.28	1.66
SW066	4/06/2021	Normal	EB2116620	-	0.15	0.07	0.6	0.03	0.7	-	<0.02	<0.1	0.06	0.15	0.02	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	1.3	1.83
SW066	4/06/2021	Field_D	EB2116620	-	0.14	0.06	0.55	0.03	0.64	-	<0.02	<0.1	0.07	0.13	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	1.19	1.68
SW066	4/06/2021	Normal	EB2116620	-	0.12	0.07	0.56	0.03	0.58	-	<0.02	<0.1	0.07	0.14	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	1.14	1.63
SW066	4/06/2021	Normal	EB2116620	-	0.13	0.07	0.57	0.03	0.56	-	<0.02	<0.1	0.07	0.14	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	1.13	1.63
SW066	4/06/2021	Normal	EB2116620	-	0.1	0.06	0.5	0.03	0.61	-	<0.02	<0.1	0.06	0.12	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	1.11	1.54
SW066	4/06/2021	Normal	EB2116620	-	0.12	0.07	0.55	0.02	0.56	-	<0.02	<0.1	0.07	0.14	<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	1.11	1.57
SW066	4/06/2021	Normal	EB2116620	-	0.08	0.05	0.4	0.02	0.57	-	<0.02	<0.1	0.04	0.09	<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	0.97	1.29
SW066	4/06/2021	Normal	EB2116620	-	0.08	0.04	0.38	0.02	0.55	-	<0.02	<0.1	0.04	0.08	<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	0.93	1.23
SW066	4/06/2021	Normal	EB2116620	-	0.08	0.04	0.37	0.02	0.55	-	<0.02	<0.1	0.04	0.09	<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	0.92	1.23
SW066	4/06/2021	Normal	EB2116620	-	0.07	0.04	0.36	0.02	0.56	-	<0.02	<0.1	0.04	0.08	<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	0.92	1.2
SW066	4/06/2021	Normal	EB2116620	-	0.08	0.04	0.35	<0.02	0.55	-	<0.02	<0.1	0.04	0.08	<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	0.9	1.18
SW066	6/06/2021	Interlab_D	RN1318856	-	0.12	0.071	0.57	0.019	0.49	<0.01	<0.01	0.13	0.075	0.12	0.028	0.042	<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	-	-
SW066	9/07/2021	Normal	EB2120796	-	0.05	0.04	0.3	<0.02	0.45	-	<0.02	<0.1	0.03	0.1	<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	0.75	1
SW066	9/07/2021	Normal	EB2120796	-	0.04	0.03	0.25	0.02	0.46	-	<0.02	<0.1	0.02	0.06	<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	0.71	0.91
SW066	10/07/2021	Normal	EB2120796	-	0.06	0.06	0.47	0.03	0.47	-	<0.02	<0.1	0.04	0.11	<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	0.94	1.28
SW066	10/07/2021	Normal	EB2120796	-	0.06	0.06	0.41	0.02	0.49	-	<0.02	<0.1	0.04	0.11	<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	0.9	1.23
SW066	10/07/2021	Normal	EB2120796	-	0.04	0.04	0.31	<0.02	0.59	-	<0.02	<0.1	0.02	0.08	<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	0.9	1.11
SW066	10/07/2021	Normal	EB2120796	-	0.05	0.05	0.37	0.02	0.51	-	<0.02	<0.1	0.03	0.09	<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	0.88	1.16
SW066	10/07/2021	Normal	EB2120796	-	0.06	0.05	0.38	0.02	0.49	-	<0.02	<0.1	0.03	0.1	<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	0.87	1.17
SW066	10/07/2021	Normal	EB2120796	-	0.05	0.04	0.33	0.02	0.51	-	<0.02	<0.1	0.03	0.08	<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	0.84	1.09
SW066	10/07/2021	Normal	EB2120796	-	0.04	0.04	0.3	<0.02	0.49	-	<0.02	<0.1	0.02	0.08	<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	0.79	1
SW066	10/07/2021	Normal	EB2120796	-	0.04	0.04	0.28	<0.02	0.5	-	<0.02	<0.1	0.02	0.07	<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	0.78	0.98
SW066	11/11/2021	Interlab_D	RN1335319	-	0.059	0.043	0.32	0.013	0.83	<0.01	<0.01	<0.05	0.03	0.075	0.014	0.03	<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	-	-
SW066	11/11/2021	Normal	EB2133180	-	0.25	0.23	1.33	0.07	1.37	-	<0.02	0.2	0.28	0.54	0.05	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**2.7**	4.41
SW066	11/11/2021	Normal	EB2133180	-	0.21	0.23	1.32	0.07	1.08	-	<0.02	<0.1	0.1	0.42	0.05	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	**2.4**	3.58
SW066	11/11/2021	Normal	EB2133180	-	0.16	0.19	1.08	0.06	0.97	-	<0.02	<0.1	0.11	0.33	0.04	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**2.05**	3.03
SW066	11/11/2021	Normal	EB2133180	-	0.14	0.13	0.72	0.04	0.9	-	<0.02	<0.1	0.15	0.26	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	1.62	2.43
SW066	11/11/2021	Normal	EB2133180	-	0.06	0.06	0.38	0.03	1.02	-	<0.02	<0.1	0.03	0.1	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	1.4	1.74
SW066	11/11/2021	Field_D	EB2133180	-	0.06	0.06	0.35	0.02	0.89	-	<0.02	<0.1	0.05	0.09	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	1.24	1.58
SW066	11/11/2021	Normal	EB2133180	-	0.04	0.03	0.18	<0.02	0.54	-	<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	0.72	0.86
SW066	11/11/2021	Normal	EB2133180	-	0.04	0.03	0.18	<0.02	0.43	-	<0.02	<0.1	<0.03	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	0.61	0.76
SW066	11/11/2021	Normal	EB2133180	-	0.02	0.02	0.12	<0.02	0.36	-	<0.02	<0.1	<0.03	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	0.48	0.56
SW066	11/11/2021	Normal	EB2133180	-	0.02	<0.02	0.11	<0.02	0.31	-	<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	0.42	0.47
SW066	12/11/2021	Normal	EB2133180	-	0.47	0.45	2.64	0.16	1.77	-	<0.02	0.3	0.3	0.9	0.09	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	**4.41**	7.27
SW066	12/11/2021	Normal	EB2133180	-	0.35	0.36	2	0.1	1.55	-	<0.02	0.3	0.35	0.75	0.07	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	**3.55**	5.97
SW066	3/02/2022	Normal	EB2203621	-	0.04	0.03	0.24	0.03	0.52	-	<0.02	<0.1	<0.18	<0.08	<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	0.76	0.86
SW066	3/02/2022	Normal	EB2203621	-	0.02	0.02	0.16	<0.02	0.45	-	<0.02	<0.1	<0.10	<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	0.61	0.65
SW066	3/02/2022	Normal	EB2203621	-	<0.02	<0.02	0.15	<0.02	0.43	-	<0.02	<0.1	<0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.58	0.58
SW066	3/02/2022	Normal	EB2203621	-	0.02	<0.02	0.14	<0.02	0.39	-	<0.02	<0.1	<0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.53	0.55
SW066	4/02/2022	Normal	EB2203621	-	0.02	0.02	0.16	<0.02	0.62	-	<0.02	<0.1	<0.06	<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	0.78	0.82
SW066	4/02/2022	Normal	EB2203621	-	0.02	<0.02	0.12	<0.02	0.47	-	<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	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.59	0.61
SW066	4/02/2022	Normal	EB2203621	-	<0.02	<0.02	0.1	<0.02	0.39	-	<0.02	<0.1	<0.06	<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	0.49	0.49
SW066	4/02/2022	Normal	EB2203621	-	<0.02	<0.02	0.08	<0.02	0.36	-	<0.02	<0.1	<0.04	<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	0.44	0.44
SW066	4/02/2022	Normal	EB2203621	-	<0.02	<0.02	0.1	<0.02	0.32	-	<0.02	<0.1	<0.04	<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	0.42	0.42
SW066	25/02/2022	Normal	EB2206799	-	0.05	0.03	0.24	<0.02	0.52	-	<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	0.76	0.94
SW066	25/02/2022	Normal	EB2206799	-	0.05	0.02	0.21	<0.02	0.48	-	<0.02	<0.1	0.03	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	0.69	0.85
SW066	25/02/2022	Normal	EB2206799	-	0.04	0.02	0.18	<0.02	0.42	-	<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	0.6	0.73
SW066	25/02/2022	Normal	EB2206799	-	0.02	<0.02	0.16	<0.02	0.29	-	<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	0.45	0.5
SW066	25/02/2022	Normal	EB2206799	-	0.02	<0.02	0.1	<0.02	0.26	-	<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	0.36	0.4
SW066	25/02/2022	Normal	EB2206799	-	<0.02	<0.02	0.05	<0.02	0.24	-	<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	0.29	0.29
SW066	25/02/2022	Normal	EB2206799	-	<0.02	<0.02	0.03	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.17	0.17
SW066	26/02/2022	Normal	EB2206799	-	0.06	0.03	0.22	<0.02	0.5	-	<0.02	<0.1	0.04	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	0.72	0.93
SW066	26/02/2022	Normal	EB2206799	-	0.05	0.03	0.21	<0.02	0.49	-	<0.02	<0.1	0.04	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	0.7	0.9
SW066	26/02/2022	Normal	EB2206799	-	0.05	0.03	0.22	<0.02	0.47	-	<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	0.69	0.87
SW066	18/03/2022	Normal	EB2208035	-	0.04	0.03	0.23	<0.02	0.49	-	<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	0.72	0.88
SW065	24/03/2017	Field_D	EB1705969	-	0.2	0.11	0.94	0.06	3.28	-	<0.02	<0.1	<0.02	0.2	0.08	0.18	0.08	0.09	0.07	0.03	<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	**4.22**	5.55
SW065	24/03/2017	Normal	EB1705969	-	0.21	0.11	0.92	0.07	3.19	-	<0.02	<0.1	<0.02	0.2	0.08	0.18	0.07	0.09	0.06	0.04

				PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
				Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	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
SW056	15/04/2022	Normal	EB2211310	-	<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
SW055	21/09/2016	Interlab_D	S16992	-	-	-	0.03	-	0.04	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	0.07	-
SW055	21/09/2016	Field_D	EB1623093	-	-	-	0.02	-	0.02	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	0.04	-
SW055	21/09/2016	Normal	EB1623093	-	-	-	0.03	-	0.01	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	0.04	-
SW054	13/04/2016	Normal	EB1609928	-	<0.02	<0.02	<0.02	<0.02	0.06	-	<0.02	<0.1	<0.02	<0.02	<0.02	0.03	<0.02	0.03	<0.05	<0.05	<0.05	<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	0.06	<0.01
SW053	31/03/2016	Normal	EB1608609	-	<0.02	-	<0.02	-	<0.01	-	<0.02	-	-	<0.02	<0.02	0.01	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	-	<0.1	<0.1	-	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	<0.02	-
SW052	15/08/2017	Normal	EB1716714	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW052	15/08/2017	Normal	EB1716714	-	0.07	0.08	0.29	<0.02	0.22	-	<0.02	<0.1	0.05	0.13	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.51	0.86
SW051	5/11/2015	Normal	EB1534043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW051	5/11/2015	Normal	EB1534043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW051	22/03/2017	Normal	EB1705908	-	0.06	0.04	0.41	<0.02	0.62	-	<0.02	0.2	0.14	0.22	0.16	0.26	0.23	0.27	0.3	0.27	<0.02	<0.05	<0.05	0.11	0.3	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	1.03	3.59
SW050	12/10/2015	Normal	EB1531260	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW050	12/10/2015	Field_D	EB1531260	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW050	12/10/2015	Interlab_D	475642	-	-	-	-	-	0.02	-	-	-	-	-	-	0.03	-	-	-	-	-	-	-	<0.05	<0.01	-	-	-	-	-	-	-	-	-	-
SW049	15/08/2017	Normal	EB1716714	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW049	15/08/2017	Normal	EB1716714	-	0.08	0.1	0.4	<0.02	0.26	-	<0.02	<0.1	0.05	0.15	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	0.66	1.09
SW048	9/08/2015	Normal	EB1525621	-	-	-	-	-	0.426	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW045	10/08/2015	Normal	EB1525621	-	-	-	-	-	1.04	-	-	-	-	-	-	0.11	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW044	10/08/2015	Normal	EB1525621	-	0.51	-	3.88	-	5.17	-	<0.02	-	-	0.65	0.08	0.16	0.05	<0.02	<0.05	<0.05	<0.05	<0.5	-	<0.1	<0.1	-	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	**9.05**	-
SW043	2/11/2015	Normal	EB1534033	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW043	2/11/2015	Field_D	EB1534033	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW043	2/11/2015	Interlab_D	478994	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	<0.05	<0.01	-	-	-	-	-	-	-	-	-	-
SW043	1/02/2017	Normal	EB1702117	-	<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
SW043	20/04/2018	Normal	EB1809892	-	<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
SW043	8/04/2019	Normal	EB1909644	-	<0.0005	<0.0005	0.0042	<0.0005	0.0044	-	<0.0005	0.035	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0086	0.0442
SW043	23/03/2020	Normal	EB2008693	-	<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	<0.05	<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
SW043	12/04/2021	Field_D	EB2110967	-	<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	<0.05	<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
SW043	12/04/2021	Interlab_D	RN1312932	-	<0.01	<0.01	0.014	<0.01	<0.02	<0.01	<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	-	-
SW043	12/04/2021	Normal	EB2110967	-	<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
SW043	18/03/2022	Normal	EB2208035	-	<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
SW042	2/11/2015	Normal	EB1534033	-	-	-	-	-	<0.01	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW041	9/08/2015	Normal	EB1525621	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW040	9/08/2015	Normal	EB1525621	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW040	29/03/2017	Normal	EB1706401	-	<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
SW040	9/04/2019	Normal	EB1909663	-	<0.0005	-	<0.0005	-	<0.0003	-	-	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	<0.0003	-
SW040	23/03/2020	Normal	EB2008693	-	<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
SW040	23/03/2020	Field_D	EB2008693	-	<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
SW040	23/03/2020	Interlab_D	RN1271386	-	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<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	-	-
SW040	12/04/2021	Normal	EB2110967	-	<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
SW040	12/04/2021	Field_D	EB2110967	-	<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
SW040	12/04/2021	Interlab_D	RN1312932	-	<0.01	<0.01	0.017	<0.01	<0.02	<0.01	<0.01	<0.05	<0.02	0.012	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	<0.02	<0.01	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW040	18/03/2022	Normal	EB2208035	-	<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
SW039	10/08/2015	Normal	EB1525621	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW038	10/08/2015	Normal	EB1525621	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW037	26/07/2017	Normal	EB1715565	-	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	0.23
SW036	26/07/2017	Normal	EB1715565	-	0.02	<0.02	0.06	<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	0.22	0.26
SW035	26/07/2017	Normal	EB1715565	-	0.02	<0.02	0.06	<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	0.18	0.24
SW035	26/07/2017	Field_D	EB1715565	-	0.02	<0.02	0.04	<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	0.17	0.19
SW034	8/05/2019	Normal	EB1911739	-	<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
SW033	22/11/2018	Normal	EB1828770	-	<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
SW032	11/08/2015	Normal	EB1525621	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW032	2/02/2017	Normal	EB1705587	-	<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
SW032	9/04/2019	Normal	EB1909635	-	<0.0005	-	0.0006	-	0.0008	-	-	-	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	0.0014	-
SW032	24/03/2020	Normal	EB2008692	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.1	<0.03	<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
SW032	15/04/2021	Normal	EB2110947	-	<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
SW032	13/04/2022	Normal	EB2211310	-	<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
SW031	11/08/2015	Normal	EB1525621	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW030	9/08/2015	Normal	EB1525621	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW029	13/04/2017	Normal	EB1708845	-	<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	0.04	0.04
SW028	8/05/2017	Normal	EB1709218	-	<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
SW028	9/04/2019	Normal	EB1909663	-	0.0225	-	0.0113	-	0.0128	-	-	-	<0.002	0.0207	0.0204	0.0037	0.0143	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	0.0241	-
SW028	23/03/2020	Normal	EB2008693	-	<0.02	<0.02	<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	<0.02	<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	0.05
SW028	15/04/2021	Normal	EB2110967	-	<0.02	<0.02	<0.02	<0.02	<0.01	-	<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	<0.01	<0.01
SW027	11/08/2015	Normal	EB1525621	-	-	-	-	-	1.94	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW027	3/05/2016	Normal	EB1611802	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW027	3/05/2016	Normal	EB1611799	-	-	-	-	-	0.66	-	-	-	-	-	-	0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
SW027	1/02/2017	Normal	EB1702117	-	0.07	0.03	0.17	<0.02	0.66	-	<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	0.83	0.98
SW027	22/03/2017	Normal	EB1710122	-	0.06	0.03	0.27	<0.02	0.53	-	<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	0.8	0.98
SW027	8/04/2019	Interlab_D	RN1230420	-	0.095	0.058	0.42	0.019	0.75	<0.01	<0.01	<0.05	0.045	0.1	0.019	0.043	<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	<0.05	<0.02	<0.05	-	-
SW027	8/04/2019	Field_D	EB1909638	-	0.126	-	0.398	-	0.824	-	-	<0.002	0.0306	0.115	0.0199	0.0451	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	1.22	-
SW027	8/04/2019	Normal	EB1909636	-	0.129	-	0.418	-	0.7	-	-	0.052	0.0292	0.115	0.0193	0.0455	-	-	-	-	-	-	<0.001	**0.001**	**0.001**	<0.001	-	-	-	-	-	-	-	1.12	-
SW027	25/02/2020	Normal	EB2005415	-	0.05	0.05	0.38	0.04	1.46	-	<0.02	<0.1	<0.02	0.13	<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	1.84	2.15
SW027	23/03/2021	Normal	EB2108522	-	<0.02	<0.02	0.08	<0.02	0.4	-	<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	0.48	0.51
SW027	18/03/2022	Normal	EB2208035	-	<0.02	<0.02	0.17	<0.02	0.7	-	<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	0.87	0.94
SW026	11/08/2015	Normal	EB1525621	-	-	-	-	-	2.32	-	-	-	-	-	-	0.13	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW026	3/05/2016	Normal	EB1611802	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW026	3/05/2016	Normal	EB1611799	-	-	-	-	-	1.64	-	-	-	-	-	-	0.02	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-
SW026	1/02/2017	Normal	EB1702117	-	0.09	0.07	0.54	0.04	1.72	-	<0.02	<0.1	0.07	0.1	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	**2.26**	2.72
SW026	24/03/2017	Normal	EB1705969	-	0.1	0.05	0.36	<0.02	1.08	-	<0.02	<0.1	<0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	1.44	1.7
SW026	8/04/2019	Interlab_D	RN1230420	-	0.11	0.055	0.41	0.015	0.64	<0.01	<0.01	0.11	0.088	0.11	0.023	0.035	<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	<0.02	<0.05	-	-
SW026	8/04/2019	Normal	EB1909636	-	0.149	-	0.423	-	0.6	-	-	0.081	0.0642	0.124	0.0193	0.0353	-	-	-	-	-	-	<0.001	**0.002**	**0.007**	<0.001	-	-	-	-	-	-	-	1.02	-
SW026	8/04/2019	Field_D	EB1909638	-	0.141	-	0.331	-	0.579	-	-	0.072	0.052	0.108	0.0199	0.0372	-	-	-	-	-	-	<0.001	**0.003**	**0.008**	<0.001	-	-	-	-	-	-	-	0.91	-
SW026	25/02/2020	Normal	EB2005415	-	0.03	0.02	0.19	<0.02	0.31	-	<0.02	<0.1	0.03	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	0.5	0.66
SW026	23/03/2021	Normal	EB2108522	-	0.08	0.05	0.31	0.02	0.76	-	<0.02	<0.1	0.05	0.13	<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	1.07	1.43
SW026	18/03/2022	Normal	EB2208035	-	0.06	0.03	0.2	<0.02	0.46	-	<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	0.66	0.84
SW025	11/08/2015	Normal	EB1525621	-	-	-	-	-	1.99	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW025	20/02/2017	Normal	EB1703569	-	0.04	0.02	0.17	<0.02	0.35	-	<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	0.52	0.64
SW025	20/02/2017	Field_D	EB1703569	-	<0.02	0.04	0.17	<0.02	0.35	-	<0.02	<0.

				PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
				Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	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
SW025	4/06/2021	Normal	EB2116620	-	0.02	<0.02	0.14	<0.02	0.58	-	<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	0.72	0.79
SW025	4/06/2021	Normal	EB2116620	-	<0.02	<0.02	0.13	<0.02	0.56	-	<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	0.69	0.74
SW025	9/07/2021	Interlab_D	RN1323090	-	0.045	0.03	0.21	0.011	0.5	<0.01	<0.01	<0.05	0.076	0.16	0.011	0.017	<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	-	-
SW025	9/07/2021	Normal	EB2120796	-	0.06	0.05	0.3	<0.02	0.7	-	<0.02	<0.1	0.05	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	1	1.34
SW025	9/07/2021	Normal	EB2120796	-	0.03	0.03	0.2	<0.02	0.61	-	<0.02	<0.1	0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.81	0.99
SW025	9/07/2021	Normal	EB2120071	-	0.05	0.03	0.22	<0.02	0.52	-	<0.02	<0.1	0.1	0.2	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.74	1.14
SW025	9/07/2021	Normal	EB2120071	-	0.03	<0.02	0.14	<0.02	0.55	-	<0.02	<0.1	0.04	0.08	<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	0.69	0.85
SW025	9/07/2021	Field_D	EB2120071	-	0.02	<0.02	0.14	<0.02	0.5	-	<0.02	<0.1	0.03	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	0.64	0.77
SW025	9/07/2021	Normal	EB2120796	-	0.02	<0.02	0.14	<0.02	0.47	-	<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	0.61	0.69
SW025	9/07/2021	Normal	EB2120796	-	<0.02	<0.02	0.11	<0.02	0.38	-	<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	0.49	0.54
SW025	9/07/2021	Normal	EB2120796	-	<0.02	<0.02	0.1	<0.02	0.38	-	<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	0.48	0.52
SW025	9/07/2021	Normal	EB2120796	-	<0.02	<0.02	0.11	<0.02	0.37	-	<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	0.48	0.52
SW025	9/07/2021	Normal	EB2120796	-	<0.02	<0.02	0.11	<0.02	0.36	-	<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	0.52
SW025	9/07/2021	Normal	EB2120796	-	<0.02	<0.02	0.08	<0.02	0.28	-	<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	0.36	0.39
SW025	11/10/2021	Normal	EB2129260	-	0.1	0.06	0.4	0.02	0.88	-	<0.02	<0.1	<0.02	0.14	<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	1.28	1.63
SW025	14/10/2021	Interlab_D	RN1332380	-	0.012	<0.01	0.059	<0.01	0.36	<0.01	<0.01	<0.05	<0.02	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	-	-
SW025	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.06	<0.02	0.45	-	<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	0.51	0.53
SW025	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.07	<0.02	0.41	-	<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	0.48	0.5
SW025	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.06	<0.02	0.41	-	<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	0.47	0.49
SW025	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.05	<0.02	0.34	-	<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	0.39	0.39
SW025	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.05	<0.02	0.32	-	<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	0.37	0.37
SW025	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.05	<0.02	0.3	-	<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	0.35	0.35
SW025	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.05	<0.02	0.3	-	<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	0.35	0.35
SW025	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.05	<0.02	0.29	-	<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	0.34	0.34
SW025	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.05	<0.02	0.28	-	<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	0.33
SW025	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.04	<0.02	0.26	-	<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	0.3	0.3
SW025	11/11/2021	Interlab_D	RN1335319	-	0.011	<0.01	0.06	<0.01	0.27	<0.01	<0.01	<0.05	<0.02	0.017	<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	-	-
SW025	11/11/2021	Interlab_D	RN1335319	-	0.035	0.037	0.27	0.016	1.2	<0.01	<0.01	<0.05	<0.02	0.067	0.017	0.039	<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	-	-
SW025	11/11/2021	Field_D	EB2133180	-	0.04	0.04	0.26	0.03	1.36	-	<0.02	<0.1	<0.14	0.09	0.02	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	1.62	1.89
SW025	11/11/2021	Normal	EB2133180	-	0.04	0.04	0.26	0.03	1.2	-	<0.02	<0.1	<0.04	0.08	0.02	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	1.46	1.72
SW025	11/11/2021	Normal	EB2133180	-	0.03	0.02	0.13	<0.02	0.67	-	<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	0.8	0.9
SW025	11/11/2021	Normal	EB2133180	-	<0.02	<0.02	0.12	<0.02	0.55	-	<0.02	<0.1	<0.10	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	0.67	0.72
SW025	11/11/2021	Normal	EB2133180	-	0.02	<0.02	0.09	<0.02	0.4	-	<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	0.49	0.54
SW025	11/11/2021	Normal	EB2133180	-	<0.02	<0.02	0.07	<0.02	0.32	-	<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	0.39	0.42
SW025	11/11/2021	Normal	EB2133180	-	<0.02	<0.02	0.06	<0.02	0.3	-	<0.02	<0.1	<0.10	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	0.36	0.38
SW025	11/11/2021	Normal	EB2133180	-	<0.02	<0.02	0.06	<0.02	0.28	-	<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	0.34	0.36
SW025	11/11/2021	Field_D	EB2133180	-	<0.02	<0.02	0.06	<0.02	0.24	-	<0.02	<0.1	<0.08	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	0.3	0.32
SW025	12/11/2021	Normal	EB2133180	-	0.04	0.03	0.16	<0.02	0.72	-	<0.02	<0.1	<0.08	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	0.88	1.02
SW025	12/11/2021	Normal	EB2133180	-	0.03	0.03	0.15	<0.02	0.62	-	<0.02	<0.1	<0.04	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	0.77	0.89
SW025	12/11/2021	Normal	EB2133180	-	0.03	0.02	0.14	<0.02	0.55	-	<0.02	<0.1	<0.04	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	0.69	0.79
SW025	30/11/2021	Interlab_D	RN1337439	-	0.016	0.012	0.13	<0.01	0.31	<0.01	<0.01	<0.05	<0.02	0.023	<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	-	-
SW025	30/11/2021	Interlab_D	RN1337439	-	<0.01	<0.01	0.041	<0.01	0.16	<0.01	<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	<0.05	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW025	30/11/2021	Normal	EB2135913	-	0.02	<0.02	0.14	<0.02	0.4	-	<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	0.54	0.61
SW025	30/11/2021	Field_D	EB2135913	-	0.02	<0.02	0.14	<0.02	0.37	-	<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	0.51	0.58
SW025	30/11/2021	Normal	EB2135913	-	<0.02	<0.02	0.04	<0.02	0.27	-	<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	0.31	0.31
SW025	30/11/2021	Normal	EB2135913	-	<0.02	<0.02	0.08	<0.02	0.22	-	<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	0.3	0.32
SW025	30/11/2021	Normal	EB2135913	-	<0.02	<0.02	0.07	<0.02	0.21	-	<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	0.28	0.3
SW025	30/11/2021	Field_D	EB2135913	-	<0.02	<0.02	0.04	<0.02	0.18	-	<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	0.24
SW025	30/11/2021	Normal	EB2135913	-	<0.02	<0.02	0.04	<0.02	0.17	-	<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	0.21
SW025	1/12/2021	Normal	EB2135913	-	0.04	0.03	0.22	<0.02	0.69	-	<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	0.91	1.06
SW025	1/12/2021	Normal	EB2135913	-	0.03	0.02	0.18	<0.02	0.55	-	<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	0.73	0.84
SW025	1/12/2021	Normal	EB2135913	-	0.02	<0.02	0.14	<0.02	0.4	-	<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	0.54	0.61
SW025	1/12/2021	Normal	EB2135913	-	<0.02	<0.02	0.09	<0.02	0.27	-	<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	0.36	0.39
SW025	1/12/2021	Normal	EB2135913	-	<0.02	<0.02	0.07	<0.02	0.2	-	<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	0.27	0.29
SW025	24/02/2022	Normal	EB2206799	-	0.07	0.06	0.39	0.03	0.94	-	<0.02	<0.1	<0.04	0.14	<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	1.33	1.66
SW025	24/02/2022	Normal	EB2206799	-	0.06	0.04	0.32	0.02	0.94	-	<0.02	<0.1	0.03	0.11	<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	1.26	1.55
SW025	24/02/2022	Normal	EB2206799	-	0.04	0.03	0.24	<0.02	0.86	-	<0.02	<0.1	0.02	0.08	<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	1.1	1.3
SW025	25/02/2022	Normal	EB2206799	-	0.04	0.02	0.15	<0.02	0.68	-	<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	0.83	0.95
SW025	25/02/2022	Normal	EB2206799	-	0.03	0.02	0.19	<0.02	0.62	-	<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	0.81	0.96
SW025	25/02/2022	Normal	EB2206799	-	0.03	<0.02	0.18	<0.02	0.61	-	<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	0.79	0.89
SW025	25/02/2022	Normal	EB2206799	-	0.03	0.02	0.17	<0.02	0.59	-	<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	0.76	0.88
SW025	25/02/2022	Normal	EB2206799	-	0.03	0.02	0.12	<0.02	0.49	-	<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	0.61	0.7
SW025	25/02/2022	Normal	EB2206799	-	0.03	<0.02	0.12	<0.02	0.41	-	<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	0.53	0.6
SW025	25/02/2022	Normal	EB2206799	-	<0.02	<0.02	0.04	<0.02	0.18	-	<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	0.22
SW025	25/02/2022	Normal	EB2206799	-	<0.02	<0.02	0.04	<0.02	0.17	-	<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	0.21
SW025	25/02/2022	Normal	EB2206799	-	<0.02	<0.02	0.03	<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	0.18	0.18
SW025	25/02/2022	Normal	EB2206799	-	<0.02	<0.02	0.03	<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	0.18	0.18
SW025	25/02/2022	Normal	EB2206799	-	<0.02	<0.02	0.03	<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	0.14	0.14
SW025	18/03/2022	Normal	EB2208035	-	0.05	<0.02	0.19	<0.02	0.59	-	<0.02	<0.10	<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	0.78	0.91
SW024	12/08/2015	Field_D	EB1525621	-	-	-	-	-	2.03	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-
SW024	12/08/2015	Normal	EB1525621	-	-	-	-	-	1.02	-	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-
SW024

				PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
				Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	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
SW021	3/05/2016	Interlab_D	499670	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW021	3/05/2016	Interlab_D	499669	-	-	-	-	-	0.43	-	-	-	-	-	-	7.9	-	-	-	-	-	-	-	24	28	-	-	-	-	-	-	-	-	-	-	-
SW021	3/05/2016	Field_D	EB1611799	-	-	-	-	-	0.42	-	-	-	-	-	-	4.37	-	-	-	-	-	-	-	21.5	21.8	-	-	-	-	-	-	-	-	-	-	-
SW021	3/05/2016	Normal	EB1611799	-	<0.02	<0.02	0.1	<0.02	0.48	-	<0.02	<0.1	0.86	2.44	2.96	4.25	10.4	15.2	0.87	0.3	0.3	0.08	<0.05	22.6	24.6	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.58	<0.01
SW021	20/02/2017	Normal	EB1703569	-	<0.02	<0.02	0.13	<0.02	0.69	-	<0.02	0.4	1.03	1.35	1.58	4.08	3.71	3.15	3.32	1.71	0.13	<0.05	<0.05	3.27	5.85	0.06	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.82	30.5
SW021	22/03/2017	Interlab_D	AECO06_170328	-	0.014	-	0.16	-	1.2	-	<0.02	0.95	2.5	3	3.9	7.7	6.9	7.6	2.3	0.43	0.13	<0.05	-	10	8.9	-	<0.02	-	-	-	-	-	-	1.36	-
SW021	22/03/2017	Field_D	EB1705908	-	0.02	0.02	0.21	0.03	0.77	-	<0.02	1.1	3.68	5.22	6.02	**11.7**	9.36	6.1	0.26	<0.02	<0.02	<0.05	<0.05	10.7	10.7	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.98	65.89
SW021	22/03/2017	Normal	EB1705908	-	0.02	0.02	0.23	0.03	0.73	-	<0.02	1	3.63	5.28	5.97	**10.1**	9.45	5.92	0.29	0.02	<0.02	<0.05	<0.05	10.6	9.86	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.96	63.2
SW021	25/02/2020	Interlab_D	RN1266061	-	0.01	0.015	0.11	0.021	0.48	0.044	<0.01	0.41	0.5	1.4	1	1.1	0.94	1.1	0.38	0.14	0.071	0.077	<0.01	1.8	5.3	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW021	25/02/2020	Field_D	EB2005415	-	<0.02	<0.02	0.13	<0.02	0.62	-	<0.02	0.5	0.55	1.62	1.16	1.2	1.12	1.37	0.61	0.44	0.26	0.25	<0.05	1.56	6.33	0.06	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.75	17.8
SW021	25/02/2020	Normal	EB2005415	-	<0.03	0.03	0.14	<0.03	0.58	-	<0.03	0.2	0.35	0.97	0.89	0.94	0.87	1.14	0.54	0.42	0.18	0.21	<0.05	1.68	7.14	<0.05	<0.03	<0.08	<0.03	<0.08	<0.08	<0.03	<0.08	0.72	16.3
SW021	23/03/2021	Normal	EB2108522	-	0.04	0.03	0.17	<0.02	0.58	-	<0.02	<0.1	0.09	0.1	0.03	0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.08	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.75	1.17
SW021	18/03/2022	Interlab_D	RN1347346	-	<0.01	<0.01	0.017	<0.01	0.14	<0.01	<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	-	-
SW021	18/03/2022	Field_D	EB2208035	-	<0.02	<0.02	0.02	<0.02	0.16	-	<0.02	<0.10	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	0.03	0.02	<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	0.23
SW021	18/03/2022	Normal	EB2208035	-	<0.02	<0.02	0.02	<0.02	0.14	-	<0.02	<0.10	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	0.03	0.02	<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	0.21
SW020	16/12/2014	Normal	ES1428296	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW019	16/12/2014	Normal	ES1428296	-	-	-	-	-	0.75	-	-	-	-	-	-	0.32	-	-	-	-	-	-	-	0.4	0.2	-	-	-	-	-	-	-	-	-	-
SW019	9/02/2016	Normal	EB1603670	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW019	9/02/2016	Normal	EB1603675	-	-	-	-	-	0.78	-	-	-	-	-	-	0.23	-	-	-	-	-	-	-	0.5	1.4	-	-	-	-	-	-	-	-	-	-
SW019	20/02/2017	Normal	EB1703569	-	<0.02	<0.02	0.11	<0.02	0.29	-	<0.02	<0.1	0.19	0.24	0.26	0.52	0.47	0.5	0.38	0.22	0.04	<0.05	<0.05	0.44	0.77	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.4	4.43
SW019	25/02/2020	Normal	EB2005415	-	0.06	0.03	0.33	<0.02	0.74	-	<0.02	<0.10	0.05	0.07	<0.02	0.05	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	1.07	1.36
SW019	23/03/2021	Normal	EB2108522	-	0.02	<0.02	0.11	<0.02	0.3	-	<0.02	<0.1	0.06	0.1	0.04	0.06	0.05	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	0.07	0.13	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.41	0.98
SW019	9/07/2021	Interlab_D	RN1323090	-	0.034	0.027	0.25	0.014	0.37	<0.01	<0.01	0.16	0.16	0.3	0.14	0.14	0.1	0.034	<0.01	<0.01	<0.02	<0.02	<0.01	0.024	0.012	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW019	9/07/2021	Normal	EB2120796	-	0.06	0.04	0.32	0.02	0.52	-	<0.02	<0.1	0.1	0.22	0.08	0.1	0.07	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	0.08	0.11	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.84	1.76
SW019	9/07/2021	Normal	EB2120796	-	0.05	0.04	0.31	0.02	0.51	-	<0.02	0.1	0.11	0.24	0.09	0.1	0.08	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	0.1	0.1	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.82	1.89
SW019	9/07/2021	Normal	EB2120796	-	0.05	0.04	0.32	0.03	0.5	-	<0.02	<0.1	0.1	0.21	0.08	0.09	0.07	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	0.07	0.08	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.82	1.68
SW019	9/07/2021	Normal	EB2120796	-	0.03	0.03	0.24	0.02	0.52	-	<0.02	0.1	0.15	0.31	0.12	0.14	0.11	0.05	<0.02	<0.02	<0.02	<0.05	<0.05	0.06	0.06	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.76	1.94
SW019	9/07/2021	Normal	EB2120071	-	0.04	0.03	0.27	0.02	0.46	-	<0.02	0.2	0.18	0.37	0.14	0.15	0.11	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.73	2.01
SW019	9/07/2021	Normal	EB2120071	-	0.04	0.03	0.24	<0.02	0.47	-	<0.02	0.2	0.17	0.36	0.15	0.14	0.12	0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.71	1.97
SW019	9/07/2021	Field_D	EB2120071	-	0.03	0.02	0.23	<0.02	0.44	-	<0.02	0.1	0.16	0.34	0.14	0.14	0.11	0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.67	1.76
SW019	9/07/2021	Normal	EB2120796	-	0.02	0.02	0.21	<0.02	0.44	-	<0.02	<0.1	0.12	0.23	0.1	0.11	0.08	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.65	1.42
SW019	9/07/2021	Normal	EB2120796	-	0.02	0.02	0.2	<0.02	0.35	-	<0.02	0.1	0.13	0.26	0.1	0.12	0.08	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.55	1.42
SW019	9/07/2021	Normal	EB2120796	-	0.02	<0.02	0.17	<0.02	0.36	-	<0.02	0.1	0.12	0.25	0.1	0.1	0.08	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.53	1.39
SW019	9/07/2021	Normal	EB2120796	-	<0.02	<0.02	0.16	<0.02	0.34	-	<0.02	0.1	0.13	0.25	0.1	0.11	0.09	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.5	1.32
SW019	14/10/2021	Interlab_D	RN1332380	-	<0.01	<0.01	0.08	<0.01	0.26	<0.01	<0.01	<0.05	0.055	0.072	0.052	0.08	0.056	0.049	0.015	<0.01	<0.02	<0.02	<0.01	0.081	0.2	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW019	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.09	<0.02	0.34	-	<0.02	<0.1	0.06	0.08	0.05	0.08	0.06	0.05	<0.02	<0.02	<0.02	<0.05	<0.05	0.1	0.24	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.43	1.15
SW019	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.12	<0.02	0.3	-	<0.02	<0.1	0.07	0.09	0.06	0.09	0.07	0.05	<0.02	<0.02	<0.02	<0.05	<0.05	0.13	0.3	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.42	1.28
SW019	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.08	<0.02	0.32	-	<0.02	<0.1	0.06	0.09	0.06	0.07	0.06	0.05	0.02	<0.02	<0.02	<0.05	<0.05	0.1	0.24	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.4	1.15
SW019	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.09	<0.02	0.31	-	<0.02	<0.1	0.06	0.08	0.06	0.07	0.06	0.05	<0.02	<0.02	<0.02	<0.05	<0.05	0.1	0.24	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.4	1.12
SW019	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.07	<0.02	0.33	-	<0.02	<0.1	0.05	0.07	0.04	0.06	0.05	0.04	0.04	0.03	<0.02	<0.05	<0.05	0.07	0.23	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.4	1.08
SW019	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.1	<0.02	0.29	-	<0.02	<0.1	0.06	0.08	0.06	0.08	0.06	0.05	0.02	<0.02	<0.02	<0.05	<0.05	0.1	0.24	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.39	1.14
SW019	14/10/2021	Normal	EB2129260	-	0.02	<0.02	0.1	<0.02	0.28	-	<0.02	<0.1	0.08	0.09	0.06	0.09	0.08	0.06	0.02	<0.02	<0.02	<0.05	<0.05	0.12	0.26	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.38	1.26
SW019	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.08	<0.02	0.3	-	<0.02	<0.1	0.05	0.08	0.05	0.08	0.06	0.05	0.02	<0.02	<0.02	<0.05	<0.05	0.09	0.29	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.38	1.13
SW019	14/10/2021	Normal	EB2129260	-	<0.02	<0.02	0.06	<0.02	0.28	-	<0.02	<0.1	0.05	0.07	0.04	0.06	0.05	0.04	0.02	<0.02	<0.02	<0.05	<0.05	0.07	0.19	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.34	0.93
SW019	11/11/2021	Interlab_D	RN1335319	-	0.019	0.014	0.096	<0.01	0.21	<0.01	<0.01	<0.01	0.056	0.043	0.04	0.023	0.027	0.028	0.013	<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	-	-
SW019	11/11/2021	Normal	EB2133180	-	0.04	0.03	0.17	<0.02	0.61	-	<0.02	<0.02	<0.1	<0.10	0.06	0.03	0.03	0.04	0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.78	1.03
SW019	11/11/2021	Normal	EB2133180	-	0.03	0.02	0.17	<0.02	0.45	-	<0.02	<0.02	<0.1	0.09	0.11	0.09	0.09	0.08	0.06	0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.22	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.62	1.43
SW019	11/11/2021	Normal	EB2133180	-	0.04	0.03	0.15	<0.02	0.46	-	<0.02	<0.02	<0.1	0.07	0.08	0.04	0.05	0.04	0.03	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.06	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.61	1.05
SW019	11/11/2021	Normal	EB2133180	-	0.03	0.02	0.11	<0.02	0.35	-	<0.02	<0.02	<0.1	0.06	0.07	0.04	0.05	0.04	0.03	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.08	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.46	0.88
SW019	11/11/2021	Normal	EB2133180	-	<0.02	<0.02	0.1	<0.02	0.32	-	<0.02	<0.02	<0.1	0.06	0.09	0.08	0.09	0.08	0.06	0.03	<0.02	<0.02	<0.05	<0.05	0.06	0.21	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.42	1.18
SW019	11/11/2021	Normal	EB2133180	-	0.02	<0.02	0.1	<0.02	0.32	-	<0.02	<0.02	<0.1	0.06	0.08	0.05	0.05	0.05	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.11	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.42	0.88
SW019	11/11/2021	Normal	EB2133180	-	<0.02	<0.02	0.09	<0.02	0.26	-	<0.02	<0.02	<0.1	0.07	0.08	0.06	0.07	0.06	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	0.05	0.17	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.35	0.95
SW019	11/11/2021	Field_D	EB2133180	-	0.02	<0.02	0.1	<0.02	0.23	-	<0.02	<0.02	<0.1	0.07	0.04	0.03	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<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	0.55
SW019	11/11/2021	Normal	EB2133180	-	0.02	<0.02	0.1	<0.02	0.22	-	<0.02	<0.02	<0.1	<0.08	0.04	0.03	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<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	0.47
SW019	12/11/2021	Normal	EB2133180	-	0.04	0.03	0.18	0.02	0.56	-	<0.02	<0.02	<0.1	0.07	0.09	0.04	0.05	0.04	0.04	0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.08	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.74	1.26
SW019	12/11/2021	Normal	EB2133180	-	0.04	0.03	0.16	<0.02	0.46	-	<0.02	<0.02	<0.1	0.07	0.08	0.04	0.05	0.04	0.03	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.62	1
SW019	30/11/2021	Interlab_D	RN1337439	-	0.032	0.013	0.13	<0.01	0.31	<0.01	<0.01	<0.01	0.063	0.035	0.041	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW019	30/11/2021	Interlab_D	RN1337439	-	0.011	<0.01	0.064	<0.01	0.17	<0.01	<0.01	<0.01	<0.05	0.024	0.027	0.016	0.021	0.025	0.013	0.011	<0.01	<0.02	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW019	30/11/2021	Normal	EB2135913	-	0.05	0.02	0.15	<0.02	0.36	-	<0.02	<0.02	<0.1	0.05	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.51	0.7
SW019	30/11/2021	Normal	EB2135913	-	0.04	0.02	0.12	<0.02	0.35	-	<0.02	<0.02	<0.1	0.03	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<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	0.62
SW019	30/11/2021	Field_D	EB2135913	-	0.05	0.02	0.14	<0.02	0.31	-	<0.02	<0.02	<0.1	<0.06	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.45	0.59
SW019	30/11/2021	Normal	EB2135913	-	0.03	<0.02	0.1	<0.02	0.33	-	<0.02	<0.02	<0.1	0.03	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.43	0.54
SW019	30/11/2021	Normal	EB2135913	-	0.03	0.02	0.12	<0.02	0.26	-	<0.02	<0.02	<0.1	0.03	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.38	0.54
SW019	30/11/2021	Field_D	EB2135913	-	<0.02	<0.02	0.08	<0.02	0.21	-	<0.02	<0.02	<0.1	<0.06	0.05	0.02	0.03	0.03	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.29	0.42
SW019	30/11/2021	Normal	EB2135913	-	<0.02	<0.02	0.07	<0.02	0.19	-	<0.02	<0.02	<0.1	0.03	0.04	<0.02	0.02	0.03	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.26	0.38
SW019	1/12/2021	Normal	EB2135913	-	0.04	0.02	0.12	<0.02	0.32	-	<0.02	<0.02	<0.1	0.05	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<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	0.61
SW019	1/12/2021	Normal	EB2135913	-	0.02	<0.02	0.06	<0.02	0.2	-	<0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.26	0.31
SW019	1/12/2021	Normal	EB2135913	-	0.02	<0.02	0.06	<0.02	0.18	-	<0.02	<0.02	<0.1	<0.04	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.24	0.29
SW019	1/12/2021	Normal	EB2135913	-	0.02	<0.02	0.06	<0.02	0.18	-	<0.02	<0.02	<0.1	<0.04	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.24	0.29
SW019	1/12/2021	Normal	EB2135913	-	0.02	<0.02	0.07	<0.02	0.17	-	<0.02	<0.02	<0.1	0.03	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.24	0.32
SW019	18/03/2022	Normal	EB2208035	-	0.04	0.02	0.16	<0.02	0.39	-	<0.02	<0.02	<0.1	<0.05	0.08	0.02	0.05	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	0.55	0.78
SW018	17/11/2014	Interlab_D	439475	-	-	-	-	-	2.3	-	-	-	-	-	-	0.08	-	-	-	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
SW018	17/11/2014	Field_D	EB1446505	-	-	-	-	-	1.27	-	-	-	-	-	-	0.04	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW018	17/11/2014	Normal	EB1446505	-	-	-	-	-	1.57	-	-	-	-	-	-	0.03	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
SW018	1/02/2017	Normal	EB1702117	-	0.09	0.04	0.24	<0.02	0.58	-	<0.02	<0.1	0.06	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02

				PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids												PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
				Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	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	µg/L	µg/L
SW013	9/02/2016	Normal	EB1603675	-	-	-	-	-	0.47	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW013	9/02/2016	Normal	EB1603670	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW013	30/03/2016	Field_D	EB1608609	-	0.07	-	0.42	-	0.43	-	<0.02	-	-	0.11	<0.02	0.08	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	-	<0.1	<0.1	-	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	0.85	-
SW013	30/03/2016	Normal	EB1608609	-	0.09	-	0.24	-	0.36	-	<0.02	-	-	0.11	0.04	0.06	<0.02	<0.02	<0.05	<0.05	<0.05	<0.5	-	<0.1	<0.1	-	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	0.6	-
SW013	30/03/2016	Interlab_D	495205	-	0.05	-	0.14	-	0.22	-	<0.01	<0.05	0.03	0.09	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	-	<0.05	<0.05	-	-	<0.05	-	-	0.36	-
SW013	3/05/2016	Normal	EB1611799	-	-	-	-	-	0.7	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-
SW013	3/05/2016	Normal	EB1611802	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW013	1/02/2017	Normal	EB1702117	-	0.09	0.04	0.22	0.02	0.6	-	<0.02	<0.1	0.06	0.1	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.82	1.15
SW013	20/04/2018	Normal	EB1809892	-	0.08	0.05	0.26	<0.02	0.72	-	<0.02	<0.1	0.04	0.1	<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	0.98	1.28
SW013	8/04/2019	Normal	EB1909637	-	0.007	-	0.0217	-	0.0748	-	-	0.035	<0.0005	0.0077	0.0008	0.0021	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	0.0965	-
SW013	23/03/2020	Normal	EB2008693	-	<0.02	<0.02	0.04	<0.02	0.45	-	<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	0.49	0.49
SW013	13/04/2021	Interlab_D	RN1312932	-	0.049	0.029	0.18	0.011	0.53	<0.01	<0.01	<0.05	0.031	0.063	<0.01	0.016	<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	-	-
SW013	13/04/2021	Normal	EB2110967	-	0.04	0.03	0.18	<0.02	0.56	-	<0.02	<0.1	0.03	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	0.74	0.93
SW013	13/04/2021	Field_D	EB2110967	-	0.04	0.03	0.17	<0.02	0.55	-	<0.02	<0.1	0.03	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	0.72	0.91
SW013	16/04/2022	Normal	EB2211261-AA	-	<0.02	<0.02	<0.01	<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	0.04	0.04
SW012	29/10/2014	Interlab_D	437530	-	-	-	-	-	0.17	-	-	-	-	-	-	0.08	-	-	-	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-
SW012	29/10/2014	Field_D	EB1445388	-	-	-	-	-	0.29	-	-	-	-	-	-	0.07	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW012	29/10/2014	Normal	EB1445388	-	-	-	-	-	0.21	-	-	-	-	-	-	0.06	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW012	1/02/2017	Normal	EB1702117	-	0.05	<0.02	0.08	<0.02	0.24	-	<0.02	<0.1	0.05	0.06	0.03	0.19	0.04	0.2	0.02	0.15	<0.02	<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	1.11
SW012	20/04/2018	Normal	EB1809892	-	0.07	0.03	0.26	<0.02	0.63	-	<0.02	<0.1	0.04	0.1	<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	0.89	1.18
SW012	8/04/2019	Normal	EB1909637	-	0.0175	-	0.0504	-	0.134	-	-	0.029	0.0044	0.0186	0.0023	0.0053	-	-	-	-	-	-	<0.001	0.001	<0.001	<0.001	-	-	-	-	-	-	-	0.184	-
SW012	23/03/2020	Normal	EB2008693	-	<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
SW012	23/03/2020	Field_D	EB2008693	-	<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
SW012	23/03/2020	Interlab_D	RN1271386	-	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<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	-	-
SW012	13/04/2021	Normal	EB2110967	-	0.05	0.03	0.21	<0.02	0.57	-	<0.02	<0.1	0.04	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.78	1
SW012	15/04/2022	Normal	EB2211261-AA	-	<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	<0.01	<0.01
SW011	29/10/2014	Normal	EB1445388	-	-	-	-	-	0.07	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW011	9/08/2015	Normal	EB1525621	-	-	-	-	-	0.14	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW011	29/03/2016	Normal	EB1608609	-	<0.02	-	<0.02	-	0.06	-	<0.02	-	-	0.04	0.03	0.17	0.02	0.09	<0.05	<0.05	<0.05	<0.5	-	<0.1	<0.1	-	<0.02	<0.5	-	<0.5	<0.05	-	<0.5	0.06	-
SW011	29/03/2017	Normal	EB1706401	-	0.06	0.03	0.26	<0.02	0.51	-	<0.02	<0.1	<0.02	0.09	<0.02	0.03	<0.02	0.03	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.77	1.01
SW011	20/04/2018	Interlab_D	AECO06_180424	-	0.013	<0.01	0.056	<0.01	0.18	<0.01	<0.01	<0.05	<0.02	0.023	<0.01	0.019	<0.01	0.055	<0.01	0.011	<0.02	<0.02	<0.01	0.014	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW011	20/04/2018	Field_D	EB1809892	-	<0.02	<0.02	0.07	<0.02	0.22	-	<0.02	<0.1	<0.02	0.03	<0.02	0.03	<0.02	0.06	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.29	0.41
SW011	20/04/2018	Normal	EB1809892	-	<0.02	<0.02	0.06	<0.02	0.21	-	<0.02	<0.1	<0.02	0.03	<0.02	0.03	<0.02	0.05	<0.02	<0.02	<0.02	<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	0.38
SW011	8/04/2019	Normal	EB1909636	-	0.0278	-	0.0885	-	0.187	-	-	0.029	0.009	0.0318	0.0036	0.0089	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	0.276	-
SW011	23/03/2020	Normal	EB2008693	-	<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	0.05	0.05
SW011	13/04/2021	Normal	EB2110967	-	0.04	0.03	0.15	<0.02	0.32	-	<0.02	<0.1	0.03	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	0.47	0.65
SW011	15/04/2022	Normal	EB2211261-AA	-	<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
SW010	29/10/2014	Normal	EB1445388	-	-	-	-	-	0.79	-	-	-	-	-	-	0.04	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW010	9/08/2015	Normal	EB1525621	-	-	-	-	-	0.25	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW010	1/02/2017	Normal	EB1702117	-	0.05	0.02	0.1	<0.02	0.35	-	<0.02	<0.1	0.04	0.05	<0.02	0.05	<0.02	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	0.07	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.45	0.77
SW010	20/04/2018	Normal	EB1809892	-	<0.02	<0.02	<0.02	<0.02	0.1	-	<0.02	<0.1	<0.02	<0.02	<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	0.1	0.16
SW010	8/04/2019	Normal	EB1909636	-	0.0394	-	0.107	-	0.189	-	-	0.037	0.0122	0.0398	0.005	0.0112	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	0.296	-
SW010	13/04/2021	Normal	EB2110967	-	<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
SW010	16/04/2022	Normal	EB2211261-AA	-	<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	0.02	0.02
SW009	27/08/2014	Normal	EB1441408	-	-	-	-	-	1.66	-	-	-	-	-	-	0.08	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW009	26/09/2014	Normal	EB1443316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW009	26/09/2014	Normal	EB1443316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW009	26/09/2014	Normal	EB1444580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW009	1/02/2017	Normal	EB1702117	-	0.14	0.08	0.6	0.04	1.58	-	<0.02	<0.1	0.11	0.16	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	**2.18**	2.8
SW009	8/04/2019	Normal	EB1909637	-	0.171	-	0.325	-	0.678	-	-	-	0.092	0.0442	0.134	0.0201	0.0402	-	-	-	-	-	-	<0.001	<0.001	0.002	<0.001	-	-	-	-	-	-	-	1	-
SW009	13/04/2021	Normal	EB2110967	-	0.05	0.04	0.27	<0.02	0.63	-	<0.02	<0.1	<0.02	0.04	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.9	1.13
SW009	16/04/2022	Field_D	EB2211261-AA	-	0.03	0.02	0.19	<0.02	0.56	-	<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	0.75	0.88
SW009	18/04/2022	Interlab_D	RN1350926	-	0.029	0.023	0.18	<0.01	0.52	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	-	-
SW009	18/04/2022	Normal	EB2211261-AA	-	0.03	<0.02	0.18	<0.02	0.59	-	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	0.77	0.85
SW008	27/08/2014	Normal	EB1441408	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW007	26/05/2014	Normal	EB1412900	-	-	-	-	-	0.1	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW006	27/05/2014	Normal	EB1412900	-	-	-	-	-	0.03	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW005	21/05/2014	Normal	EB1412441	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW005	1/02/2017	Normal	EB1702117	-	<0.02	<0.02	<0.02	<0.02	0.03	-	<0.02	<0.1	0.04	0.03	<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	0.03	0.14
SW004	27/05/2014	Normal	EB1412900	-	-	-	-	-	0.4	-	-	-	-	-	-	0.04	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW004	9/08/2015	Normal	EB1525621	-	-	-	-	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW004	1/02/2017	Normal	EB1702117	-	<0.02	<0.02	0.02	<0.02	0.02	-	<0.02	<0.1	0.03	0.02	<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	0.04	0.12
SW004	20/04/2018	Normal	EB1809892	-	<0.02	<0.02	<0.02	<0.02	0.01	-	<0.02	<0.1	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	0.01	0.08
SW004	8/04/2019	Normal	EB1909663	-	0.0161	-	0.0109	-	0.0132	-	-	-	<0.002	0.0222	0.0209	0.004	0.0123	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	0.0241	-
SW004	23/03/2020	Normal	EB2008693	-	<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	0.02	0.06
SW004	13/04/2021	Normal	EB2110967	-	<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
SW004	14/04/2022	Normal	EB2211261-AA	-	<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	<0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.02	<0.06	<0.06	<0.02	<0.06	<0.02	<0.02
SW003	21/05/2014	Normal	EB1412441	-	-	-	-	-	0.08	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW002	21/05/2014	Normal	EB1412441	-	-	-	-	-	0.14	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW001	23/05/2014	Field_D	EB1412619	-	-	-	-	-	0.16	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-
SW001	23/05/2014	Normal	EB1412619	-	-	-	-	-	0.12	-	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-

				PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
				Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	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
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR				0.005	0.0002	0.0002	0.0002	0.0002	0.0002	0.005	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0005	0.0002	0.0002
Location Code	**Date**	**Sample Type**	**Lab Report**																																
SS014	5/04/2017	Normal	EB1707213	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SS013	5/04/2017	Normal	EB1707213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0003	-
SS013	5/04/2017	Normal	EB1707213	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002
SS012	5/04/2017	Normal	EB1707213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0004	-
SS012	5/04/2017	Normal	EB1707213	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003
SS011	5/04/2017	Normal	EB1707213	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD128	2/02/2017	Normal	EB1702117	-	0.0012	0.0018	0.0276	0.0012	0.056	-	0.0029	<0.001	0.0013	0.0128	0.0024	0.0039	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0018	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0836	0.113
SD128	2/02/2017	Normal	EB1702117	-	<0.0002	0.0002	0.0055	0.0002	0.0657	-	<0.0002	<0.001	0.0003	0.003	0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0712	0.0755
SD128	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0014	<0.0002	0.0079	-	<0.0002	<0.001	<0.0002	0.0011	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0093	0.0104
SD127	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0004	<0.0002	0.0129	-	0.0003	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0133	0.0144
SD127	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0012	<0.0002	0.0051	-	0.0031	<0.001	<0.0002	0.0009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0063	0.0108
SD126	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0006	<0.0002	0.0192	-	0.001	<0.001	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0198	0.0222
SD126	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0009	<0.0002	0.01	-	0.0009	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0109	0.0126
SD125	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0036	0.0002	0.155	-	<0.0002	<0.001	0.0011	0.0012	0.0009	0.002	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.159	0.165
SD125	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0033	0.0003	0.108	-	0.0062	<0.001	0.0037	0.0049	0.003	0.0043	0.0077	0.0088	0.0018	0.0012	0.0003	<0.0005	<0.0005	<0.0005	0.0011	<0.0005	0.0011	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.111	0.156
SD124	2/02/2017	Normal	EB1705587	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0134	-
SD124	2/02/2017	Normal	EB1705587	-	<0.0002	<0.0002	0.0014	0.0011	0.012	-	0.0004	<0.001	<0.0002	0.0016	0.0014	0.0023	0.002	0.0019	0.0008	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.01	0.0252
SD124	2/02/2017	Normal	EB1705587	-	0.0004	0.0004	0.0073	<0.0002	0.0014	-	<0.0002	<0.001	0.0004	0.0016	0.0005	0.0006	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0087	0.0128
SD123	2/02/2017	Normal	EB1705587	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0226	-
SD123	2/02/2017	Normal	EB1705587	-	0.0005	0.0008	0.0199	0.0007	0.0027	-	<0.0002	<0.001	0.0004	0.0017	0.0012	0.0031	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.02	0.031
SD123	2/02/2017	Normal	EB1705587	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0149	-
SD123	2/02/2017	Normal	EB1705587	-	<0.0002	<0.0002	0.0009	<0.0002	0.014	-	<0.0002	<0.001	0.0005	0.0006	0.001	0.0018	0.0016	0.0007	0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.01	0.0213
SD122	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0011	<0.0002	0.0876	-	<0.0002	<0.001	<0.0002	0.0003	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0887	0.0893
SD122	2/02/2017	Normal	EB1702117	-	<0.0002	0.0002	0.0017	<0.0002	0.021	-	0.0009	<0.001	<0.0002	0.0005	<0.0002	0.0004	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0227	0.0249
SD121	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.024	-
SD121	28/01/2017	Normal	EB1701752	-	0.0003	0.0002	0.0038	0.0005	0.0202	-	0.0008	<0.001	0.0002	0.0002	<0.0002	0.0003	0.0004	0.0012	0.0006	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.02	0.0292
SD121	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.002	-
SD121	28/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0019	-	0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0019	0.0023
SD120	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0314	-
SD120	28/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0014	0.0003	0.03	-	<0.0002	<0.001	0.0002	0.0007	0.0005	0.0019	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.03	0.035
SD120	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0105	-
SD120	28/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0003	<0.0002	0.0102	-	<0.0002	<0.001	<0.0002	0.0003	0.0003	0.0017	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.01	0.013
SD119	15/01/2013	Normal		-	-	-	-	-	0.0092	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD119	15/01/2013	Normal		-	-	-	-	-	0.0067	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD118	15/01/2013	Normal		-	-	-	-	-	0.003	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD118	15/01/2013	Normal		-	-	-	-	-	0.0013	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD117	28/01/2017	Interlab_D	AECO06_170201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.654	-
SD117	28/01/2017	Interlab_D	AECO06_170201	-	0.0023	-	0.024	-	0.63	-	0.0091	<0.005	<0.002	0.0031	<0.002	0.15	<0.002	<0.002	<0.002	0.0035	<0.002	<0.002	-	<0.005	<0.005	-	0.02	-	-	-	-	-	-	0.65	-
SD117	28/01/2017	Normal	ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39	-
SD117	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1661	-
SD117	28/01/2017	Normal	EB1701752	-	0.001	0.0011	0.0161	0.0024	0.15	-	0.0016	<0.001	0.0007	0.002	0.0007	0.0015	<0.0002	0.0002	<0.0002	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.16	0.179
SD117	28/01/2017	Field_D	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.039	-
SD117	28/01/2017	Field_D	EB1701752	-	0.0003	0.0003	0.0034	0.0005	0.0356	-	0.0009	0.207	0.0013	0.0004	<0.0002	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.03	0.251
SD117	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0224	-
SD117	28/01/2017	Normal	EB1701752	-	0.0004	0.0004	0.0023	0.0003	0.0201	-	0.0006	<0.001	0.0004	0.0014	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.02	0.0265
SD116	15/01/2013	Normal		-	-	-	-	-	0.0118	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD116	15/01/2013	Normal		-	-	-	-	-	0.0032	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD115	28/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0008	<0.0002	0.006	-	0.0004	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0068	0.0075
SD115	28/01/2017	Interlab_D	AECO06_170201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0065	-
SD115	28/01/2017	Interlab_D	AECO06_170201	-	<0.002	-	<0.002	-	0.0055	-	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.005	<0.005	-	<0.002	-	-	-	-	-	-	0.0055	-
SD115	28/01/2017	Field_D	EB1701752	-	<0.0002	<0.0002	0.0004	<0.0002	0.0021	-	0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0025	0.0027
SD115	28/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0003	<0.0002	0.0019	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0022	0.0022
SD114	15/01/2013	Normal		-	-	-	-	-	0.0516	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD114	15/01/2013	Normal		-	-	-	-	-	0.0732	-	-	-	-	-	-	0.0012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD113	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0274	-
SD113	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.001	<0.0002	0.0264	-	0.0013	<0.001	0.0015	0.0014	0.0022	0.0022	0.0026	0.0009	0.0006	0.0002	<0.0002	<0.0005	<0.0005	0.0014	0.0033	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.02	0.045
SD113	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0116	-
SD113	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0004	<0.0002	0.0112	-	0.0004	<0.001	0.0008	0.0006	0.0008	0.0007	0.001	0.0003	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.01	0.0162
SD112	21/06/2012	Normal		-	-	-	-	-	0.0695	-	-	-	-	-	-	0.0077	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
SD111	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0353	-
SD111	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0324	-
SD111	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0021	0.0002	0.0332	-	0.0011	<0.001	0.0027	0.002	0.0022	0.0026	0.0015	0.001	0.0014	0.0008	0.0002	<0.0005	<0.0005	<0.0005	0.0044	0.0006	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.03	0.056
SD111	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0011	<0.0002	0.0313	-	0.0007	<0.001	0.0013	0.0008	0.0007	0.001	0.0008	0.0003	0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.03	0.0382
SD110	21/06/2012	Normal		-	-	-	-	-	0.0634	-	-	-	-	-	-	0.0006	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
SD109	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0696	-
SD109	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0032	0.0003	0.0664	-	0.0022	<0.001	0.0003	0.0007	0.0003	0.0012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.06	0.0746
SD109	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.027	-
SD109	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0016	<0.0002	0.0254	-	0.0024	<0.001	0.0006	0.0004	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.02	0.0312
SD108	21/06/2012	Normal		-	-	-	-	-	0.258	-	-	-	-	-	-	0.0063	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
SD107	8/04/2019	Normal	EB1909644	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0006
SD107	25/02/2020	Normal	EB2005415	-	<0.0002	<0.0002	0.0018	<0.0002	0.0068	-	<0.0002	<0.001	0.0004	0.0006	0.0006	0.0012	0.0013	0.0014	0.0018	0.0016	0.0004	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0086	0.0185
SD107	23/03/2021	Normal	EB2108522	-	<0.0002	<0.0002	0.0023	<0.0002	0.017	-	0.0007	0.001	0.0014	0.0014	0.0012	0.0017	0.0014	0.0014	0.0013	0.002	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0193	0.0335
SD107	18/03/2022	Normal	EB2208035	-	<0.0002	<0.0002	0.001	<0.0002	0.0213	-	0.0023	<0.001	<0.0002	<0.0002	<0.0002	0.0002	0.0008	0.0048	0.0081	0.0124	0.0037	0.0021	<0.0005	<0.0005	0.001	<0.0005	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0223	0.058
SD106	9/04/2019	Normal	EB1909663	-	<0.0002	<0.0002	0.0003	<0.0002	0.0038	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0041	0.0043
SD106	25/02/2020	Normal	EB2005415	-	0.0004	0.0005	0.006	0.0006	0.0371	-	<0.0002	<0.001	0.0003	0.0012	0.0003	0.0009	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0431	0.0475
SD106	23/03/2021	Normal	EB2108522	-	0.0004	0.0004	0.0046	0.0005	0.152	-	0.0034	<0.001	0.0009	0.0017	0.0003	0.001	0.0004	0.0006	0.0003	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.157	0.167
SD106	18/03/2022	Normal	EB2208035	-	<0.0004	<0.0004	0.0041	0.0009	0.102	-	0.0057	<0.001	0.0004	0.0005	<0.0006	0.0013	0.0024	0.015	0.0765	0.0887	0.0193	0.0081	<0.0005	<0.0005	0.0013	<0.0005	0.0013	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.106	0.328
SD105	8/04/2019	Normal	EB1909637	-	<0.0002	<0.0002	0.0002	<0.0002	0.0092	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0003	<0.0002	0.0007	<0.0002	0.0008	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0094	0.0109
SD105	23/03/2020	Normal	EB2008675	-	0.0002	<0.0002	0.0004	<0.0002	0.005	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	0.0008	<0.0002	0.0011	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0054	0.0078
SD105	13/04/2021	Normal	EB2110967	-	<0.0002	<0.0002	0.0008	<0.0002	0.0153	-	0.0004	<0.001	<0.0002	0.0004	0.0002	0.0016	0.0002	0.0009	<0.0002	0.0006	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0161	0.0204
SD105	15/04/2022	Normal	EB2211261-AA	-

				PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
				Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	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
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SD097	21/06/2012	Normal		-	-	-	-	-	0.0668	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
SD096	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.552	-
SD096	27/01/2017	Normal	EB1701752	-	0.0216	0.0248	0.382	0.0114	0.17	-	<0.0002	<0.001	0.006	0.0522	0.0049	0.019	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.55	0.692
SD096	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1657	-
SD096	27/01/2017	Normal	EB1701752	-	0.0021	0.0009	0.0117	0.0007	0.154	-	0.0021	<0.001	0.0036	0.0063	0.0005	0.0051	0.0003	0.0003	0.0004	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.16	0.188
SD095	21/06/2012	Normal		-	-	-	-	-	0.196	-	-	-	-	-	-	0.0012	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
SD094	27/01/2017	Normal	ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.31	-
SD094	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1211	-
SD094	27/01/2017	Normal	EB1701752	-	0.0194	0.0195	0.0859	0.0012	0.0352	-	<0.0002	<0.001	0.0018	0.0193	0.002	0.0032	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.12	0.188
SD094	27/01/2017	Normal	EB1701752	-	0.0005	<0.0002	0.0004	<0.0002	0.0004	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0008	0.0013
SD093	21/06/2012	Normal		-	-	-	-	-	0.0176	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
SD092	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD092	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0112	-
SD092	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0004	<0.0002	0.0108	-	0.0002	<0.001	<0.0002	0.0003	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.01	0.01
SD092	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0004	<0.0002	0.0078	-	0.0003	<0.001	<0.0002	0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0082	0.009
SD091	22/06/2012	Normal		-	-	-	-	-	0.247	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
SD090	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0807	-
SD090	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0022	0.0003	0.0785	-	0.0009	<0.001	0.0003	0.001	0.0002	0.0012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.08	0.0846
SD090	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0366	-
SD090	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0007	0.0002	0.0359	-	<0.0002	<0.001	<0.0002	0.0006	0.0002	0.0016	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.03	0.0392
SD089	25/06/2012	Normal		-	-	-	-	-	0.041	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
SD088	27/01/2017	Normal	ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.15	-
SD088	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1161	-
SD088	27/01/2017	Normal	EB1701752	-	0.0004	0.0007	0.0223	0.0011	0.0938	-	0.0221	<0.001	0.0023	0.0023	0.0013	0.0037	0.0006	0.0005	0.0005	0.0012	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0087	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.11	0.162
SD088	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1072	-
SD088	27/01/2017	Normal	EB1701752	-	0.0011	0.0014	0.0241	0.0016	0.0831	-	0.0221	<0.001	0.0017	0.0028	0.0008	0.0026	0.0006	0.0006	0.0016	0.0029	0.0005	<0.0005	<0.0005	<0.0005	0.0016	0.0005	0.0091	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.1	0.159
SD087	21/06/2012	Normal		-	-	-	-	-	0.121	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
SD086	27/01/2017	Normal	ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2413	-
SD086	27/01/2017	Normal	ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.24	-
SD086	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1506	-
SD086	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0006	<0.0002	0.15	-	0.0059	<0.001	0.0008	0.0019	0.0011	0.0013	0.0006	0.001	0.0004	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	0.0045	<0.0005	0.0013	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.15	0.17
SD086	27/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.014	-
SD086	27/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0016	0.0003	0.0124	-	0.0008	<0.001	0.0004	0.0005	0.0006	0.0008	0.0009	0.0013	0.0023	0.0027	0.0007	<0.0005	<0.0005	<0.0005	0.002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.01	0.0273
SD085	6/12/2010	Normal		-	-	-	-	-	0.012	-	-	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD084	7/12/2010	Normal		-	-	-	-	-	0.0096	-	-	-	-	-	-	0.0044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD083	9/02/2011	Normal		-	-	-	-	-	<0.0005	-	-	-	-	-	-	0.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD082	9/02/2011	Normal		-	-	-	-	-	<0.0005	-	-	-	-	-	-	0.023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD081	9/02/2011	Normal		-	-	-	-	-	<0.0005	-	-	-	-	-	-	0.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD080	9/02/2011	Normal		-	-	-	-	-	0.12	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
SD079	10/08/2015	Normal	EB1525621	-	-	-	-	-	0.0255	-	-	-	-	-	-	0.0027	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	-	0.0255	-
SD078	10/08/2015	Normal	EB1525621	-	0.0071	-	0.0548	-	0.169	-	<0.0002	-	-	0.0097	0.0039	0.0067	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	-	<0.005	<0.001	-	<0.0002	<0.001	-	<0.001	<0.001	-	<0.001	0.2238	-
SD077	10/08/2015	Normal	EB1525621	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	-	<0.0005	-
SD076	10/08/2015	Normal	EB1525621	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	-	<0.0005	-
SD075	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0012	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	-	0.0012	-
SD075	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0011	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	-	0.0011	-
SD075	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0003	<0.0002	0.0053	-	0.001	<0.001	<0.0002	0.0003	0.0003	0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0056	0.0076
SD074	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0057	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	0.002	-	-	-	-	-	-	-	-	-	0.0057	-
SD074	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0054	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	-	0.0054	-
SD073	3/02/2017	Normal	EB1702117	-	0.0004	0.0006	0.019	0.0009	0.236	-	<0.0002	<0.001	0.0009	0.0046	0.0008	0.0012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.255	0.265
SD073	3/02/2017	Normal	EB1702117	-	0.0006	0.0009	0.0212	0.0014	0.072	-	0.0127	<0.001	0.0017	0.0055	0.0017	0.0022	0.0005	0.0005	0.0004	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0034	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0932	0.125
SD072	3/02/2017	Normal	EB1702117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD072	3/02/2017	Normal	EB1702117	-	0.0009	0.0013	0.0322	0.003	0.116	-	0.0095	<0.001	0.0014	0.0071	0.0023	0.0048	0.0013	0.0007	0.0004	0.0006	0.0004	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.0053	<0.0005	0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.148	0.188
SD072	3/02/2017	Field_D	EB1702117	-	0.0011	0.0012	0.0123	0.0025	0.128	-	0.0028	<0.001	0.0011	0.0035	0.0008	0.0023	0.0009	0.0007	0.0003	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0013	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.14	0.159
SD072	3/02/2017	Normal	EB1702117	-	<0.0002	0.0003	0.0073	0.0002	0.0462	-	0.0005	<0.001	<0.0002	0.0015	0.0005	0.0009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0535	0.0574
SD072	3/02/2017	Interlab_D	AEC006_170207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0216	-
SD072	3/02/2017	Interlab_D	AEC006_170207	-	<0.002	-	0.0026	-	0.019	-	0.0028	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.005	<0.005	-	<0.002	-	-	-	-	-	-	0.02	-
SD071	3/02/2017	Normal	EB1702117	-	0.0497	0.0547	0.558	0.0635	1.38	-	<0.0002	<0.001	0.0218	0.13	0.0332	0.0698	0.0009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	1.94	2.36
SD071	3/02/2017	Normal	ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.91	-
SD071	3/02/2017	Normal	EB1702117	-	0.0026	0.0016	0.0176	0.0009	0.104	-	0.0017	<0.001	0.0026	0.0132	0.0016	0.0022	0.0006	0.0003	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.122	0.149
SD070	8/05/2017	Normal	EB1709218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0008	-
SD070	8/05/2017	Normal	EB1709218	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007
SD070	9/04/2019	Normal	EB1909663	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004
SD070	23/03/2020	Normal	EB2008675	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002
SD070	15/04/2021	Normal	EB2110967	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0002
SD070	16/04/2022	Normal	EB2211261-AA	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006
SD069	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0014	0.0002	0.0656	-	<0.0002	<0.001	0.0004	0.0028	0.0011	0.0045	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.067	0.0762
SD069	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0027	0.0009	0.0419	-	<0.0002	<0.001	0.0003	0.0012	0.0004	0.0013	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0446	0.0487
SD068	26/07/2017	Normal	EB1715565	-	<0.0002	<0.0002	0.0003	<0.0002	0.0068	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0071	0.0071
SD067	26/07/2017	Normal	EB1715565	-	<0.0002	<0.0002	0.0002	<0.0002	0.0057	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0059	0.0062
SD066	26/07/2017	Normal	EB1715565	-	<0.0002	<0.0002	0.0002	<0.0002	0.007	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0072	0.0076
SD066	26/07/2017	Field_D	EB1715565	-	<0.0002	<0.0002	0.0002	<0.0002	0.0067	-	<0.0002	0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0069	0.0081
SD065	13/04/2017	Normal	EB1708845	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0347	-
SD065	13/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	0.0007	<0.0002	0.034	-	0.0009	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.03	0.0356
SD064	13/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD063	13/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD062	13/04/2017	Normal	EB1708845	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0333	-
SD062	13/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	0.0008	<0.0002	0.0325	-	0.0023	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001	<0.0002	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.03	0.037
SD061	12/04/2017	Normal	EB1708845	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0015	-
SD061	12/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0014	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0014	0.0014
SD060	11/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD059	11/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD058	11/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD057	11/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD056	11/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD055	11/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD054	11/04/2017	Normal	EB1708845	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD053	11

				PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS	
				Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	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
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SD042	2/11/2015	Normal	EB1534033	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	<0.0005	-
SD042	1/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002
SD041	9/08/2015	Normal	EB1525621	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	<0.0005	-
SD040	9/08/2015	Normal	EB1525621	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	<0.0005	-
SD040	29/03/2017	Normal	EB1706401	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0005	-
SD040	29/03/2017	Normal	EB1706401	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004
SD040	9/04/2019	Normal	EB1909663	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD040	23/03/2020	Normal	EB2008675	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD040	23/03/2020	Field_D	EB2008675	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD040	23/03/2020	Interlab_D	RN1271386	-	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.005	<0.002	<0.002	<0.005	-	-
SD040	12/04/2021	Field_D	EB2110967	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD040	12/04/2021	Interlab_D	RN1312932	-	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.005	<0.002	<0.002	<0.005	-	-
SD040	12/04/2021	Normal	EB2110967	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	-	<0.0014	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004
SD040	18/03/2022	Normal	EB2208035	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002
SD039	2/02/2017	Normal	EB1702117	-	<0.0002	0.0003	0.003	0.0003	0.0887	-	<0.0002	<0.001	<0.0002	0.0007	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0917	0.0936
SD039	2/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0016	0.0002	0.0599	-	0.0013	<0.001	<0.0002	0.0008	0.0002	0.0008	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0615	0.0651
SD038	9/08/2015	Normal	EB1525621	-	-	-	-	-	0.0007	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	0.0007	-
SD038	1/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0012	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0012	0.0018
SD038	9/04/2019	Normal	EB1909663	-	<0.0002	<0.0002	0.0004	<0.0002	0.0017	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0021	0.0024
SD038	23/03/2020	Normal	EB2008675	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006
SD038	13/04/2021	Normal	EB2110967	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0016	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0016	0.0019
SD038	14/04/2022	Interlab_D	RN1350926	-	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.005	<0.002	<0.002	<0.005	<0.001	<0.001
SD038	14/04/2022	Field_D	EB2211261-AA	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0012	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0012	0.0012
SD038	14/04/2022	Normal	EB2211261-AA	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007
SD037	9/08/2015	Normal	EB1525621	-	-	-	-	-	0.0032	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	0.0032	-
SD037	1/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0013	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0013	0.0013
SD037	8/04/2019	Normal	EB1909636	-	<0.0002	<0.0002	0.0003	<0.0002	0.0073	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0076	0.0081
SD037	13/04/2021	Normal	EB2110967	-	<0.0002	<0.0002	0.001	<0.0002	0.0078	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0088	0.0094
SD037	16/04/2022	Normal	EB2211261-AA	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0014	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0014	0.0014
SD036	9/08/2015	Normal	EB1525621	-	-	-	-	-	0.0006	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	0.0006	-
SD036	1/02/2017	Normal	EB1702117	-	<0.0002	<0.0002	0.0006	<0.0002	0.0114	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	0.0013	0.0003	0.0032	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.012	0.0168
SD036	1/02/2017	Field_D	EB1702117	-	<0.0002	<0.0002	0.0005	<0.0002	0.0079	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	0.001	<0.0002	0.0022	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0084	0.0116
SD036	1/02/2017	Interlab_D	AECO06_170207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.006	-
SD036	1/02/2017	Interlab_D	AECO06_170207	-	<0.002	-	<0.002	-	0.005	-	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.005	<0.005	-	<0.002	-	-	-	-	-	-	-	0.005	-
SD036	8/04/2019	Normal	EB1909636	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0013	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0013	0.0013
SD036	23/03/2020	Normal	EB2008675	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0032	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	0.001	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0032	0.0048
SD036	13/04/2021	Normal	EB2110967	-	<0.0002	<0.0002	0.0006	<0.0002	0.0114	-	0.0008	<0.001	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0012	0.0004	0.0021	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.012	0.0169
SD036	15/04/2022	Normal	EB2211261-AA	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002
SD035	9/08/2015	Normal	EB1525621	-	<0.0002	-	0.006	-	0.0094	-	<0.0002	-	-	<0.0002	0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	-	<0.05	<0.01	-	0.0006	<0.001	-	<0.01	<0.01	-	<0.01	0.0154	-
SD035	9/08/2015	Field_D	EB1525621	-	<0.0002	-	0.0005	-	0.0091	-	<0.0002	-	-	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	-	<0.05	<0.01	-	0.0003	<0.001	-	<0.01	<0.01	-	<0.01	0.0096	-
SD035	9/08/2015	Interlab_D	468674	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0095	-
SD035	9/08/2015	Interlab_D	468674	-	<0.005	-	<0.005	-	0.007	-	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	-	0.007	-
SD035	29/03/2017	Normal	EB1706401	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0158	-
SD035	29/03/2017	Normal	EB1706401	-	<0.0002	<0.0002	0.0005	<0.0002	0.0153	-	0.0121	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	0.0003	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.01	0.0291
SD034	2/02/2017	Normal	EB1702117	-	0.0137	0.0328	0.0969	0.0016	0.045	-	<0.0002	<0.001	0.001	0.0251	0.0052	0.0075	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.142	0.229
SD034	2/02/2017	Normal	EB1702117	-	0.0006	0.0005	0.0044	0.0006	0.0618	-	0.0003	<0.001	0.0006	0.0015	0.0002	0.0012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0662	0.0717
SD033	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0633	-
SD033	28/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0015	0.0002	0.0618	-	0.0035	<0.001	0.0023	0.0024	0.0029	0.0053	0.0083	0.0051	0.0016	0.0007	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	0.0018	<0.0005	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.06	0.0976
SD033	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0219	-
SD033	28/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0013	<0.0002	0.0206	-	<0.0002	<0.001	0.0022	0.0022	0.002	0.0029	0.0024	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.02	0.0336
SD032	11/08/2015	Normal	EB1525621	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	<0.0005	-
SD032	2/02/2017	Normal	EB1705587	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD032	9/04/2019	Normal	EB1909635	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD032	24/03/2020	Normal	EB2008677	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD032	15/04/2021	Normal	EB2110947	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD032	13/04/2022	Normal	EB2211310	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002
SD031	11/08/2015	Normal	EB1525621	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	<0.0005	-
SD030	9/08/2015	Normal	EB1525621	-	-	-	-	-	0.0016	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	0.0016	-
SD029	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0745	-
SD029	28/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0022	0.0003	0.0723	-	0.0057	<0.001	0.0019	0.0019	0.0027	0.0068	0.0126	0.0191	0.0053	0.0037	0.0005	<0.0005	<0.0005	0.0025	0.0046	<0.0005	0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.07	0.143
SD029	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0386	-
SD029	28/01/2017	Normal	EB1701752	-	<0.0002	<0.0002	0.0012	<0.0002	0.0374	-	0.0029	0.003	0.0008	0.001	0.001	0.003	0.0061	0.0048	0.0014	0.0008	<0.0002	<0.0005	<0.0005	0.0171	0.0006	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.03	0.0811
SD028	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8314	-
SD028	28/01/2017	Normal	EB1701752	-	0.0026	0.0014	0.0464	0.0017	0.785	-	0.0023	<0.001	0.0044	0.0094	0.0021	0.0064	0.0005	0.0003	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.83	0.862
SD028	28/01/2017	Normal	ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.48	-
SD028	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4351	-
SD028	28/01/2017	Normal	EB1701752	-	0.0025	0.002	0.0531	0.0021	0.382	-	0.0185	<0.001	0.0041	0.0064	0.0021	0.0063	0.0013	0.0014	0.0016	0.0015	0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0022	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.43	0.487
SD027	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.773	-
SD027	28/01/2017	Normal	EB1701752	-	0.0133	0.0105	0.153	0.0079	1.62	-	0.0004	<0.001	0.0126	0.0865	0.0034	0.01	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	1.77	1.92
SD027	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2688	-
SD027	28/01/2017	Normal	EB1701752	-	0.0017	0.001	0.0108	0.0017	0.258	-	0.0071	<0.001	0.0027	0.005	0.0006	0.0024	<0.0002	0.0003	0.0006	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.26	0.292
SD026	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1624	-
SD026	28/01/2017	Normal	EB1701752	-	0.0006	0.0008	0.0104	0.0018	0.152	-	0.0069	<0.001	<0.0002	0.0007	0.0003	0.0012	<0.0002	0.0002	0.0002	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.16	0.176
SD026	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0622	-
SD026	28/01/2017	Normal	EB1701752	-	0.0002	0.0003	0.0035	0.0005	0.0587	-	0.0053	<0.001	0.0003	0.0007	0.0002	0.0011	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0021	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.06	0.0731
SD025	12/08/2015	Normal	EB1525621	-	-	-	-	-	3.68	-	-	-	-	-	-	1.05	-	-	-	-	-	-	-	2.78	49.2	-	-	-	-	-	-	-	-	3.68	-

				PFAS - Perfluoroalkyl Sulfonic Acids								PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluorooctyl Sulfonamides							PFAS	
				Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	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
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SD024	18/03/2022	Field_D	EB2208035	-	<0.0004	<0.0002	0.0022	<0.0004	0.0405	-	0.0016	<0.001	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0004	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0427	0.0453
SD024	18/03/2022	Normal	EB2208035	-	<0.0004	<0.0002	0.0025	0.0004	0.0349	-	0.0015	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0004	0.0003	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0374	0.0407
SD023	12/08/2015	Normal	EB1525621	-	-	-	-	-	0.0322	-	-	-	-	-	-	0.0011	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0322	-
SD022	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0742	-	-	-	-	-	-	0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0742	-
SD022	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0344	-	-	-	-	-	-	0.0014	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0344	-
SD022	9/04/2019	Normal	EB1909663	-	<0.0002	<0.0002	0.0005	<0.0002	0.0038	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0043	0.0043
SD022	25/02/2020	Normal	EB2005415	-	<0.0002	<0.0002	0.001	<0.0002	0.0074	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0084	0.0084
SD022	23/03/2021	Normal	EB2108522	-	<0.0002	<0.0002	0.0011	<0.0002	0.0172	-	0.0009	<0.001	0.0003	0.0004	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0183	0.0202
SD022	18/03/2022	Normal	EB2208035	-	<0.0002	<0.0002	0.0009	<0.0002	0.016	-	<0.0004	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0169	0.0169
SD021	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.009	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.009	-
SD021	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0077	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0077	-
SD020	8/04/2015	Normal	ES1508218	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	<0.0005	<0.0005	-
SD020	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0006	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0006	-
SD019	8/04/2015	Normal	ES1508218	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	<0.0005	<0.0005	-
SD019	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0028	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0028	-
SD018	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.43	-
SD018	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4299	-
SD018	28/01/2017	Normal	EB1701752	-	0.0026	0.0023	0.0199	0.0028	0.41	-	0.001	<0.001	0.0038	0.0081	0.0016	0.007	0.0008	0.0003	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.42	0.461
SD018	28/01/2017	Normal	ES1709078	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.29	-
SD018	28/01/2017	Normal	EB1701752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0773	-
SD018	28/01/2017	Normal	EB1701752	-	0.0006	0.0006	0.007	0.0005	0.0703	-	0.0117	<0.001	0.0008	0.0013	0.0005	0.0021	0.0006	0.0006	0.0007	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.07	0.0979
SD018	24/03/2020	Normal	EB2008677	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0036	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0036	0.0036
SD018	15/04/2021	Normal	EB2110947	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002
SD018	15/04/2022	Normal	EB2211310	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0051	-	<0.0005	<0.001	<0.0002	<0.0002	<0.0002	0.0002	0.0003	0.0004	0.0004	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0051	0.0064
SD018	15/04/2022	Normal	EB2211310	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007
SD017	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.04	-	-	-	-	-	-	0.0023	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.04	-
SD017	9/04/2019	Normal	EB1909635	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0461	-	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0044	0.0211	0.0126	0.0078	<0.0005	<0.0013	<0.0005	<0.0005	0.0044	<0.0005	<0.0005	<0.0013	<0.0005	<0.0013	<0.0013	<0.0005	<0.0013	0.0461	0.0964
SD017	24/03/2020	Normal	EB2008677	-	<0.0010	<0.0010	<0.0010	<0.0010	0.0116	-	<0.0010	0.006	0.0035	0.0014	<0.0010	<0.0010	0.0013	0.0046	0.006	0.0049	0.0011	<0.0025	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0025	<0.0010	<0.0025	<0.0025	<0.0010	<0.0025	0.0116	0.0416
SD017	15/04/2021	Normal	EB2110947	-	<0.0002	<0.0002	0.0002	<0.0002	0.0164	-	0.0033	<0.001	0.0004	<0.0002	<0.0002	<0.0002	0.0006	0.0022	0.0018	0.0015	0.0003	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0166	0.0276
SD017	13/04/2022	Normal	EB2211310	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0082	-	0.0009	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	0.0012	0.0013	0.001	0.0002	<0.0005	<0.0005	<0.0005	<0.0006	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0082	0.0132
SD016	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0497	-	-	-	-	-	-	0.0089	-	-	-	-	-	-	-	0.006	0.021	-	-	-	-	-	-	-	-	0.0497	-
SD016	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0126	-	-	-	-	-	-	0.0057	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0126	-
SD016	8/04/2019	Normal	EB1909644	-	<0.0002	<0.0002	0.0008	<0.0002	0.0046	-	<0.0002	<0.001	0.0002	0.0004	0.0003	0.0006	0.0009	0.0011	0.0006	0.0006	<0.0002	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0054	0.0108
SD016	25/02/2020	Normal	EB2005415	-	<0.0010	<0.0010	0.0014	<0.0010	0.0117	-	<0.0010	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.002	<0.0010	<0.0025	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0025	<0.0010	<0.0025	<0.0025	<0.0010	<0.0025	0.0131	0.0151
SD016	23/03/2021	Normal	EB2108522	-	0.0004	0.0002	0.0035	0.0002	0.0181	-	0.0005	0.001	0.0016	0.0019	0.0009	0.0011	0.0011	0.0007	0.0007	0.0009	0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0216	0.0331
SD016	18/03/2022	Normal	EB2208035	-	<0.0002	<0.0002	0.0011	<0.0004	0.0303	-	<0.0002	<0.001	<0.0002	0.0003	<0.0002	0.0006	0.0008	0.0007	0.0003	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0314	0.0344
SD015	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0519	-	-	-	-	-	-	0.0018	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0519	-
SD015	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0317	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0317	-
SD015	8/04/2019	Normal	EB1909636	-	0.0002	<0.0002	0.0017	<0.0002	0.0205	-	0.0008	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0222	0.024
SD015	8/04/2019	Field_D	EB1909638	-	<0.0002	<0.0002	0.0008	<0.0002	0.0108	-	0.0006	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0116	0.0122
SD015	25/02/2020	Normal	EB2005415	-	<0.0002	<0.0002	0.0011	<0.0002	0.0126	-	0.0008	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0137	0.0145
SD015	23/03/2021	Normal	EB2108522	-	<0.0002	<0.0002	0.0006	<0.0002	0.0209	-	0.0016	<0.001	0.0004	0.0007	0.0003	0.0005	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0215	0.0252
SD015	18/03/2022	Normal	EB2208035	-	<0.0002	<0.0002	0.0006	<0.0002	0.0171	-	0.0013	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0177	0.019
SD014	7/04/2015	Interlab_D	453644	-	-	-	-	-	<0.005	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	<0.01	<0.005	-	-	-	-	-	-	-	-	<0.005	-
SD014	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0019	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0019	-
SD014	7/04/2015	Field_D	ES1508218	-	-	-	-	-	0.0015	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0015	-
SD014	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0012	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0012	-
SD013	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0437	-	-	-	-	-	-	0.0021	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0437	-
SD013	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0057	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0057	-
SD013	8/04/2019	Normal	EB1909637	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0011	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0011	0.0011
SD013	23/03/2020	Interlab_D	RN1271386	-	<0.001	<0.001	0.0054	<0.001	0.049	<0.001	0.0035	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.005	-	-
SD013	23/03/2020	Field_D	EB2008675	-	0.0005	0.0003	0.0038	0.0007	0.0431	-	0.0003	<0.001	<0.0002	0.0004	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0469	0.05
SD013	23/03/2020	Normal	EB2008675	-	0.0003	<0.0002	0.0023	0.0003	0.0198	-	0.0008	<0.001	<0.0002	0.0003	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0221	0.025
SD013	13/04/2021	Normal	EB2110967	-	0.0007	0.0007	0.0035	<0.0005	0.0559	-	0.0032	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005	0.0017	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0594	0.0664
SD013	18/04/2022	Interlab_D	RN1350926	-	<0.001	<0.001	<0.001	<0.001	0.0064	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.005	<0.002	<0.002	-	-
SD013	18/04/2022	Normal	EB2211261-AA	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0028	-	0.0004	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0028	0.0032
SD013	18/04/2022	Field_D	EB2211261-AA	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0026	-	<0.0004	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0026	0.0028
SD012	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.144	-	-	-	-	-	-	0.0012	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.144	-
SD012	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0558	-	-	-	-	-	-	0.0007	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0558	-
SD011	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.461	-	-	-	-	-	-	0.0051	-	-	-	-	-	-	-	<0.005	0.001	-	-	-	-	-	-	-	-	0.461	-
SD011	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.0266	-	-	-	-	-	-	0.0014	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0266	-
SD011	8/04/2019	Normal	EB1909636	-	<0.0002	<0.0002	0.0009	<0.0002	0.0171	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.018	0.018
SD011	8/04/2019	Field_D	EB1909638	-	<0.0002	<0.0002	0.0012	<0.0002	0.0156	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0168	0.0168
SD011	25/02/2020	Normal	EB2005415	-	<0.0002	<0.0002	0.002	<0.0002	0.0172	-	<0.0002	<0.001	<0.0002	0.0006	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0192	0.0201
SD011	23/03/2021	Normal	EB2108522	-	<0.0002	<0.0002	0.0023	0.0004	0.0371	-	0.0006	<0.001	0.0002	0.0005	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0394	0.0416
SD011	18/03/2022	Normal	EB2208035	-	<0.0002	<0.0002	0.0022	0.0003	0.0456	-	0.0016	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0478	0.0499
SD010	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.492	-	-	-	-	-	-	0.0079	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.492	-
SD010	7/04/2015	Normal	ES1508218	-	-	-	-	-	0.046	-	-	-	-	-	-	0.0031	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.046	-
SD010	8/04/2019	Normal	EB1909644	-	0.0003	<0.0002	0.0023	<0.0002	0.043	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0453	0.0456
SD010	25/02/2020	Normal	EB2005415	-	0.0002	0.0003	0.0038	0.0004	0.0229	-	<0.0002	<0.001	<0.0002	0.0007	0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0267	0.0289
SD010	23/03/2021	Normal	EB2108522	-	0.0008	0.0008	0.0095	0.001	0.0997	-	<0.0002	<0.001	0.0011	0.003	0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.109	0.116
SD010	18/03/2022	Normal	EB2208035	-	<0.0002	<0.0002	0.0005	<0.0002	0.0093	-	0.0005	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0098	0.0103
SD009	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0428	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0428	-
SD009	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0417	-	-	-	-	-	-	0.0007	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0417	-
SD008	8/04/2015	Interlab_D	453644	-	-	-	-	-	0.13	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	<0.01	<0.005	-	-	-	-	-	-	-	-	0.13	-
SD008	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0913	-	-	-	-	-	-	0.0007	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0913	-
SD008	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0642	-	-	-	-	-	-	0.0008	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0642	-
SD008	8/04/2015	Field_D	ES1508218	-	-	-	-	-	0.0402	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0402	-
SD008	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0397	-	-	-	-	-	-	0.0007	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0397	-
SD007	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0019	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0019	-
SD007	8/04/2015	Normal	ES1508218	-	-	-	-	-	0.0007	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	0.0007	-
SD007	2/11/2015	Interlab_D	478994	-	-	-	-	-	<0.005	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	<0.01	<0.005	-	-	-	-	-	-	-	-	<0.005	-
SD007	2/11/2015	Normal	EB1534033	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	<0.0005	-
SD007	2/11/2015	Field_D	EB1534033	-	-	-	-	-	<0.0005	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.005	<0.001	-	-	-	-	-	-	-	-	<0.0005	-
SD007	1/02/2017	Normal	EB1702117

Appendix C

Statistical Analysis

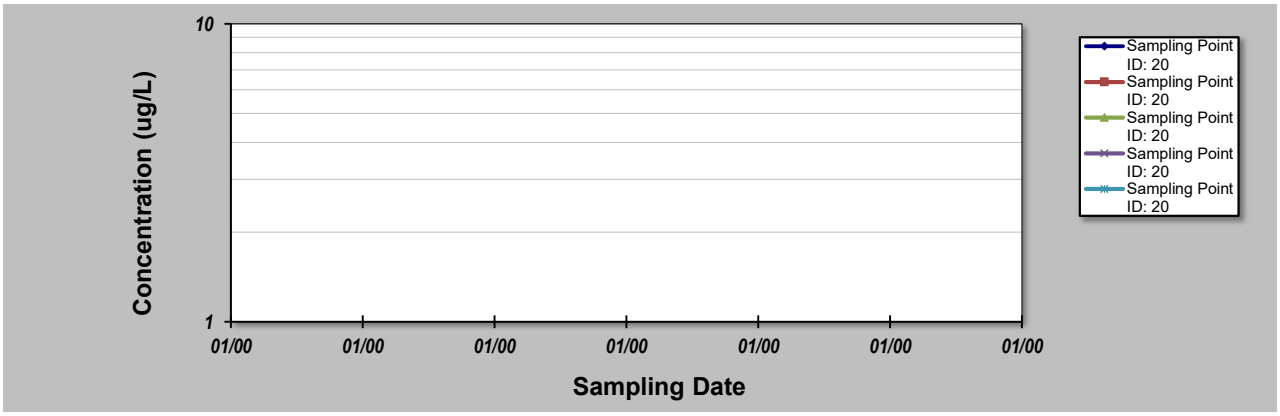
Appendix C Statistical Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	17-May-22	Job ID:	60612562
Facility Name:	RAAF Base Richmond	Constituent:	Sum of PFHxS and PFOS
Conducted By:	BM	Concentration Units:	ug/L

Sampling Point ID:							

Sampling Event	Sampling Date	SUM OF PFHXS AND PFOS CONCENTRATION (ug/L)						
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:								
Mann-Kendall Statistic (S):								
Confidence Factor:								
Concentration Trend:								



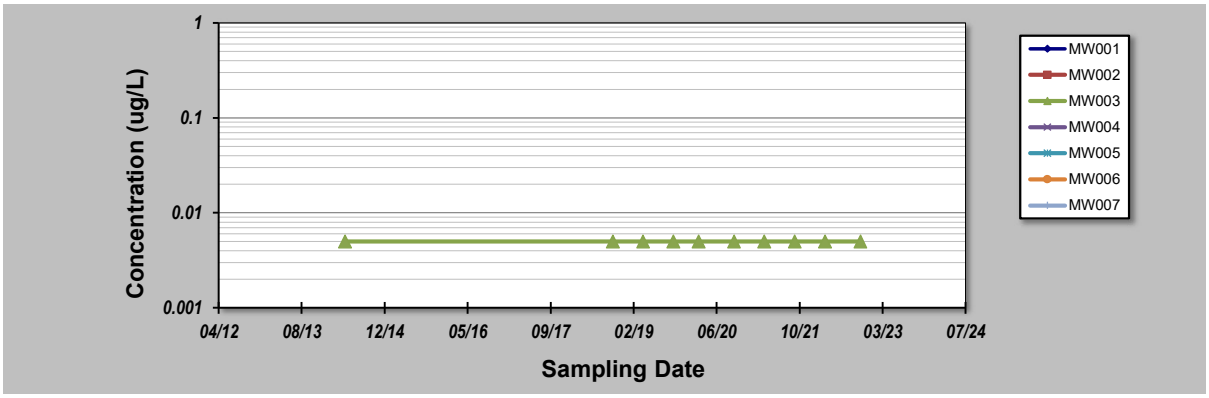
Notes:

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.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW001	MW002	MW003	MW004	MW005	MW006	MW007
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Jan-2014							
2	May-2014			0.005				
3	Oct-2015							
4	Nov-2015							
5	Feb-2016							
6	Mar-2016							
7	Apr-2016							
8	May-2016							
9	Sep-2016							
10	Oct-2016							
11	Jan-2017							
12	Mar-2017							
13	Apr-2017							
14	Oct-2018			0.005				
15	Nov-2018							
16	Apr-2019			0.005				
17	May-2019							
18	Jul-2019							
19	Oct-2019			0.005				
20	Nov-2019							
21	Jan-2020							
22	Mar-2020			0.005				
23	Apr-2020							
24	May-2020							
25	Oct-2020			0.005				
26	Apr-2021			0.005				
27	Oct-2021			0.005				
28	Apr-2022			0.005				
29	Oct-2022							
30	Nov-2022			0.005				
31								
32								
33								
34								
35								
Coefficient of Variation:				0.00				
Mann-Kendall Statistic (S):				0				
Confidence Factor:				45.6%				
Concentration Trend:				Stable				



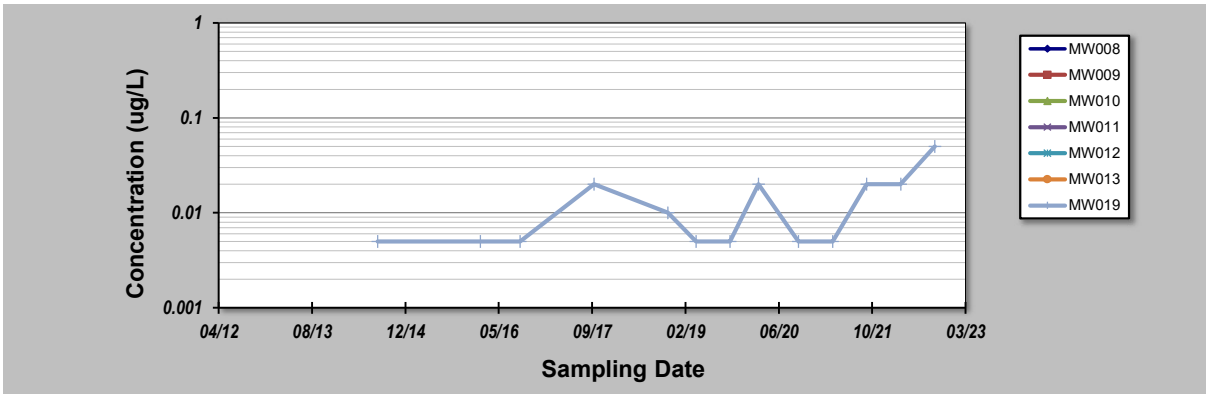
Notes:

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.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW008	MW009	MW010	MW011	MW012	MW013	MW019
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Jan-2014							
2	May-2014							
3	Jun-2014							
4	Aug-2014							0.005
5	Oct-2014							
6	Feb-2015							
7	Oct-2015							
8	Nov-2015							
9	Feb-2016							0.005
10	Mar-2016							
11	Apr-2016							
12	May-2016							
13	Sep-2016							0.005
14	Oct-2016							
15	Jan-2017							
16	Mar-2017							
17	Apr-2017							
18	May-2017							
19	Oct-2017							0.020
20	Nov-2018							0.010
21	Apr-2019							0.005
22	May-2019							
23	Jul-2019							
24	Oct-2019							0.005
25	Nov-2019							
26	Jan-2020							
27	Mar-2020							0.020
28	Apr-2020							
29	May-2020							
30	Oct-2020							0.005
31	Apr-2021							0.005
32	Oct-2021							0.020
33	Apr-2022							0.020
34	Oct-2022							0.050
35								
Coefficient of Variation:								0.69
Mann-Kendall Statistic (S):								17
Confidence Factor:								86.0%
Concentration Trend:								No Trend



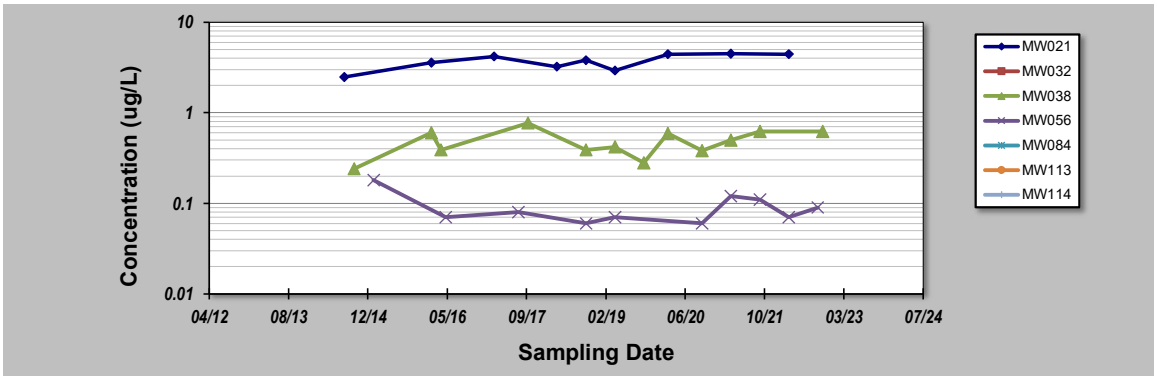
Notes:

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.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW021	MW032	MW038	MW056	MW084	MW113	MW114
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Jan-2014							
2	May-2014							
3	Jun-2014							
4	Aug-2014	2.470						
5	Oct-2014			0.240				
6	Feb-2015				0.180			
7	Oct-2015							
8	Nov-2015							
9	Feb-2016	3.560		0.600				
10	Mar-2016							
11	Apr-2016			0.390				
12	May-2016				0.070			
13	Sep-2016							
14	Oct-2016							
15	Jan-2017							
16	Mar-2017	4.190						
17	Apr-2017							
18	Aug-2017				0.080			
19	Sep-2017							
20	Oct-2017			0.770				
21	Apr-2018	3.220						
22	Oct-2018	3.800		0.390	0.060			
23	Nov-2018							
24	Apr-2019	2.910		0.420	0.070			
25	May-2019							
26	Jul-2019							
27	Oct-2019			0.280				
28	Nov-2019							
29	Jan-2020							
30	Mar-2020	4.440		0.590				
31	Apr-2020							
32	May-2020							
33	Oct-2020			0.380	0.060			
34	Apr-2021	4.480		0.500	0.120			
35	Oct-2021			0.620	0.110			
36	Apr-2022	4.420			0.070			
37	Oct-2022				0.090			
38	Nov-2022			0.620				
39								
40								
Coefficient of Variation:		0.20		0.38	0.53			
Mann-Kendall Statistic (S):		7		-1	-9			
Confidence Factor:		80.9%		50.0%	93.2%			
Concentration Trend:		No Trend		Stable	Prob. Decreasing			



Notes:

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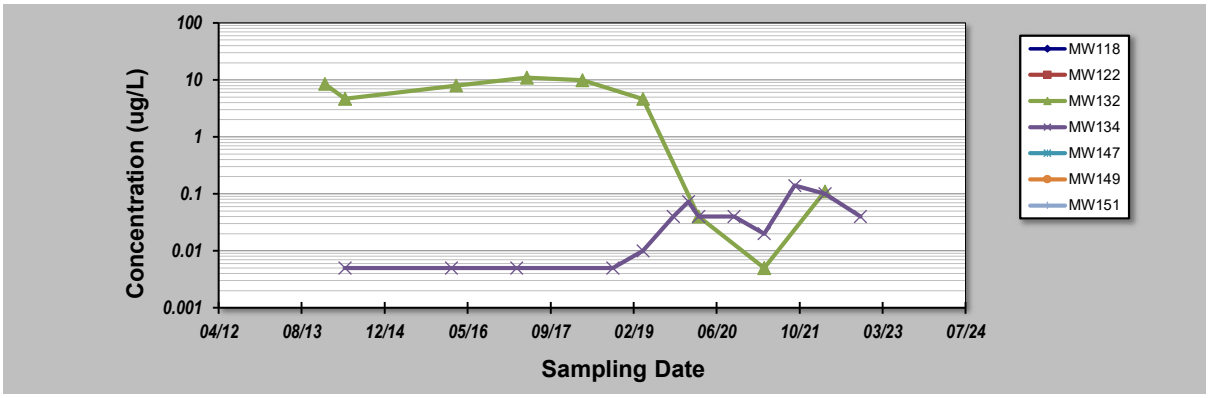
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW118	MW122	MW132	MW134	MW147	MW149	MW151
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Jan-2014			8.470				
2	May-2014			4.650	0.005			
3	Jun-2014							
4	Feb-2016				0.005			
5	Mar-2016			8.000				
6	Apr-2016							
7	May-2016							
8	Mar-2017				0.005			
9	Apr-2017							
10	May-2017			11.000				
11	Jun-2017							
12	Jul-2017							
13	Apr-2018			9.820				
14	Oct-2018				0.005			
15	Nov-2018							
16	Apr-2019			4.610	0.010			
17	May-2019							
18	Jul-2019							
19	Oct-2019				0.040			
20	Nov-2019							
21	Jan-2020				0.073			
22	Mar-2020			0.040	0.040			
23	Apr-2020							
24	May-2020							
25	Oct-2020				0.040			
26	Apr-2021			0.005	0.020			
27	Oct-2021				0.140			
28	Apr-2022			0.110	0.100			
29	Oct-2022							
30	Nov-2022				0.040			
31								
32								
33								
34								
35								
Coefficient of Variation:				0.84	1.04			
Mann-Kendall Statistic (S):				-18	46			
Confidence Factor:				96.2%	99.8%			
Concentration Trend:				Decreasing	Increasing			



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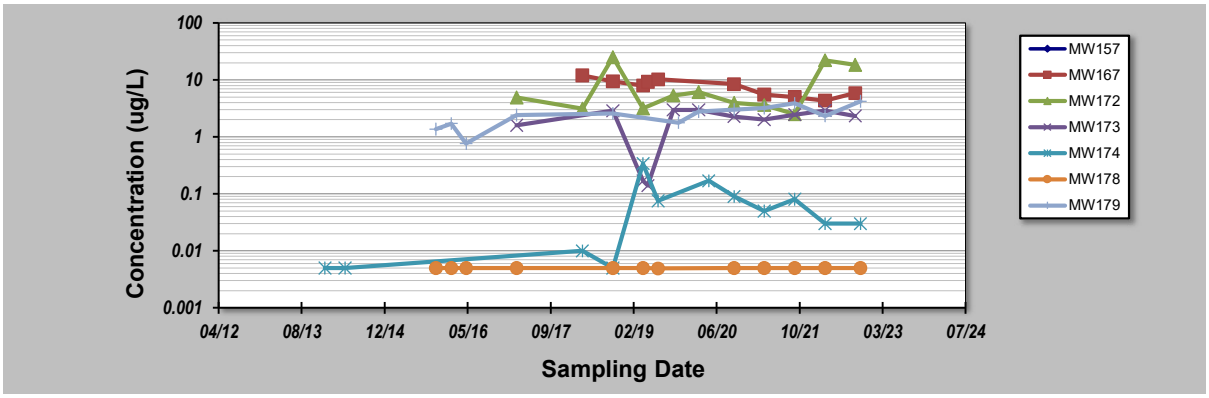
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW157	MW167	MW172	MW173	MW174	MW178	MW179
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Jan-2014					0.005		
2	May-2014					0.005		
3	Nov-2015						0.005	1.360
4	Feb-2016						0.005	1.720
5	Mar-2016							
6	Apr-2016							
7	May-2016						0.005	0.760
8	Sep-2016							
9	Oct-2016							
10	Jan-2017							
11	Mar-2017			4.920	1.590		0.005	2.420
12	Apr-2017							
13	Apr-2018		12.000	3.150		0.010		
14	Oct-2018		9.400	25.000	2.890	0.005	0.005	2.600
15	Nov-2018							
16	Apr-2019		7.970	3.160	0.170	0.340	0.005	
17	May-2019		9.300		0.140			
18	Jul-2019		10.200			0.076	0.005	
19	Oct-2019			5.340	2.980			
20	Nov-2019							1.780
21	Jan-2020							
22	Mar-2020			6.120	2.970			2.790
23	Apr-2020							
24	May-2020					0.170		
25	Oct-2020		8.450	3.960	2.270	0.090	0.005	3.010
26	Apr-2021		5.500	3.630	2.010	0.050	0.005	3.210
27	Oct-2021		5.010	2.500	2.460	0.080	0.005	3.890
28	Apr-2022		4.340	22.100	2.900	0.030	0.005	2.330
29	Oct-2022		5.850	18.400	2.340			
30	Nov-2022					0.030	0.005	4.190
31								
32								
33								
34								
35								
Coefficient of Variation:			0.32	0.95	0.50	1.30	0.01	0.40
Mann-Kendall Statistic (S):			-29	5	9	14	-1	46
Confidence Factor:			99.5%	61.9%	72.9%	81.0%	50.0%	100.0%
Concentration Trend:			Decreasing	No Trend	No Trend	No Trend	Stable	Increasing



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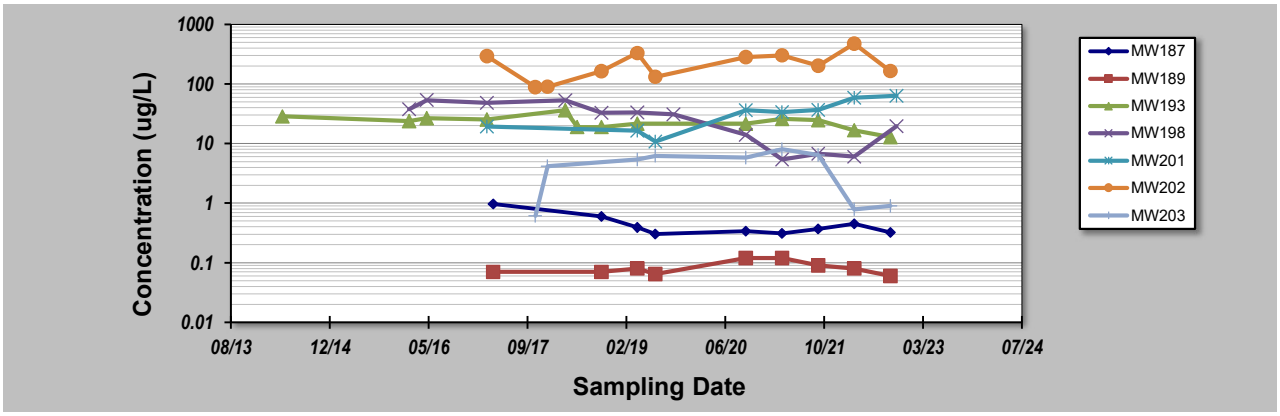
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW187	MW189	MW193	MW198	MW201	MW202	MW203
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	May-2014			28.600				
2	Feb-2016			23.800	37.700			
3	May-2016			26.500	53.500			
4	Mar-2017			25.400	48.300	19.300	294.000	
5	Apr-2017	0.970	0.070					
6	Nov-2017						88.100	0.610
7	Dec-2017							
8	Jan-2018						89.600	4.160
9	Apr-2018			36.300	53.000			
10	May-2018							
11	Jun-2018			19.000				
12	Jul-2018							
13	Sep-2018							
14	Oct-2018	0.600	0.070	19.000	33.000		164.000	
15	Nov-2018							
16	Apr-2019	0.390	0.080	21.600	33.200	16.500	331.000	5.420
17	May-2019							
18	Jul-2019	0.302	0.065			10.800	132.000	6.220
19	Oct-2019				30.900			
20	Oct-2020	0.340	0.120	21.500	14.000	36.200	282.000	5.810
21	Apr-2021	0.310	0.120	25.900	5.400	33.700	301.000	8.040
22	Oct-2021	0.370	0.090	24.700	6.730	36.500	202.000	6.460
23	Apr-2022	0.450	0.080	16.700	5.990	58.500	475.000	0.790
24	Oct-2022	0.320	0.060	12.800			165.000	0.900
25	Nov-2022				19.600	63.000		
26								
27								
28								
29								
30								
Coefficient of Variation:		0.48	0.27	0.25	0.63	0.55	0.52	0.66
Mann-Kendall Statistic (S):		-12	1	-35	-44	20	17	8
Confidence Factor:		87.0%	50.0%	98.2%	99.9%	99.3%	89.1%	76.2%
Concentration Trend:		Stable	No Trend	Decreasing	Decreasing	Increasing	No Trend	No Trend



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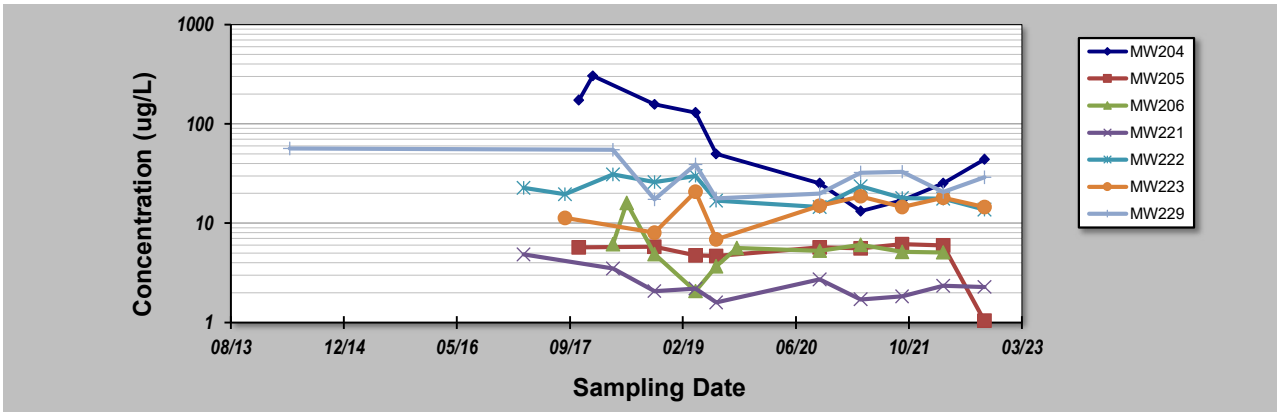
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW204	MW205	MW206	MW221	MW222	MW223	MW229
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	May-2014							56.600
2	Mar-2017				4.860	22.700		
3	Sep-2017					19.500	11.300	
4	Nov-2017	174.000	5.710					
5	Dec-2017							
6	Jan-2018	304.000						
7	Apr-2018			6.140	3.510	30.900		54.800
8	May-2018							
9	Jun-2018			16.000				
10	Oct-2018	157.000	5.770	4.880	2.070	26.000	8.020	17.400
11	Nov-2018							
12	Apr-2019	130.000	4.740	2.070	2.200	30.000	20.700	38.900
13	May-2019							
14	Jul-2019	49.900	4.660	3.700	1.600	16.800	6.860	17.800
15	Oct-2019			5.630				
16	Oct-2020	25.300	5.720	5.270	2.730	14.600	15.000	19.900
17	Apr-2021	13.200	5.580	6.070	1.710	23.600	18.600	32.300
18	Oct-2021	17.000	6.170	5.130	1.830	17.900	14.600	32.900
19	Apr-2022	25.200	5.960	5.080	2.340	17.700	18.000	20.600
20	Oct-2022	43.900	1.040		2.280	13.700	14.600	29.000
21								
22								
23								
24								
25								
Coefficient of Variation:		1.02	0.31	0.62	0.40	0.28	0.33	0.45
Mann-Kendall Statistic (S):		-29	0	-7	-11	-25	5	-9
Confidence Factor:		99.5%	46.0%	70.0%	81.0%	97.0%	65.7%	75.8%
Concentration Trend:		Decreasing	Stable	Stable	Stable	Decreasing	No Trend	Stable



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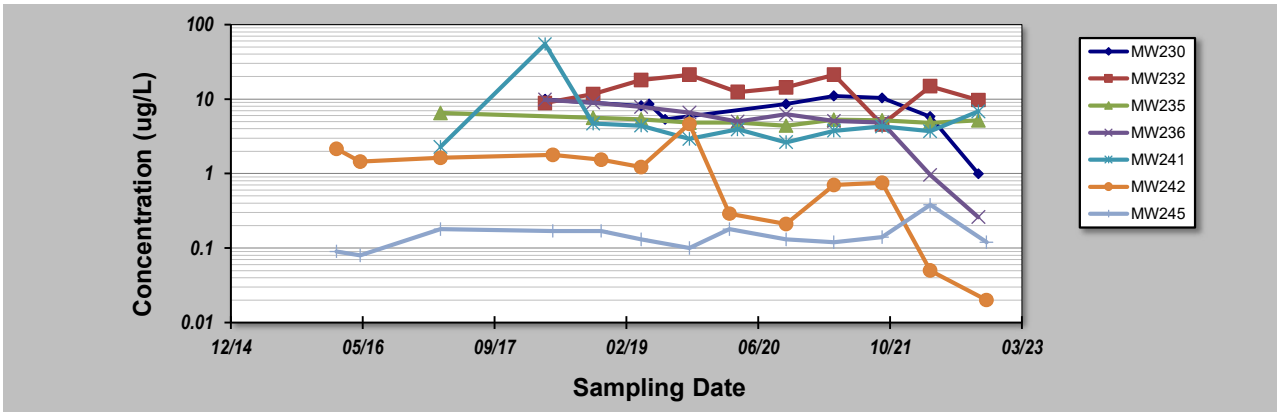
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW230	MW232	MW235	MW236	MW241	MW242	MW245
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Feb-2016						2.140	0.090
2	May-2016						1.450	0.080
3	Mar-2017			6.490		2.280	1.620	0.180
4	Apr-2018	9.900	8.820		9.800	54.600		
5	May-2018						1.780	0.170
6	Oct-2018		11.700	5.590	8.940	4.700		
7	Nov-2018						1.530	0.170
8	Apr-2019	8.120	18.000	5.320	7.820	4.400	1.220	0.130
9	May-2019	8.600						
10	Jul-2019	5.320						
11	Oct-2019		21.200	4.830	6.610	2.900	4.630	0.100
12	Nov-2019							
13	Jan-2020							
14	Mar-2020						0.290	0.180
15	Apr-2020		12.400	4.810	4.980	3.930		
16	May-2020							
17	Oct-2020	8.610	14.300	4.380	6.290	2.640	0.210	0.130
18	Apr-2021	11.000	21.200	5.290	5.080	3.770	0.700	0.120
19	Oct-2021	10.300	4.540	5.190	4.870	4.290	0.750	0.140
20	Apr-2022	5.800	14.900	4.800	0.960	3.710	0.050	0.380
21	Oct-2022	0.990	9.670	5.160	0.260	6.840		
22	Nov-2022						0.020	0.120
23								
24								
25								
Coefficient of Variation:		0.41	0.39	0.11	0.56	1.79	0.98	0.50
Mann-Kendall Statistic (S):		-6	2	-23	-41	-1	-48	10
Confidence Factor:		69.4%	53.5%	97.7%	>99.9%	50.0%	99.9%	70.5%
Concentration Trend:		Stable	No Trend	Decreasing	Decreasing	No Trend	Decreasing	No Trend



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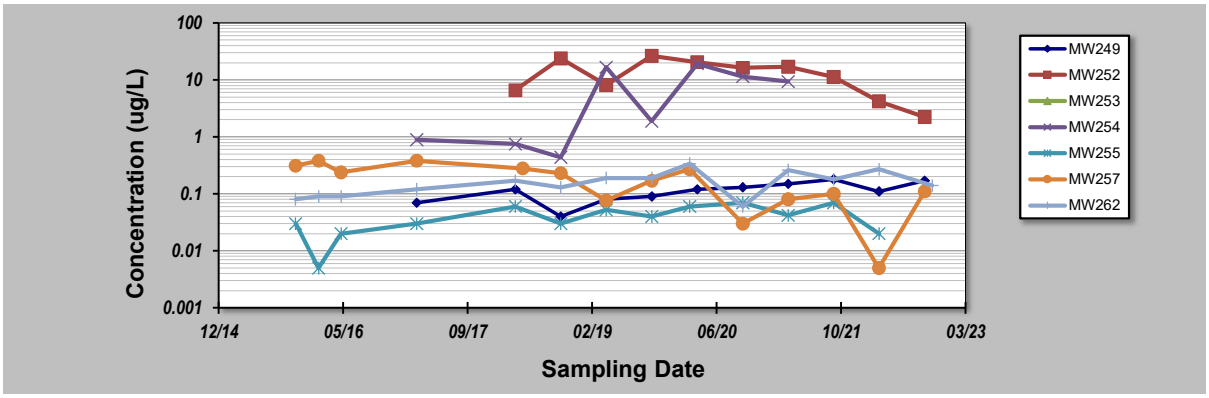
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW249	MW252	MW253	MW254	MW255	MW257	MW262
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Nov-2015					0.030	0.310	0.080
2	Feb-2016					0.005	0.380	0.090
3	Mar-2016							
4	Apr-2016							
5	May-2016					0.020	0.240	0.090
6	Sep-2016							
7	Oct-2016							
8	Jan-2017							
9	Mar-2017	0.070			0.890	0.030	0.380	0.120
10	Apr-2018	0.120	6.560		0.750	0.060		0.170
11	May-2018						0.280	
12	Jun-2018							
13	Jul-2018							
14	Sep-2018							
15	Oct-2018	0.040	23.800		0.440	0.030	0.230	0.130
16	Nov-2018							
17	Apr-2019	0.080	8.140		16.700	0.052	0.076	0.190
18	May-2019							
19	Jul-2019							
20	Oct-2019	0.090	26.300		1.880	0.040	0.170	0.190
21	Nov-2019							
22	Jan-2020							
23	Mar-2020					0.060	0.270	0.340
24	Apr-2020	0.120	20.400		19.200			
25	May-2020							
26	Oct-2020	0.130	16.300		11.400	0.070	0.030	0.060
27	Apr-2021	0.150	17.000		9.320	0.042	0.080	0.260
28	Oct-2021	0.180	11.200			0.070	0.100	0.180
29	Apr-2022	0.110	4.200			0.020	0.005	0.270
30	Oct-2022	0.170	2.230				0.110	
31	Nov-2022							0.140
32								
33								
34								
35								
Coefficient of Variation:		0.37	0.62		1.01	0.50	0.66	0.49
Mann-Kendall Statistic (S):		34	-17		10	32	-52	43
Confidence Factor:		99.6%	92.2%		86.2%	97.1%	99.8%	99.0%
Concentration Trend:		Increasing	Prob. Decreasing		No Trend	Increasing	Decreasing	Increasing



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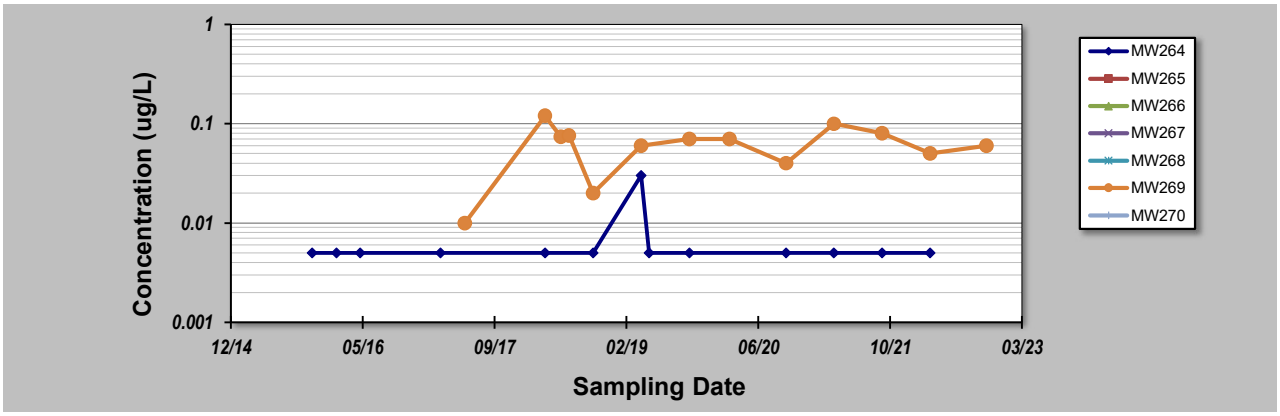
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW264	MW265	MW266	MW267	MW268	MW269	MW270
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Nov-2015	0.005						
2	Feb-2016	0.005						
3	May-2016	0.005						
4	Mar-2017	0.005						
5	Apr-2017							
6	May-2017							
7	Jun-2017						0.010	
8	Apr-2018	0.005					0.120	
9	May-2018							
10	Jun-2018						0.074	
11	Jul-2018						0.076	
12	Sep-2018							
13	Oct-2018	0.005					0.020	
14	Nov-2018							
15	Apr-2019	0.030					0.060	
16	May-2019	0.005						
17	Jul-2019							
18	Oct-2019	0.005					0.070	
19	Nov-2019							
20	Jan-2020							
21	Mar-2020						0.070	
22	Apr-2020							
23	May-2020							
24	Oct-2020	0.005					0.040	
25	Apr-2021	0.005					0.100	
26	Oct-2021	0.005					0.080	
27	Apr-2022	0.005					0.050	
28	Oct-2022							
29	Nov-2022						0.060	
30								
Coefficient of Variation:		1.00					0.47	
Mann-Kendall Statistic (S):		0					0	
Confidence Factor:		47.6%					47.6%	
Concentration Trend:		No Trend					Stable	



Notes:

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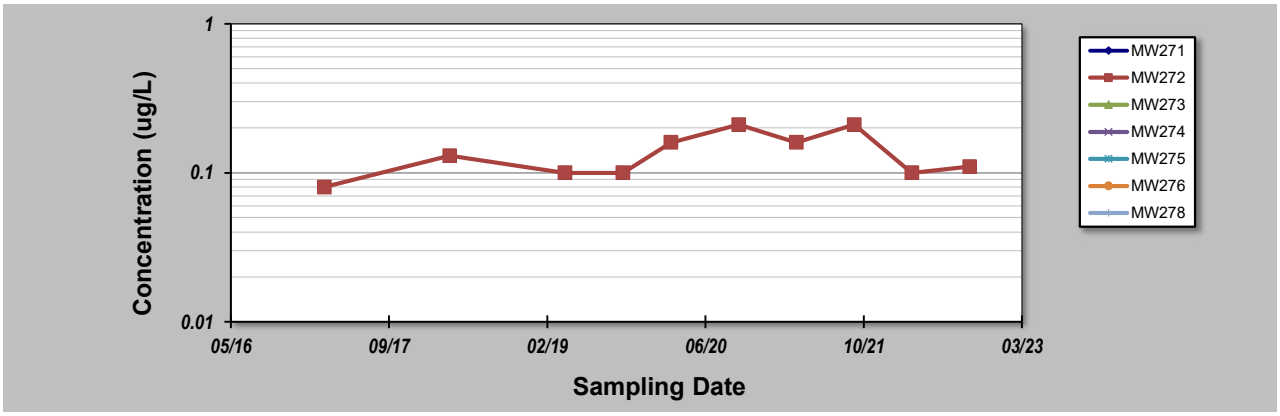
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW271	MW272	MW273	MW274	MW275	MW276	MW278
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Mar-2017		0.080					
2	Apr-2017							
3	May-2017							
4	Apr-2018		0.130					
5	Apr-2019		0.100					
6	Oct-2019		0.100					
7	Mar-2020		0.160					
8	Oct-2020		0.210					
9	Apr-2021		0.160					
10	Oct-2021		0.210					
11	Apr-2022		0.100					
12	Oct-2022		0.110					
13	Nov-2022							
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:			0.35					
Mann-Kendall Statistic (S):			14					
Confidence Factor:			87.3%					
Concentration Trend:			No Trend					



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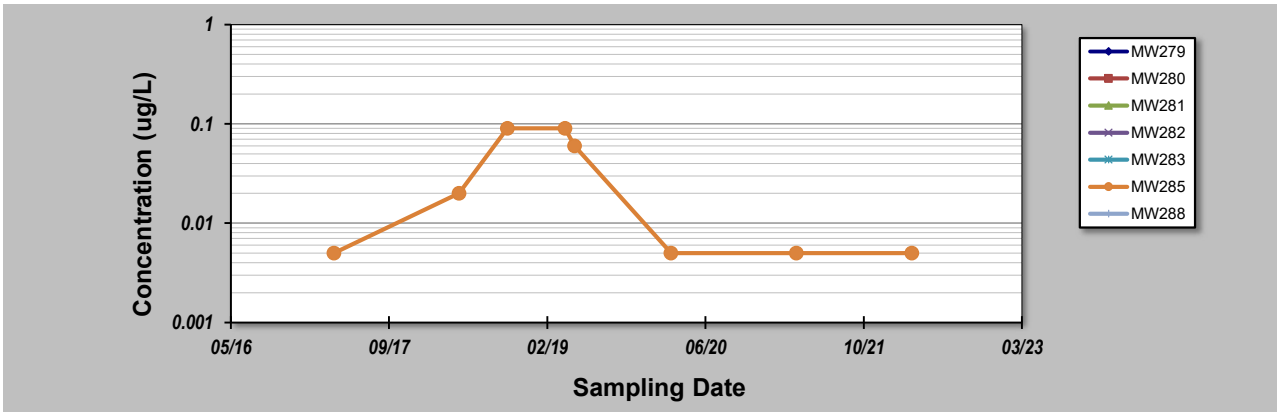
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW279	MW280	MW281	MW282	MW283	MW285	MW288
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Mar-2017							
2	Apr-2017						0.005	
3	May-2017							
4	Jun-2017							
5	Apr-2018							
6	May-2018						0.020	
7	Jun-2018							
8	Jul-2018							
9	Sep-2018							
10	Oct-2018						0.090	
11	Nov-2018							
12	Apr-2019						0.090	
13	May-2019						0.060	
14	Jul-2019							
15	Oct-2019							
16	Nov-2019							
17	Jan-2020							
18	Mar-2020						0.005	
19	Apr-2020							
20	May-2020							
21	Oct-2020							
22	Apr-2021						0.005	
23	Oct-2021							
24	Apr-2022						0.005	
25								
Coefficient of Variation:							1.11	
Mann-Kendall Statistic (S):							-7	
Confidence Factor:							76.4%	
Concentration Trend:							No Trend	



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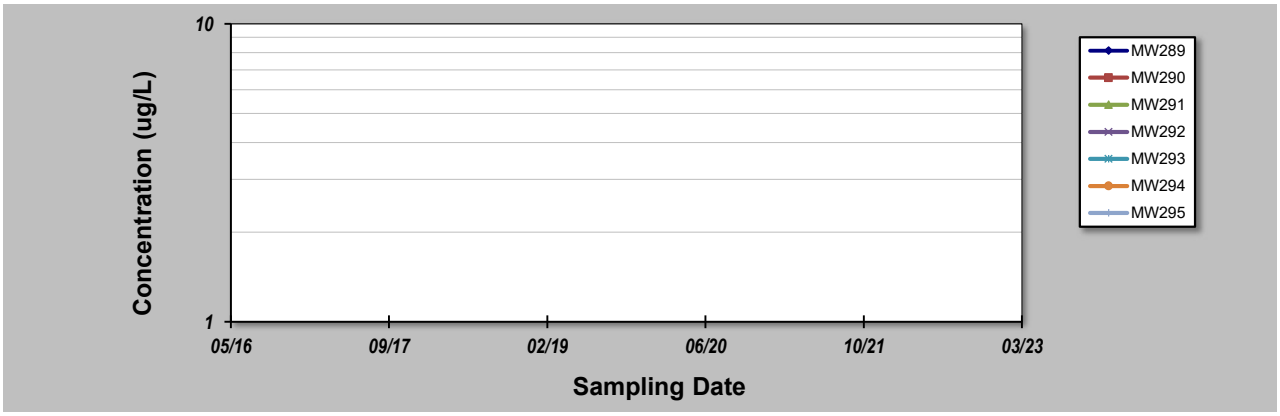
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW289	MW290	MW291	MW292	MW293	MW294	MW295
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Apr-2017							
2	May-2017							
3	Jun-2017							
4	Apr-2018							
5	Oct-2018							
6	Apr-2019							
7	Mar-2020							
8	Apr-2020							
9	May-2020							
10	Oct-2020							
11	Apr-2021							
12	Oct-2021							
13	Apr-2022							
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:								
Mann-Kendall Statistic (S):								
Confidence Factor:								
Concentration Trend:								



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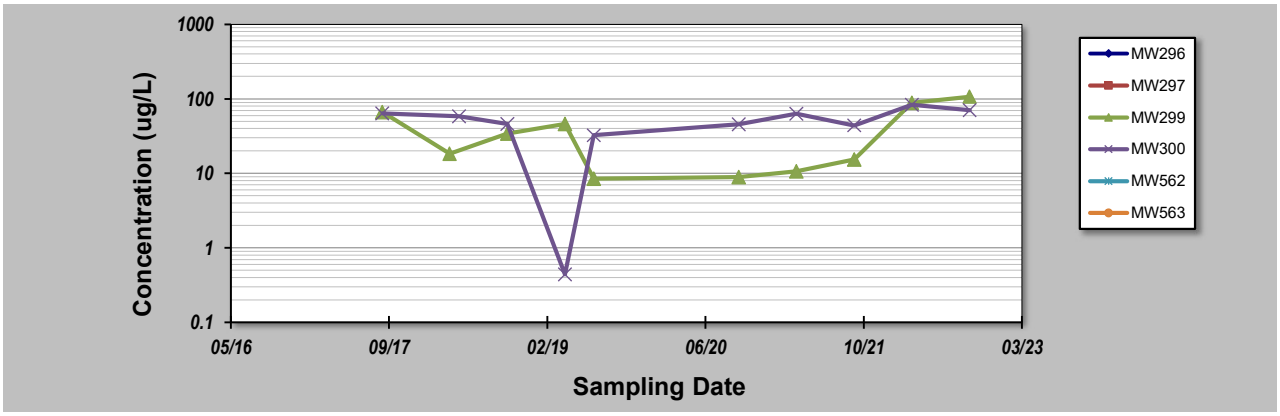
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW296	MW297	MW299	MW300	MW562	MW563	
Sampling Event	Sampling Date	PFOS CONCENTRATION (ug/L)						
1	Jun-2017							
2	Jul-2017							
3	Aug-2017							
4	Sep-2017			66.500	63.600			
5	Apr-2018			18.400				
6	May-2018				58.700			
7	Jun-2018							
8	Jul-2018							
9	Sep-2018							
10	Oct-2018			34.400	46.100			
11	Nov-2018							
12	Apr-2019			46.100	0.440			
13	May-2019							
14	Jul-2019			8.480	32.300			
15	Oct-2019							
16	Nov-2019							
17	Jan-2020							
18	Mar-2020							
19	Apr-2020							
20	May-2020							
21	Oct-2020			8.940	45.600			
22	Apr-2021			10.700	63.300			
23	Oct-2021			15.400	44.100			
24	Apr-2022			88.500	83.600			
25	Oct-2022			107.000	70.200			
26	Nov-2022							
27								
28								
29								
30								
Coefficient of Variation:				0.88	0.45			
Mann-Kendall Statistic (S):				7	7			
Confidence Factor:				70.0%	70.0%			
Concentration Trend:				No Trend	No Trend			



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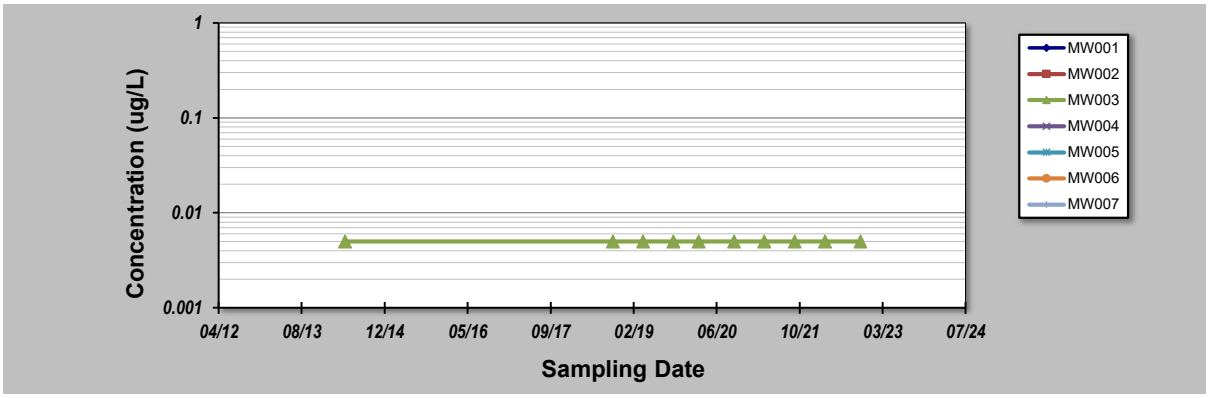
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW001	MW002	MW003	MW004	MW005	MW006	MW007
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Jan-2014							
2	May-2014			0.005				
3	Jun-2014							
4	Aug-2014							
5	Oct-2014							
6	Feb-2015							
7	Oct-2015							
8	Nov-2015							
9	Feb-2016							
10	Mar-2016							
11	Apr-2016							
12	May-2016							
13	Sep-2016							
14	Oct-2016							
15	Jan-2017							
16	Mar-2017							
17	Apr-2017							
18	Oct-2018			0.005				
19	Nov-2018							
20	Apr-2019			0.005				
21	May-2019							
22	Jul-2019							
23	Oct-2019			0.005				
24	Nov-2019							
25	Jan-2020							
26	Mar-2020			0.005				
27	Apr-2020							
28	May-2020							
29	Oct-2020			0.005				
30	Apr-2021			0.005				
31	Oct-2021			0.005				
32	Apr-2022			0.005				
33	Oct-2022							
34	Nov-2022			0.005				
35								
Coefficient of Variation:				0.00				
Mann-Kendall Statistic (S):				0				
Confidence Factor:				46.0%				
Concentration Trend:				Stable				



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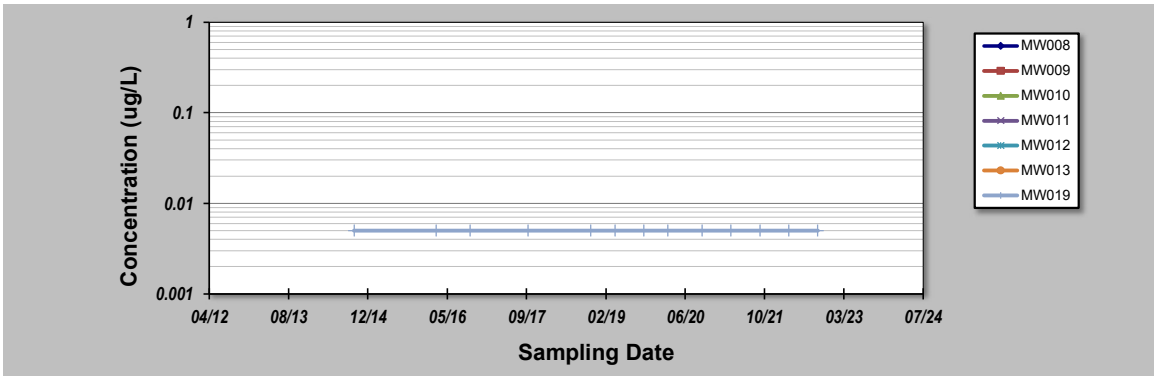
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW008	MW009	MW010	MW011	MW012	MW013	MW019
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Jan-2014							
2	May-2014							
3	Jun-2014							
4	Aug-2014							
5	Oct-2014							0.005
6	Feb-2015							
7	Oct-2015							
8	Nov-2015							
9	Feb-2016							
10	Mar-2016							0.005
11	Apr-2016							
12	May-2016							
13	Sep-2016							
14	Oct-2016							0.005
15	Jan-2017							
16	Mar-2017							
17	Apr-2017							
18	May-2017							
19	Jun-2017							
20	Jul-2017							
21	Aug-2017							
22	Sep-2017							
23	Oct-2017							0.005
24	Nov-2018							0.005
25	Apr-2019							0.005
26	May-2019							
27	Jul-2019							
28	Oct-2019							0.005
29	Nov-2019							
30	Jan-2020							
31	Mar-2020							0.005
32	Apr-2020							
33	May-2020							
34	Oct-2020							0.005
35	Apr-2021							0.005
36	Oct-2021							0.005
37	Apr-2022							0.005
38	Oct-2022							0.005
39	Nov-2022							
40								
Coefficient of Variation:								0.00
Mann-Kendall Statistic (S):								0
Confidence Factor:								47.6%
Concentration Trend:								Stable



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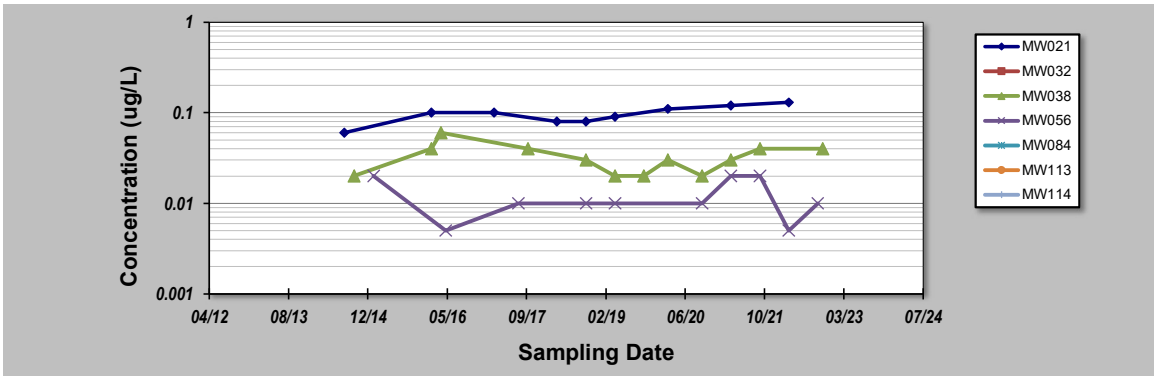
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW021	MW032	MW038	MW056	MW084	MW113	MW114
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Jan-2014							
2	May-2014							
3	Jun-2014							
4	Aug-2014	0.060						
5	Oct-2014			0.020				
6	Feb-2015				0.020			
7	Nov-2015							
8	Feb-2016	0.100		0.040				
9	Mar-2016							
10	Apr-2016			0.060				
11	May-2016				0.005			
12	Sep-2016							
13	Mar-2017	0.100						
14	Apr-2017							
15	May-2017							
16	Jun-2017							
17	Jul-2017							
18	Aug-2017				0.010			
19	Sep-2017							
20	Oct-2017			0.040				
21	Apr-2018	0.080						
22	May-2018							
23	Jun-2018							
24	Jul-2018							
25	Sep-2018							
26	Oct-2018	0.080		0.030	0.010			
27	Nov-2018							
28	Apr-2019	0.090		0.020	0.010			
29	May-2019							
30	Jul-2019							
31	Oct-2019			0.020				
32	Mar-2020	0.110		0.030				
33	Apr-2020							
34	May-2020							
35	Oct-2020			0.020	0.010			
36	Apr-2021	0.120		0.030	0.020			
37	Oct-2021			0.040	0.020			
38	Apr-2022	0.130			0.005			
39	Oct-2022				0.010			
40	Nov-2022			0.040				
Coefficient of Variation:		0.21		0.39	0.45			
Mann-Kendall Statistic (S):		14		-5	9			
Confidence Factor:		94.6%		61.9%	83.2%			
Concentration Trend:		Prob. Increasing		Stable	No Trend			



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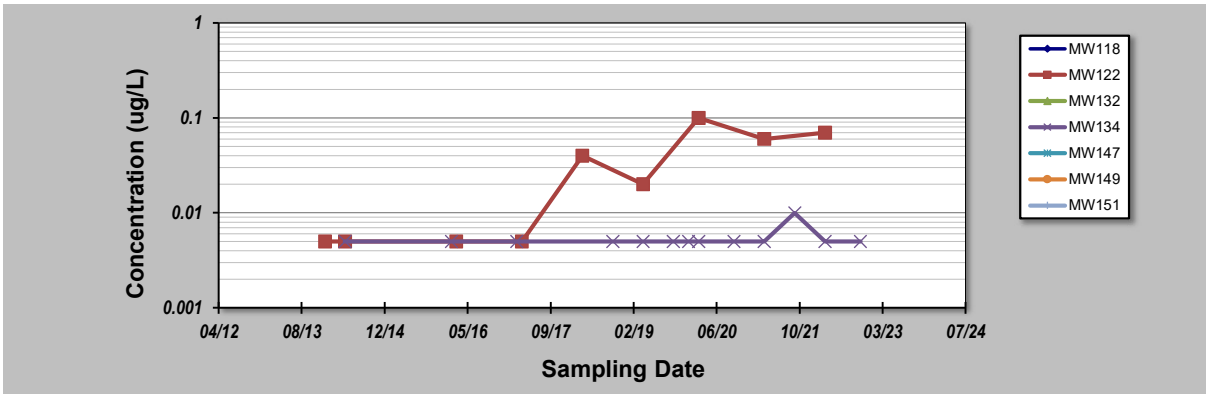
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW118	MW122	MW132	MW134	MW147	MW149	MW151
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Jan-2014		0.005					
2	May-2014		0.005		0.005			
3	Jun-2014							
4	Feb-2016				0.005			
5	Mar-2016		0.005					
6	Apr-2016							
7	May-2016							
8	Mar-2017				0.005			
9	Apr-2017		0.005					
10	May-2017							
11	Jun-2017							
12	Jul-2017							
13	Apr-2018		0.040					
14	Oct-2018				0.005			
15	Nov-2018							
16	Apr-2019		0.020		0.005			
17	May-2019							
18	Jul-2019							
19	Oct-2019				0.005			
20	Nov-2019							
21	Jan-2020				0.005			
22	Mar-2020		0.100		0.005			
23	Apr-2020							
24	May-2020							
25	Oct-2020				0.005			
26	Apr-2021		0.060		0.005			
27	Oct-2021				0.010			
28	Apr-2022		0.070		0.005			
29	Oct-2022							
30	Nov-2022				0.005			
31								
32								
33								
34								
35								
Coefficient of Variation:			1.02		0.26			
Mann-Kendall Statistic (S):			24		8			
Confidence Factor:			99.4%		66.2%			
Concentration Trend:			Increasing		No Trend			



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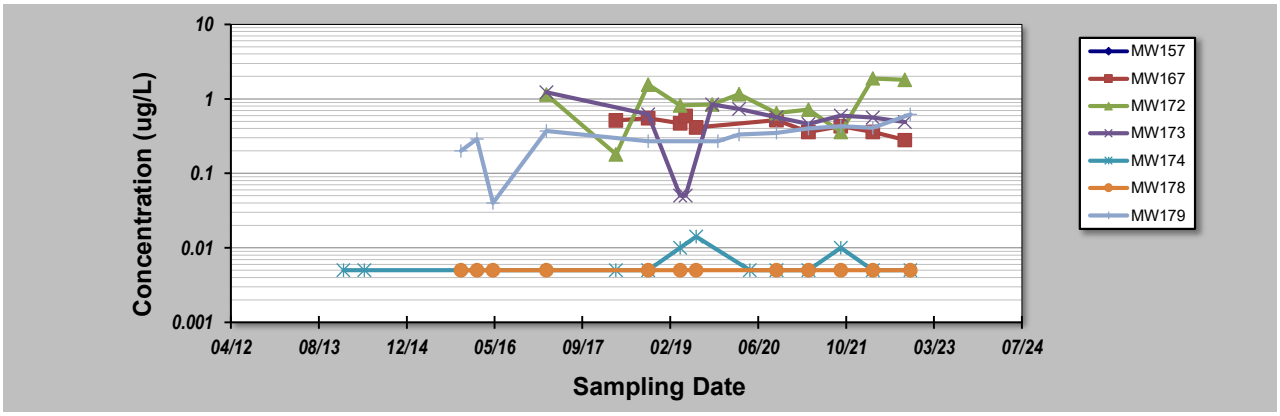
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW157	MW167	MW172	MW173	MW174	MW178	MW179
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Jan-2014					0.005		
2	May-2014					0.005		
3	Nov-2015						0.005	0.200
4	Feb-2016						0.005	0.290
5	Mar-2016							
6	Apr-2016							
7	May-2016						0.005	0.040
8	Mar-2017			1.140	1.230		0.005	0.370
9	Apr-2017							
10	Apr-2018		0.510	0.180		0.005		
11	Oct-2018		0.550	1.550	0.620	0.005	0.005	0.270
12	Nov-2018							
13	Apr-2019		0.470	0.820	0.050	0.010	0.005	
14	May-2019		0.590		0.050			
15	Jul-2019		0.412			0.014	0.005	
16	Oct-2019			0.840	0.840			
17	Nov-2019							0.270
18	Jan-2020							
19	Mar-2020			1.150	0.730			0.330
20	Apr-2020							
21	May-2020					0.005		
22	Oct-2020		0.520	0.640	0.570	0.005	0.005	0.350
23	Apr-2021		0.360	0.720	0.460	0.005	0.005	0.400
24	Oct-2021		0.430	0.360	0.600	0.010	0.005	0.430
25	Apr-2022		0.360	1.880	0.560	0.005	0.005	0.410
26	Oct-2022		0.280	1.800	0.490			
27	Nov-2022					0.005	0.005	0.620
28								
29								
30								
Coefficient of Variation:			0.22	0.55	0.59	0.46	0.00	0.42
Mann-Kendall Statistic (S):			-26	7	-14	3	0	47
Confidence Factor:			98.9%	67.6%	84.0%	55.4%	47.3%	>99.9%
Concentration Trend:			Decreasing	No Trend	Stable	No Trend	Stable	Increasing



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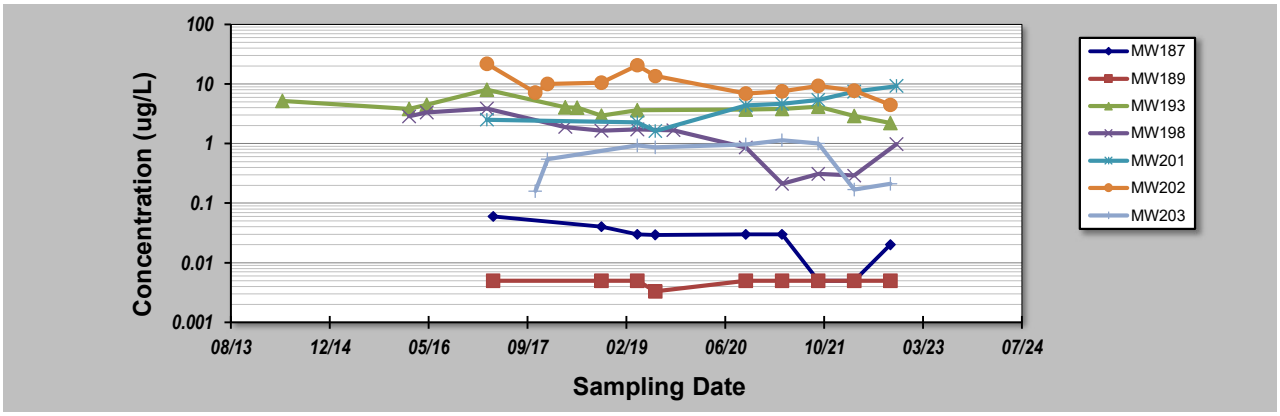
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW187	MW189	MW193	MW198	MW201	MW202	MW203
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	May-2014			5.200				
2	Feb-2016			3.820	2.850			
3	May-2016			4.480	3.330			
4	Mar-2017			7.980	3.870	2.510	21.800	
5	Apr-2017	0.060	0.005					
6	Nov-2017						7.130	0.160
7	Dec-2017							
8	Jan-2018						9.980	0.550
9	Feb-2018							
10	Mar-2018							
11	Apr-2018			4.020	1.900			
12	May-2018							
13	Jun-2018			4.000				
14	Jul-2018							
15	Sep-2018							
16	Oct-2018	0.040	0.005	2.960	1.640		10.500	
17	Nov-2018							
18	Apr-2019	0.030	0.005	3.630	1.740	2.260	20.500	0.930
19	May-2019							
20	Jul-2019	0.029	0.003			1.630	13.600	0.863
21	Oct-2019				1.670			
22	Oct-2020	0.030	0.005	3.740	0.860	4.360	6.870	0.960
23	Apr-2021	0.030	0.005	3.800	0.210	4.670	7.510	1.140
24	Oct-2021	0.005	0.005	4.160	0.310	5.410	9.330	1.000
25	Apr-2022	0.005	0.005	2.910	0.290	7.460	7.750	0.170
26	Oct-2022	0.020	0.005	2.200			4.450	0.210
27	Nov-2022				0.980	9.200		
28								
29								
30								
Coefficient of Variation:		0.61	0.12	0.34	0.74	0.56	0.52	0.60
Mann-Kendall Statistic (S):		-24	2	-40	-44	22	-21	8
Confidence Factor:		99.4%	54.0%	99.3%	99.9%	99.8%	94.0%	76.2%
Concentration Trend:		Decreasing	No Trend	Decreasing	Decreasing	Increasing	Prob. Decreasing	No Trend



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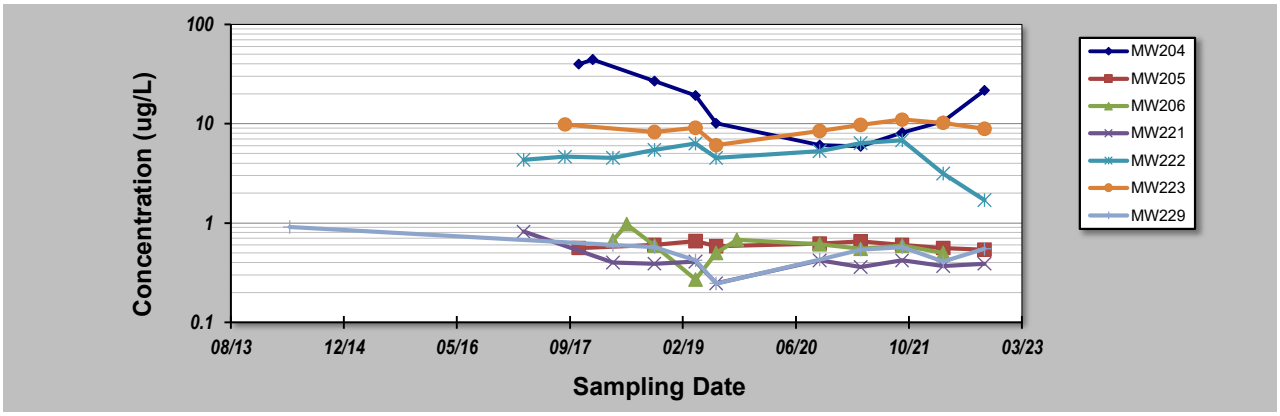
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW204	MW205	MW206	MW221	MW222	MW223	MW229
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	May-2014							0.910
2	Mar-2017				0.820	4.340		
3	Sep-2017					4.660	9.800	
4	Oct-2017							
5	Nov-2017	39.700	0.560					
6	Dec-2017							
7	Jan-2018	44.200						
8	Feb-2018							
9	Mar-2018							
10	Apr-2018			0.670	0.400	4.520		0.600
11	May-2018							
12	Jun-2018			0.970				
13	Jul-2018							
14	Sep-2018							
15	Oct-2018	26.800	0.600	0.590	0.390	5.450	8.240	0.570
16	Nov-2018							
17	Apr-2019	19.200	0.660	0.270	0.410	6.320	9.100	0.420
18	May-2019							
19	Jul-2019	10.100	0.584	0.499	0.248	4.520	6.070	0.246
20	Oct-2019			0.678				
21	Oct-2020	6.120	0.620	0.610	0.420	5.280	8.440	0.430
22	Apr-2021	5.900	0.650	0.550	0.360	6.370	9.720	0.540
23	Oct-2021	8.140	0.600	0.590	0.420	6.800	11.000	0.570
24	Apr-2022	10.600	0.560	0.500	0.370	3.140	10.200	0.410
25	Oct-2022	21.600	0.540		0.390	1.700	8.860	0.550
26								
27								
28								
29								
30								
Coefficient of Variation:		0.72	0.07	0.30	0.35	0.31	0.16	0.33
Mann-Kendall Statistic (S):		-19	-8	-12	-9	4	8	-14
Confidence Factor:		94.6%	76.2%	83.2%	75.8%	59.0%	76.2%	87.3%
Concentration Trend:		Prob. Decreasing	Stable	Stable	Stable	No Trend	No Trend	Stable



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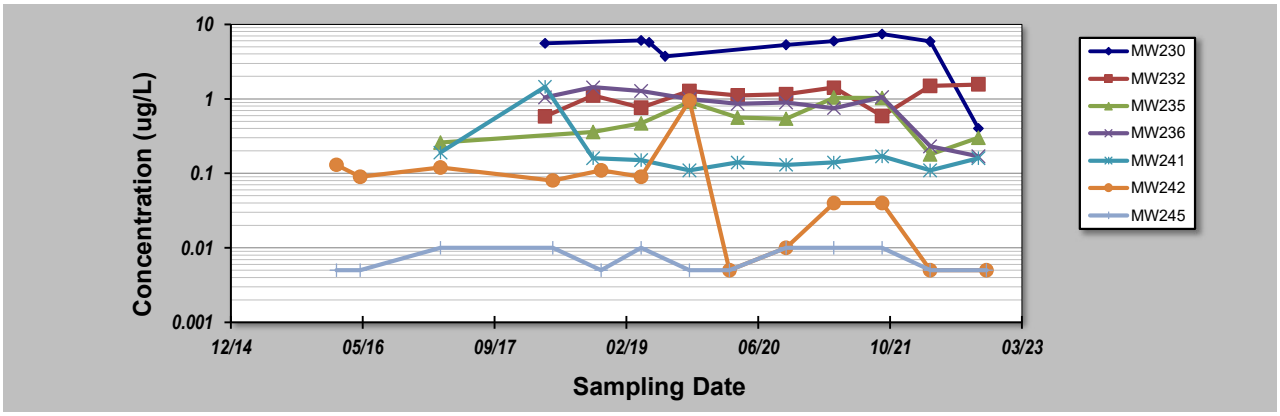
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW230	MW232	MW235	MW236	MW241	MW242	MW245
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Feb-2016						0.130	0.005
2	May-2016						0.090	0.005
3	Mar-2017			0.260		0.190	0.120	0.010
4	Apr-2018	5.560	0.580		1.050	1.450		
5	May-2018						0.080	0.010
6	Jun-2018							
7	Jul-2018							
8	Sep-2018							
9	Oct-2018		1.110	0.360	1.430	0.160		
10	Nov-2018						0.110	0.005
11	Apr-2019	6.100	0.760	0.470	1.270	0.150	0.090	0.010
12	May-2019	5.700						
13	Jul-2019	3.720						
14	Oct-2019		1.280	0.910	1.000	0.110	0.950	0.005
15	Nov-2019							
16	Jan-2020							
17	Mar-2020						0.005	0.005
18	Apr-2020		1.110	0.560	0.860	0.140		
19	May-2020							
20	Oct-2020	5.320	1.160	0.540	0.890	0.130	0.010	0.010
21	Apr-2021	5.960	1.420	1.040	0.750	0.140	0.040	0.010
22	Oct-2021	7.440	0.590	1.030	1.060	0.170	0.040	0.010
23	Apr-2022	5.870	1.500	0.180	0.230	0.110	0.005	0.005
24	Oct-2022	0.400	1.560	0.300	0.170	0.160		
25	Nov-2022						0.005	0.005
26								
27								
28								
29								
30								
Coefficient of Variation:		0.39	0.32	0.57	0.46	1.49	1.95	0.36
Mann-Kendall Statistic (S):		-2	26	7	-29	-18	-43	2
Confidence Factor:		54.0%	98.9%	70.0%	99.5%	90.5%	99.6%	52.4%
Concentration Trend:		Stable	Increasing	No Trend	Decreasing	Prob. Decreasing	Decreasing	No Trend



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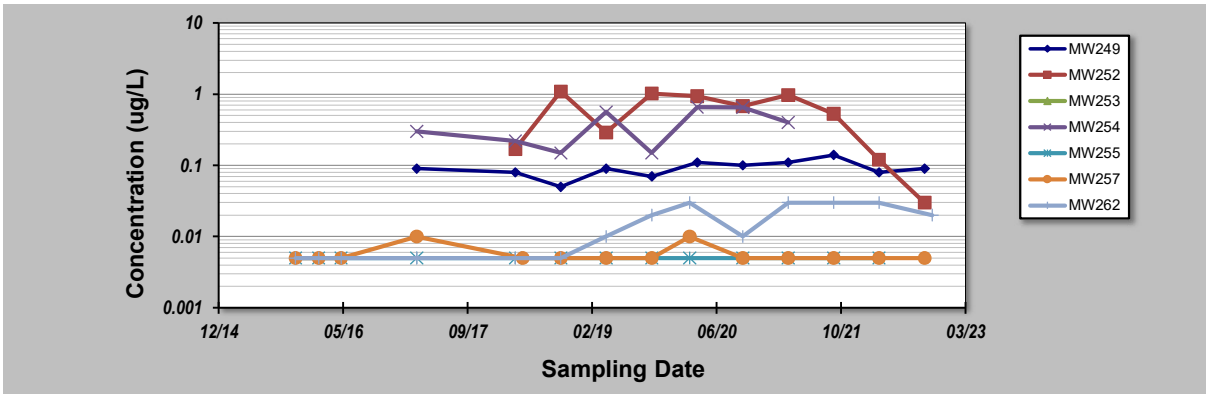
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW249	MW252	MW253	MW254	MW255	MW257	MW262
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Nov-2015					0.005	0.005	0.005
2	Feb-2016					0.005	0.005	0.005
3	Mar-2016							
4	Apr-2016							
5	May-2016					0.005	0.005	0.005
6	Sep-2016							
7	Oct-2016							
8	Jan-2017							
9	Mar-2017	0.090			0.300	0.005	0.010	0.005
10	Apr-2018	0.080	0.170		0.220	0.005		0.005
11	May-2018						0.005	
12	Jun-2018							
13	Jul-2018							
14	Sep-2018							
15	Oct-2018	0.050	1.090		0.150	0.005	0.005	0.005
16	Nov-2018							
17	Apr-2019	0.090	0.290		0.560	0.005	0.005	0.010
18	May-2019							
19	Jul-2019							
20	Oct-2019	0.070	1.020		0.150	0.005	0.005	0.020
21	Nov-2019							
22	Jan-2020							
23	Mar-2020					0.005	0.010	0.030
24	Apr-2020	0.110	0.940		0.660			
25	May-2020							
26	Oct-2020	0.100	0.680		0.650	0.005	0.005	0.010
27	Apr-2021	0.110	0.970		0.400	0.005	0.005	0.030
28	Oct-2021	0.140	0.530			0.005	0.005	0.030
29	Apr-2022	0.080	0.120			0.005	0.005	0.030
30	Oct-2022	0.090	0.030				0.005	
31	Nov-2022							0.020
32								
33								
34								
35								
Coefficient of Variation:		0.26	0.70		0.55	0.00	0.32	0.74
Mann-Kendall Statistic (S):		16	-17		7	0	-4	56
Confidence Factor:		87.5%	92.2%		76.4%	47.6%	56.4%	99.9%
Concentration Trend:		No Trend	Prob. Decreasing		No Trend	Stable	Stable	Increasing



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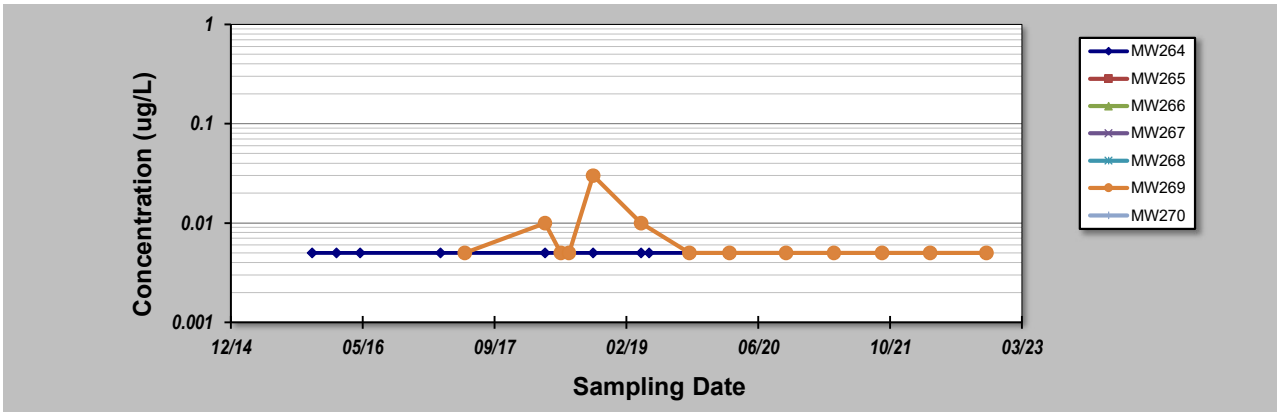
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW264	MW265	MW266	MW267	MW268	MW269	MW270
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Nov-2015	0.005						
2	Feb-2016	0.005						
3	May-2016	0.005						
4	Mar-2017	0.005						
5	Apr-2017							
6	May-2017							
7	Jun-2017						0.005	
8	Apr-2018	0.005					0.010	
9	May-2018							
10	Jun-2018						0.005	
11	Jul-2018						0.005	
12	Sep-2018							
13	Oct-2018	0.005					0.030	
14	Nov-2018							
15	Apr-2019	0.005					0.010	
16	May-2019	0.005						
17	Jul-2019							
18	Oct-2019	0.005					0.005	
19	Nov-2019							
20	Jan-2020							
21	Mar-2020						0.005	
22	Apr-2020							
23	May-2020							
24	Oct-2020	0.005					0.005	
25	Apr-2021	0.005					0.005	
26	Oct-2021	0.005					0.005	
27	Apr-2022	0.005					0.005	
28	Oct-2022							
29	Nov-2022						0.005	
30								
Coefficient of Variation:		0.00					0.90	
Mann-Kendall Statistic (S):		0					-16	
Confidence Factor:		47.6%					81.6%	
Concentration Trend:		Stable					Stable	



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GSI MANN-KENDALL TOOLKIT
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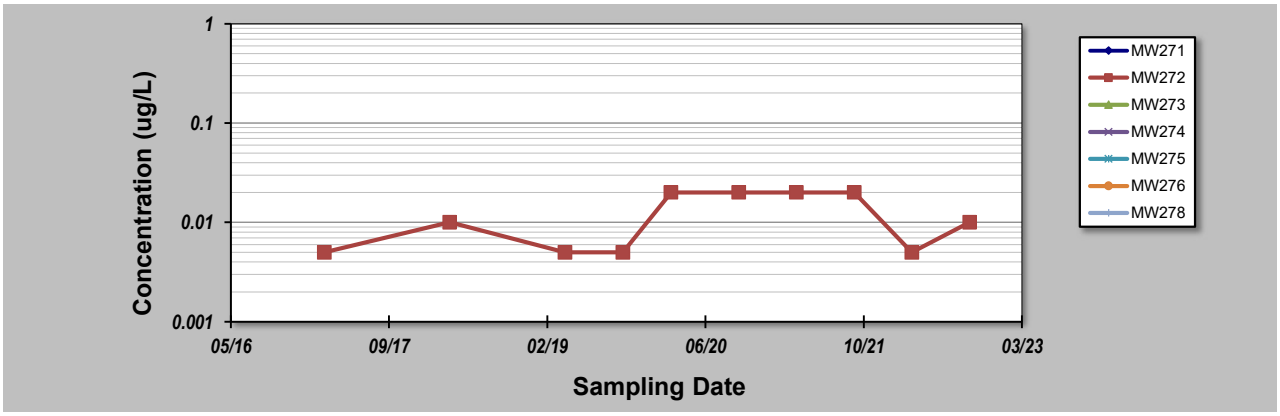
Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW271	MW272	MW273	MW274	MW275	MW276	MW278
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Mar-2017		0.005					
2	Apr-2017							
3	May-2017							
4	Apr-2018		0.010					
5	Apr-2019		0.005					
6	Oct-2019		0.005					
7	Mar-2020		0.020					
8	Apr-2020							
9	May-2020							
10	Oct-2020		0.020					
11	Apr-2021		0.020					
12	Oct-2021		0.020					
13	Apr-2022		0.005					
14	Oct-2022		0.010					
15	Nov-2022							
16								
17								
18								
19								
20								
Coefficient of Variation:			0.60					
Mann-Kendall Statistic (S):			10					
Confidence Factor:			78.4%					
Concentration Trend:			No Trend					



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GSI MANN-KENDALL TOOLKIT
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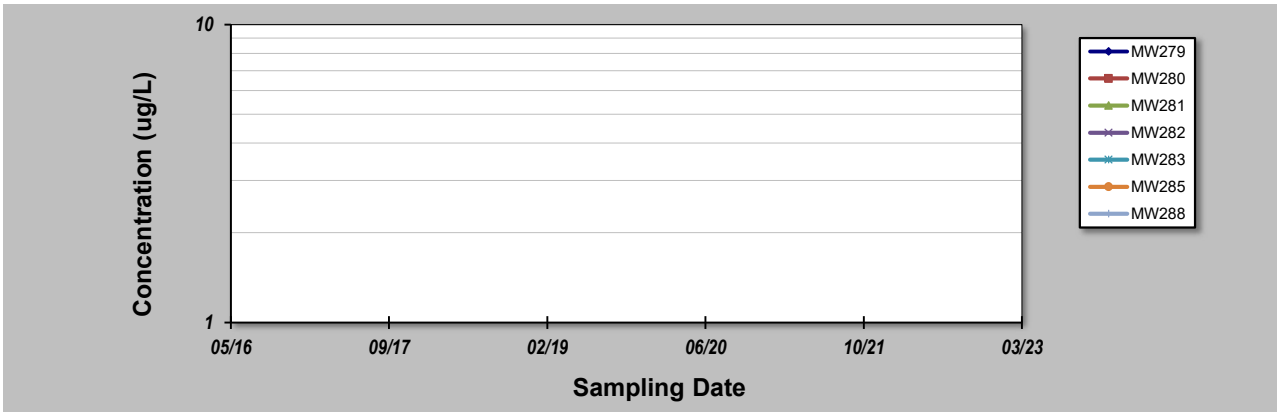
Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW279	MW280	MW281	MW282	MW283	MW285	MW288
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Mar-2017							
2	Apr-2017							
3	May-2017							
4	Jun-2017							
5	Apr-2018							
6	May-2018							
7	Jun-2018							
8	Jul-2018							
9	Sep-2018							
10	Oct-2018							
11	Nov-2018							
12	Apr-2019							
13	May-2019							
14	Jul-2019							
15	Oct-2019							
16	Nov-2019							
17	Jan-2020							
18	Mar-2020							
19	Apr-2020							
20	May-2020							
21	Oct-2020							
22	Apr-2021							
23	Oct-2021							
24	Apr-2022							
25								
Coefficient of Variation:								
Mann-Kendall Statistic (S):								
Confidence Factor:								
Concentration Trend:								



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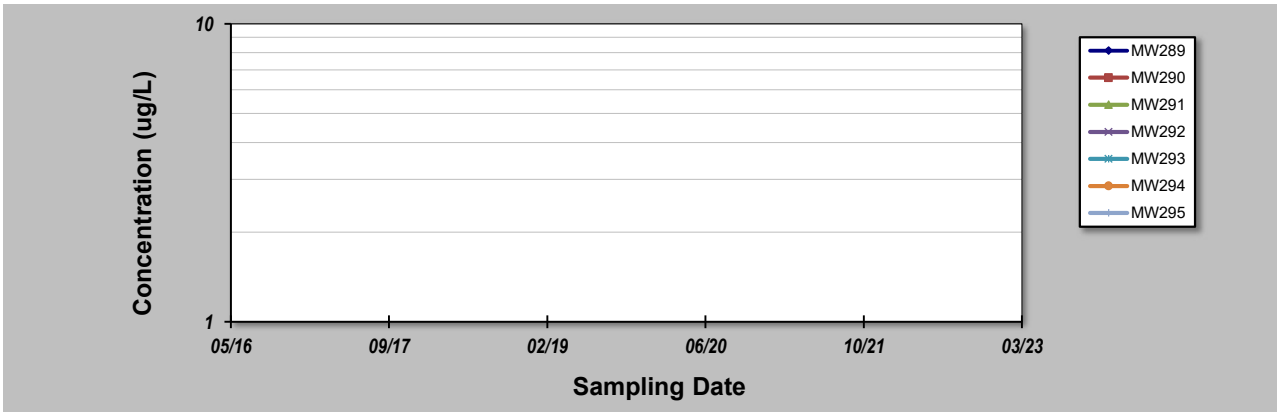
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW289	MW290	MW291	MW292	MW293	MW294	MW295
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Apr-2017							
2	May-2017							
3	Jun-2017							
4	Apr-2018							
5	Oct-2018							
6	Nov-2018							
7	Apr-2019							
8	Mar-2020							
9	Apr-2020							
10	May-2020							
11	Oct-2020							
12	Apr-2021							
13	Oct-2021							
14	Apr-2022							
15								
16								
17								
18								
19								
20								
Coefficient of Variation:								
Mann-Kendall Statistic (S):								
Confidence Factor:								
Concentration Trend:								



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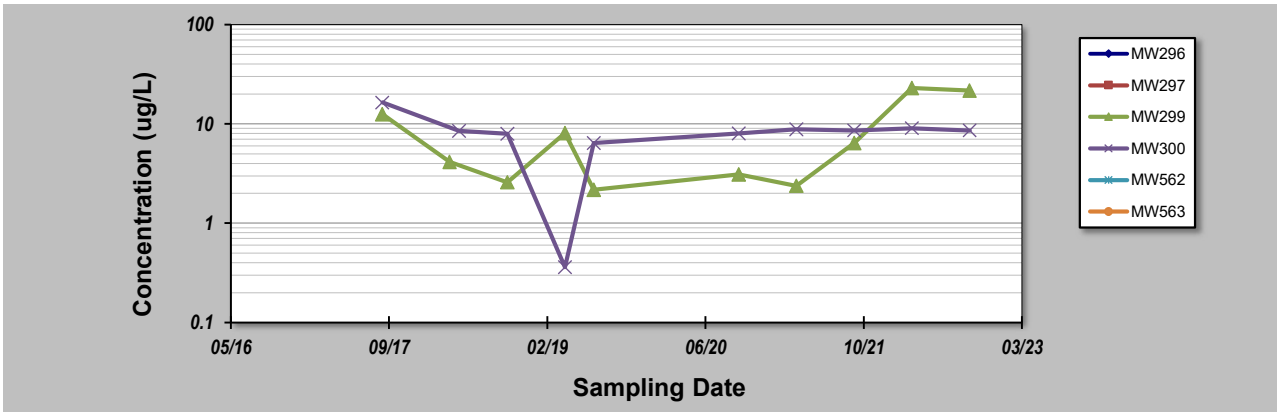
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFOA
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW296	MW297	MW299	MW300	MW562	MW563	
Sampling Event	Sampling Date	PFOA CONCENTRATION (ug/L)						
1	Jun-2017							
2	Sep-2017			12.500	16.400			
3	Apr-2018			4.130				
4	May-2018				8.500			
5	Jun-2018							
6	Jul-2018							
7	Sep-2018							
8	Oct-2018			2.580	7.970			
9	Nov-2018							
10	Apr-2019			8.060	0.360			
11	May-2019							
12	Jul-2019			2.180	6.380			
13	Oct-2019							
14	Nov-2019							
15	Jan-2020							
16	Mar-2020							
17	Apr-2020							
18	May-2020							
19	Oct-2020			3.100	8.020			
20	Apr-2021			2.380	8.830			
21	Oct-2021			6.390	8.590			
22	Apr-2022			22.900	9.030			
23	Oct-2022			21.600	8.560			
24	Nov-2022							
25								
Coefficient of Variation:				0.92	0.47			
Mann-Kendall Statistic (S):				7	7			
Confidence Factor:				70.0%	70.0%			
Concentration Trend:				No Trend	No Trend			



Notes:

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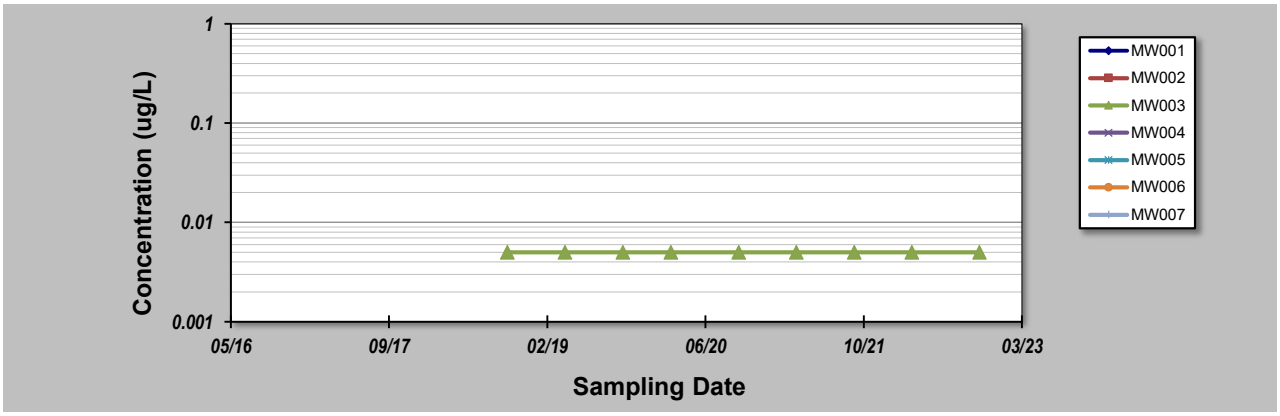
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW001	MW002	MW003	MW004	MW005	MW006	MW007
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Mar-2017							
2	Apr-2017							
3	Oct-2018			0.005				
4	Nov-2018							
5	Apr-2019			0.005				
6	May-2019							
7	Jul-2019							
8	Oct-2019			0.005				
9	Nov-2019							
10	Jan-2020							
11	Mar-2020			0.005				
12	Apr-2020							
13	May-2020							
14	Oct-2020			0.005				
15	Apr-2021			0.005				
16	Oct-2021			0.005				
17	Apr-2022			0.005				
18	Oct-2022							
19	Nov-2022			0.005				
20								
Coefficient of Variation:				0.00				
Mann-Kendall Statistic (S):				0				
Confidence Factor:				46.0%				
Concentration Trend:				Stable				



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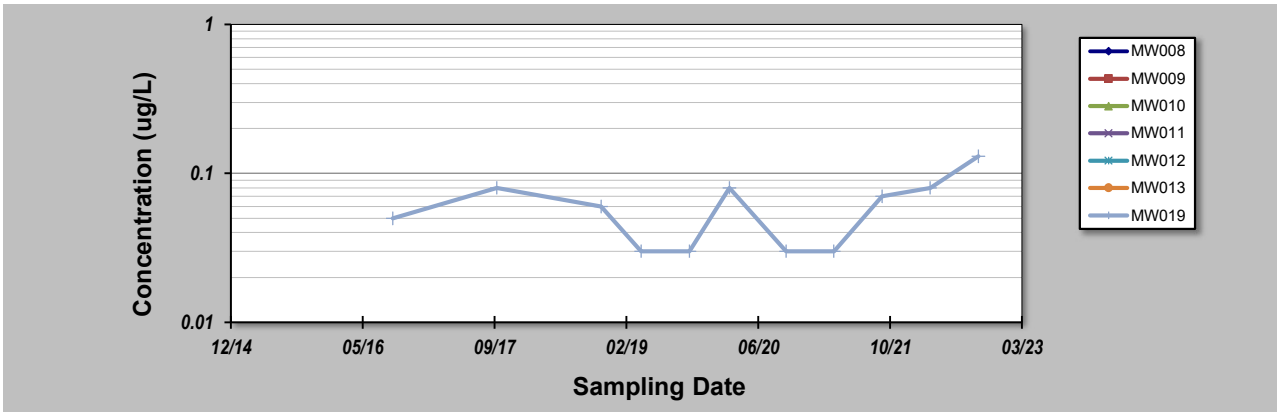
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW008	MW009	MW010	MW011	MW012	MW013	MW019
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Feb-2016							
2	Sep-2016							0.050
3	Oct-2016							
4	Jan-2017							
5	Mar-2017							
6	Apr-2017							
7	May-2017							
8	Jun-2017							
9	Jul-2017							
10	Aug-2017							
11	Sep-2017							
12	Oct-2017							0.080
13	Nov-2018							0.060
14	Apr-2019							0.030
15	May-2019							
16	Jul-2019							
17	Oct-2019							0.030
18	Nov-2019							
19	Jan-2020							
20	Mar-2020							0.080
21	Apr-2020							
22	May-2020							
23	Oct-2020							0.030
24	Apr-2021							0.030
25	Oct-2021							0.070
26	Apr-2022							0.080
27	Oct-2022							0.130
28								
29								
30								
Coefficient of Variation:								0.52
Mann-Kendall Statistic (S):								12
Confidence Factor:								79.9%
Concentration Trend:								No Trend



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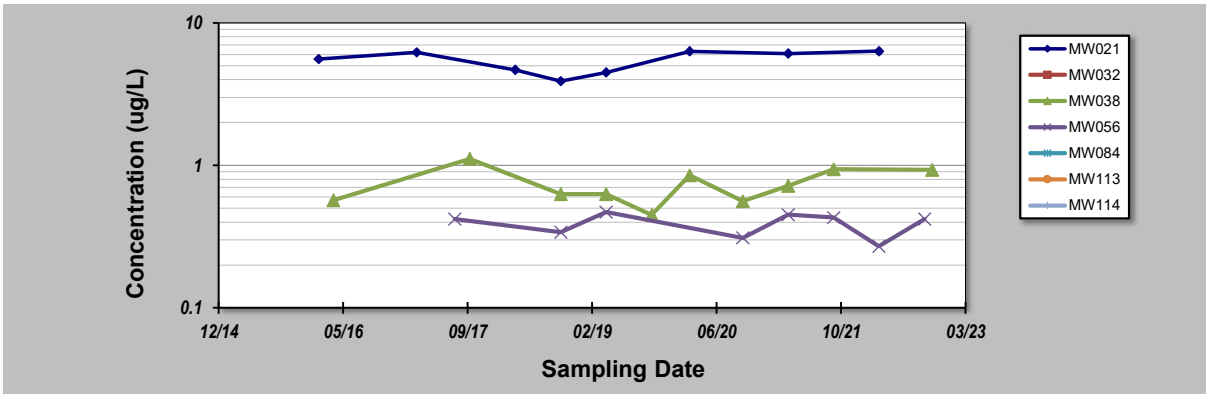
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW021	MW032	MW038	MW056	MW084	MW113	MW114
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Feb-2016	5.560						
2	Mar-2016							
3	Apr-2016			0.570				
4	May-2016							
5	Sep-2016							
6	Oct-2016							
7	Jan-2017							
8	Mar-2017	6.220						
9	Apr-2017							
10	Aug-2017				0.420			
11	Sep-2017							
12	Oct-2017			1.110				
13	Apr-2018	4.680						
14	Oct-2018	3.900		0.630	0.340			
15	Nov-2018							
16	Apr-2019	4.490		0.630	0.470			
17	May-2019							
18	Jul-2019							
19	Oct-2019			0.450				
20	Nov-2019							
21	Jan-2020							
22	Mar-2020	6.310		0.850				
23	Apr-2020							
24	May-2020							
25	Oct-2020			0.560	0.310			
26	Apr-2021	6.100		0.720	0.450			
27	Oct-2021			0.940	0.430			
28	Apr-2022	6.330			0.270			
29	Oct-2022				0.420			
30	Nov-2022			0.930				
31								
32								
33								
34								
35								
Coefficient of Variation:		0.18		0.28	0.19			
Mann-Kendall Statistic (S):		8		10	-5			
Confidence Factor:		80.1%		78.4%	68.3%			
Concentration Trend:		No Trend		No Trend	Stable			



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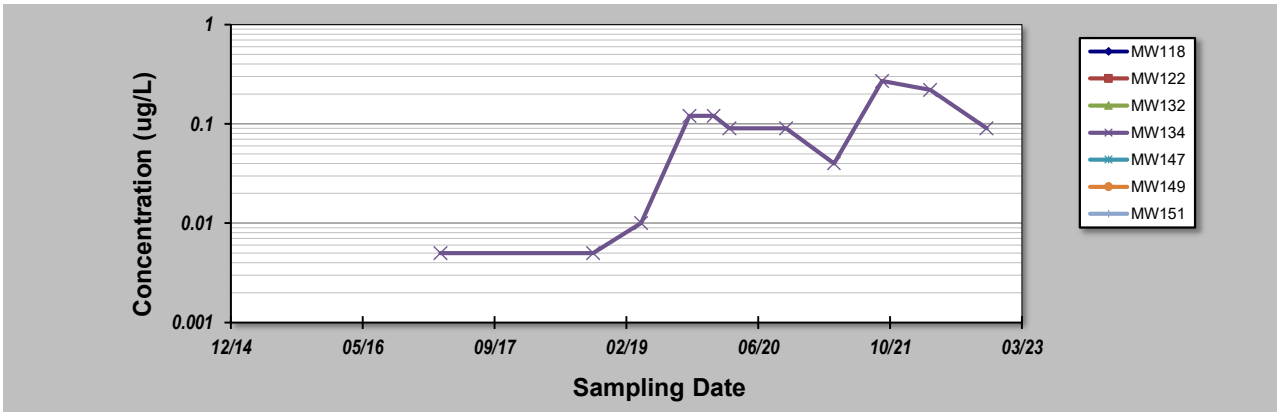
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW118	MW122	MW132	MW134	MW147	MW149	MW151
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Mar-2016							
2	Mar-2017				0.005			
3	Apr-2017							
4	May-2017							
5	Jun-2017							
6	Jul-2017							
7	Apr-2018							
8	Oct-2018				0.005			
9	Nov-2018							
10	Apr-2019				0.010			
11	May-2019							
12	Jul-2019							
13	Oct-2019				0.120			
14	Nov-2019							
15	Jan-2020				0.120			
16	Mar-2020				0.090			
17	Apr-2020							
18	May-2020							
19	Oct-2020				0.090			
20	Apr-2021				0.040			
21	Oct-2021				0.270			
22	Apr-2022				0.220			
23	Oct-2022							
24	Nov-2022				0.090			
25								
Coefficient of Variation:					0.89			
Mann-Kendall Statistic (S):					24			
Confidence Factor:					96.4%			
Concentration Trend:					Increasing			



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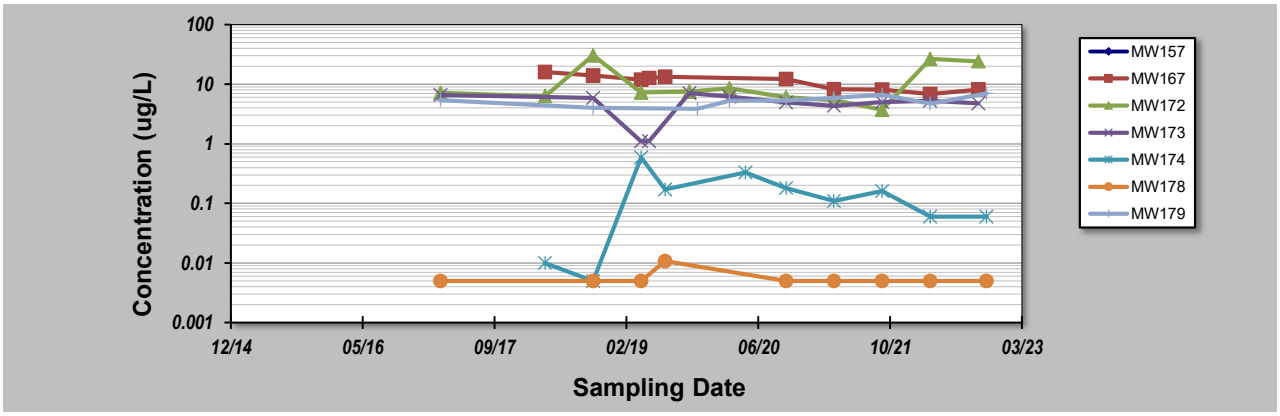
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW157	MW167	MW172	MW173	MW174	MW178	MW179
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Mar-2016							
2	Mar-2017			7.100	6.590		0.005	5.400
3	Apr-2017							
4	Apr-2018		16.000	6.280		0.010		
5	Oct-2018		13.900	30.500	5.870	0.005	0.005	4.010
6	Nov-2018							
7	Apr-2019		11.800	7.280	1.100	0.590	0.005	
8	May-2019		12.700		1.110			
9	Jul-2019		13.300			0.171	0.011	
10	Oct-2019			7.520	7.030			
11	Nov-2019							3.860
12	Jan-2020							
13	Mar-2020			8.500	6.170			5.280
14	Apr-2020							
15	May-2020					0.330		
16	Oct-2020		12.100	6.010	4.940	0.180	0.005	5.310
17	Apr-2021		8.230	5.340	4.330	0.110	0.005	5.880
18	Oct-2021		8.040	3.700	5.000	0.160	0.005	6.650
19	Apr-2022		6.820	26.700	5.270	0.060	0.005	4.720
20	Oct-2022		8.170	24.100	4.760			
21	Nov-2022					0.060	0.005	6.950
22								
23								
24								
25								
Coefficient of Variation:			0.28	0.81	0.42	1.06	0.34	0.20
Mann-Kendall Statistic (S):			-33	-1	-7	-6	-2	16
Confidence Factor:			99.9%	50.0%	67.6%	66.8%	54.0%	94.0%
Concentration Trend:			Decreasing	Stable	Stable	No Trend	Stable	Prob. Increasing



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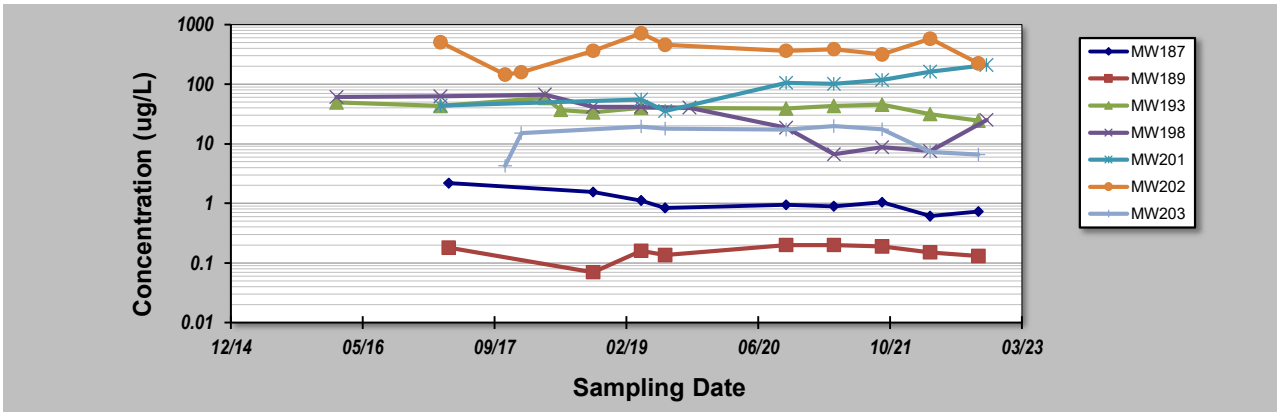
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW187	MW189	MW193	MW198	MW201	MW202	MW203
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Feb-2016			49.500	60.900			
2	Mar-2017			42.700	62.500	43.800	505.000	
3	Apr-2017	2.180	0.180					
4	Nov-2017						145.000	4.250
5	Dec-2017							
6	Jan-2018						159.000	15.000
7	Apr-2018			58.600	66.800			
8	May-2018							
9	Jun-2018			36.940				
10	Jul-2018							
11	Sep-2018							
12	Oct-2018	1.550	0.070	33.600	41.700		363.000	
13	Nov-2018							
14	Apr-2019	1.120	0.160	39.800	41.700	54.900	715.000	19.500
15	May-2019							
16	Jul-2019	0.838	0.135			35.200	458.000	17.900
17	Oct-2019				40.200			
18	Oct-2020	0.940	0.200	38.800	18.500	105.000	362.000	17.300
19	Apr-2021	0.890	0.200	42.900	6.680	101.000	386.000	19.800
20	Oct-2021	1.040	0.190	45.400	8.730	117.000	316.000	17.500
21	Apr-2022	0.610	0.150	31.500	7.550	162.000	575.000	7.280
22	Oct-2022	0.730	0.130	24.300			222.000	6.560
23	Nov-2022				25.100	210.000		
24								
25								
Coefficient of Variation:		0.44	0.27	0.23	0.66	0.58	0.46	0.44
Mann-Kendall Statistic (S):		-24	-1	-21	-36	22	1	-2
Confidence Factor:		99.4%	50.0%	94.0%	99.8%	99.8%	50.0%	54.0%
Concentration Trend:		Decreasing	Stable	Prob. Decreasing	Decreasing	Increasing	No Trend	Stable



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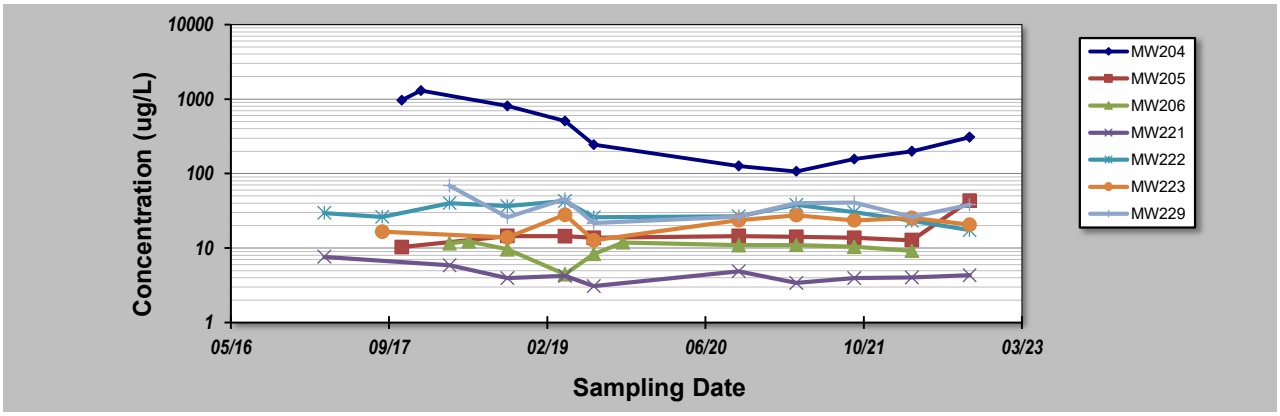
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW204	MW205	MW206	MW221	MW222	MW223	MW229
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Mar-2017				7.620	29.650		
2	Sep-2017					26.200	16.600	
3	Oct-2017							
4	Nov-2017	965.000	10.300					
5	Dec-2017							
6	Jan-2018	1300.000						
7	Feb-2018							
8	Mar-2018							
9	Apr-2018			11.600	5.860	40.300		69.200
10	May-2018							
11	Jun-2018			12.350				
12	Jul-2018							
13	Sep-2018							
14	Oct-2018	805.000	14.500	9.570	3.950	36.500	13.900	26.000
15	Nov-2018							
16	Apr-2019	508.000	14.400	4.460	4.240	42.900	27.900	45.300
17	May-2019							
18	Jul-2019	243.000	13.700	8.350	3.080	25.900	12.700	21.600
19	Oct-2019			11.900				
20	Oct-2020	126.000	14.500	10.900	4.890	26.700	23.700	26.300
21	Apr-2021	107.000	14.200	11.000	3.400	38.000	27.500	39.800
22	Oct-2021	157.000	13.800	10.400	3.940	30.400	23.500	40.800
23	Apr-2022	200.000	12.800	9.190	4.040	23.200	25.300	26.200
24	Oct-2022	307.000	43.100		4.310	17.400	20.600	38.200
25								
Coefficient of Variation:		0.88	0.59	0.23	0.29	0.26	0.27	0.40
Mann-Kendall Statistic (S):		-23	3	-9	-11	-17	4	-4
Confidence Factor:		97.7%	58.0%	75.8%	81.0%	89.1%	61.9%	61.9%
Concentration Trend:		Decreasing	No Trend	Stable	Stable	Stable	No Trend	Stable



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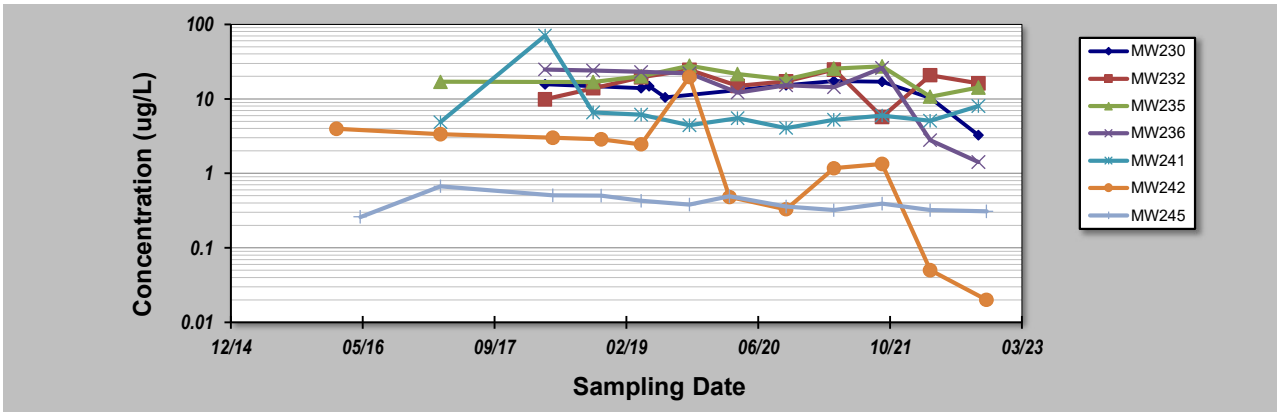
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW230	MW232	MW235	MW236	MW241	MW242	MW245
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Feb-2016						3.970	
2	May-2016						-	0.260
3	Mar-2017			16.900		4.850	3.350	0.670
4	Apr-2018	15.600	9.810		24.900	70.600		
5	May-2018						2.990	0.510
6	Jun-2018							
7	Jul-2018							
8	Sep-2018							
9	Oct-2018		13.900	16.800	23.900	6.580		
10	Nov-2018						2.880	0.500
11	Apr-2019	14.000	19.500	20.100	22.900	6.090	2.460	0.430
12	May-2019	14.800						
13	Jul-2019	10.400						
14	Oct-2019		24.500	27.800	22.000	4.430	19.700	0.380
15	Nov-2019							
16	Jan-2020							
17	Mar-2020						0.480	0.490
18	Apr-2020		14.900	21.500	12.200	5.500		
19	May-2020							
20	Oct-2020	15.300	17.100	18.100	15.200	4.060	0.330	0.360
21	Apr-2021	17.300	24.700	25.400	14.400	5.210	1.170	0.320
22	Oct-2021	17.000	5.730	27.300	25.900	5.960	1.340	0.390
23	Apr-2022	10.300	20.800	10.700	2.800	5.090	0.050	0.320
24	Oct-2022	3.270	16.200	14.300	1.420	8.020		
25	Nov-2022						0.020	0.310
26								
27								
28								
29								
30								
Coefficient of Variation:		0.34	0.36	0.28	0.54	1.71	1.66	0.28
Mann-Kendall Statistic (S):		-8	9	-1	-27	-5	-46	-33
Confidence Factor:		76.2%	75.8%	50.0%	99.2%	61.9%	100.0%	98.7%
Concentration Trend:		Stable	No Trend	Stable	Decreasing	No Trend	Decreasing	Decreasing



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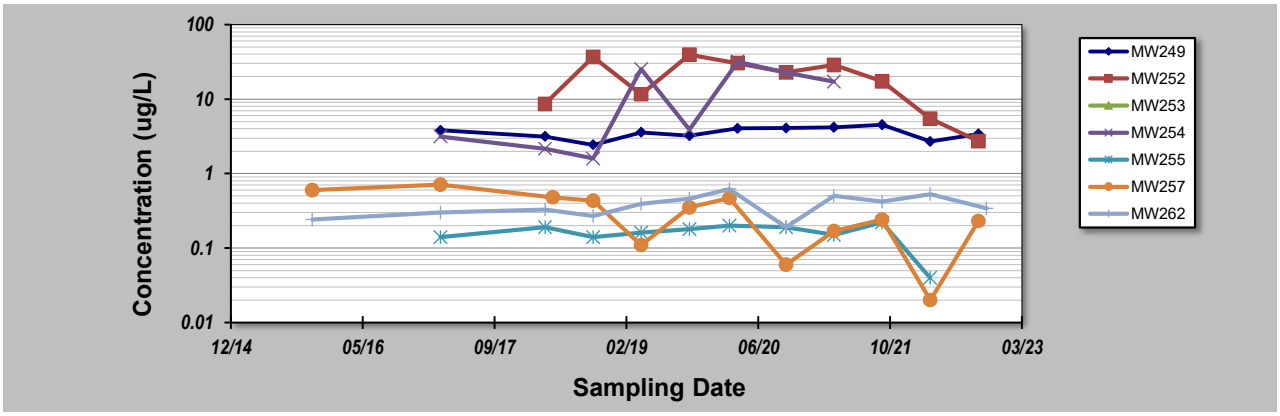
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW249	MW252	MW253	MW254	MW255	MW257	MW262
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Nov-2015						0.600	0.240
2	Mar-2017	3.820			3.150	0.140	0.710	0.300
3	Apr-2018	3.150	8.570		2.160	0.190		0.330
4	May-2018						0.480	
5	Jun-2018							
6	Jul-2018							
7	Sep-2018							
8	Oct-2018	2.430	36.700		1.590	0.140	0.430	0.270
9	Nov-2018							
10	Apr-2019	3.580	11.600		25.200	0.160	0.110	0.390
11	May-2019							
12	Jul-2019							
13	Oct-2019	3.210	39.500		3.890	0.180	0.350	0.460
14	Nov-2019							
15	Jan-2020							
16	Mar-2020					0.200	0.470	0.620
17	Apr-2020	4.040	30.200		31.800			
18	May-2020							
19	Oct-2020	4.080	22.800		22.600	0.190	0.060	0.190
20	Apr-2021	4.190	28.500		17.100	0.150	0.170	0.500
21	Oct-2021	4.520	17.300			0.220	0.240	0.420
22	Apr-2022	2.690	5.450			0.040	0.020	0.530
23	Oct-2022	3.390	2.730				0.230	
24	Nov-2022							0.340
25								
Coefficient of Variation:		0.18	0.65		0.91	0.31	0.68	0.34
Mann-Kendall Statistic (S):		15	-17		10	7	-38	26
Confidence Factor:		85.9%	92.2%		86.2%	70.0%	99.6%	95.7%
Concentration Trend:		No Trend	Prob. Decreasing		No Trend	No Trend	Decreasing	Increasing



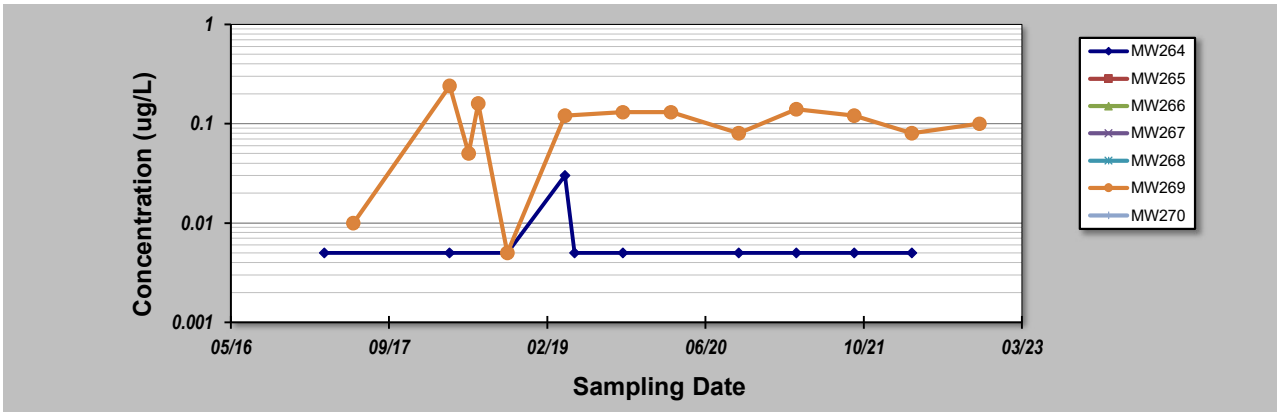
Notes:

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.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW264	MW265	MW266	MW267	MW268	MW269	MW270
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Mar-2017	0.005						
2	Apr-2017							
3	May-2017							
4	Jun-2017						0.010	
5	Apr-2018	0.005					0.240	
6	May-2018							
7	Jun-2018						0.050	
8	Jul-2018						0.160	
9	Sep-2018							
10	Oct-2018	0.005					0.005	
11	Nov-2018							
12	Apr-2019	0.030					0.120	
13	May-2019	0.005						
14	Jul-2019							
15	Oct-2019	0.005					0.130	
16	Nov-2019							
17	Jan-2020							
18	Mar-2020						0.130	
19	Apr-2020							
20	May-2020							
21	Oct-2020	0.005					0.080	
22	Apr-2021	0.005					0.140	
23	Oct-2021	0.005					0.120	
24	Apr-2022	0.005					0.080	
25	Oct-2022							
26	Nov-2022						0.100	
27								
28								
29								
30								
Coefficient of Variation:		1.05					0.60	
Mann-Kendall Statistic (S):		-3					-1	
Confidence Factor:		56.9%					50.0%	
Concentration Trend:		No 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.*
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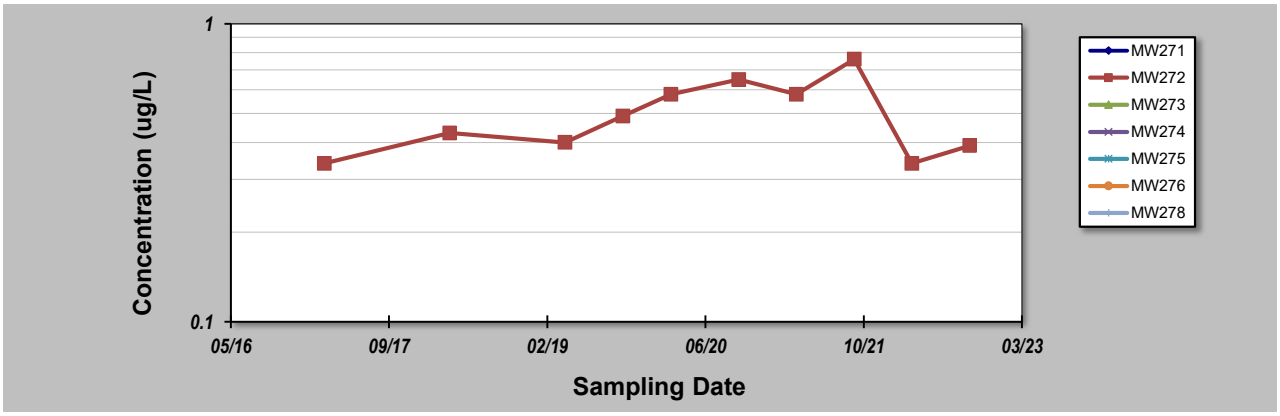
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW271	MW272	MW273	MW274	MW275	MW276	MW278
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Mar-2017		0.340					
2	Apr-2017							
3	May-2017							
4	Apr-2018		0.430					
5	Apr-2019		0.400					
6	May-2019							
7	Jul-2019							
8	Oct-2019		0.490					
9	Nov-2019							
10	Jan-2020							
11	Mar-2020		0.580					
12	Apr-2020							
13	May-2020							
14	Oct-2020		0.650					
15	Apr-2021		0.580					
16	Oct-2021		0.760					
17	Apr-2022		0.340					
18	Oct-2022		0.390					
19	Nov-2022							
20								
Coefficient of Variation:			0.29					
Mann-Kendall Statistic (S):			11					
Confidence Factor:			81.0%					
Concentration Trend:			No 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.*
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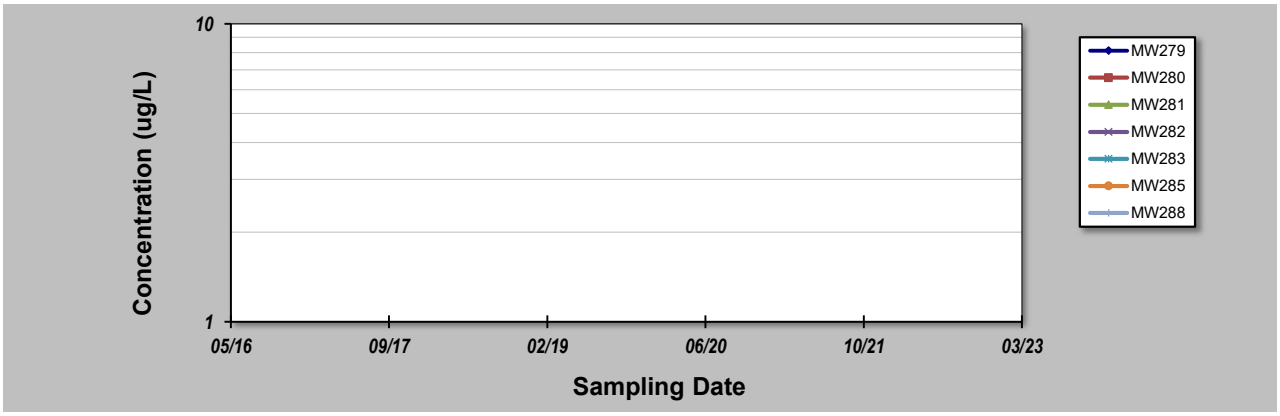
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW279	MW280	MW281	MW282	MW283	MW285	MW288
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Mar-2017							
2	Apr-2017							
3	May-2017							
4	Jun-2017							
5	Apr-2018							
6	May-2018							
7	Oct-2018							
8	Nov-2018							
9	Apr-2019							
10	May-2019							
11	Mar-2020							
12	Apr-2020							
13	May-2020							
14	Oct-2020							
15	Apr-2021							
16	Oct-2021							
17	Apr-2022							
18								
19								
20								
Coefficient of Variation:								
Mann-Kendall Statistic (S):								
Confidence Factor:								
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.
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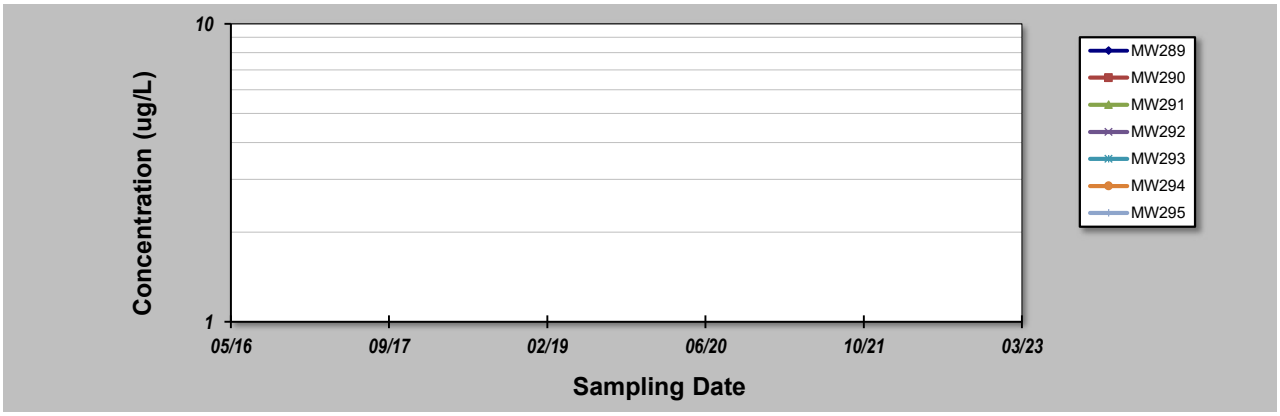
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW289	MW290	MW291	MW292	MW293	MW294	MW295
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Apr-2017							
2	May-2017							
3	Jun-2017							
4	Apr-2018							
5	Oct-2018							
6	Apr-2019							
7	Mar-2020							
8	Apr-2020							
9	May-2020							
10	Oct-2020							
11	Apr-2021							
12	Oct-2021							
13	Apr-2022							
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:								
Mann-Kendall Statistic (S):								
Confidence Factor:								
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.
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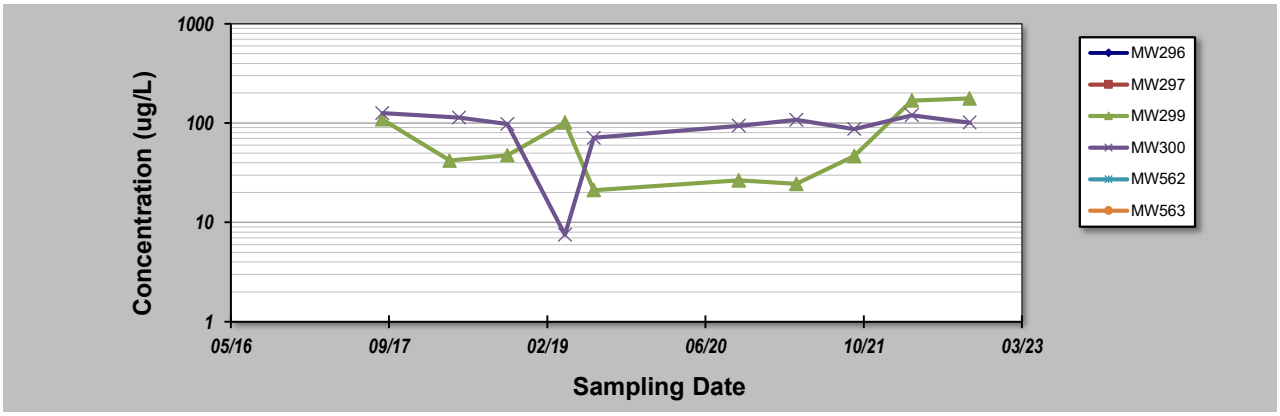
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8-Feb-23	Job ID:	60612563
Facility Name:	Oakey AACO	Constituent:	PFHxS + PFOS
Conducted By:	KM	Concentration Units:	ug/L

Sampling Point ID:	MW296	MW297	MW299	MW300	MW562	MW563	
Sampling Event	Sampling Date	PFHXS + PFOS CONCENTRATION (ug/L)						
1	Jun-2017							
2	Sep-2017			109.000	126.000			
3	Apr-2018			42.000				
4	May-2018				114.000			
5	Oct-2018			47.300	97.700			
6	Nov-2018							
7	Apr-2019			101.000	7.500			
8	May-2019							
9	Jul-2019			21.100	71.200			
10	Mar-2020							
11	Apr-2020							
12	May-2020							
13	Oct-2020			26.400	93.800			
14	Apr-2021			24.400	108.000			
15	Oct-2021			46.700	87.000			
16	Apr-2022			169.000	120.000			
17	Oct-2022			177.000	101.000			
18	Nov-2022							
19								
20								
Coefficient of Variation:				0.77	0.37			
Mann-Kendall Statistic (S):				7	-3			
Confidence Factor:				70.0%	56.9%			
Concentration Trend:				No 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.
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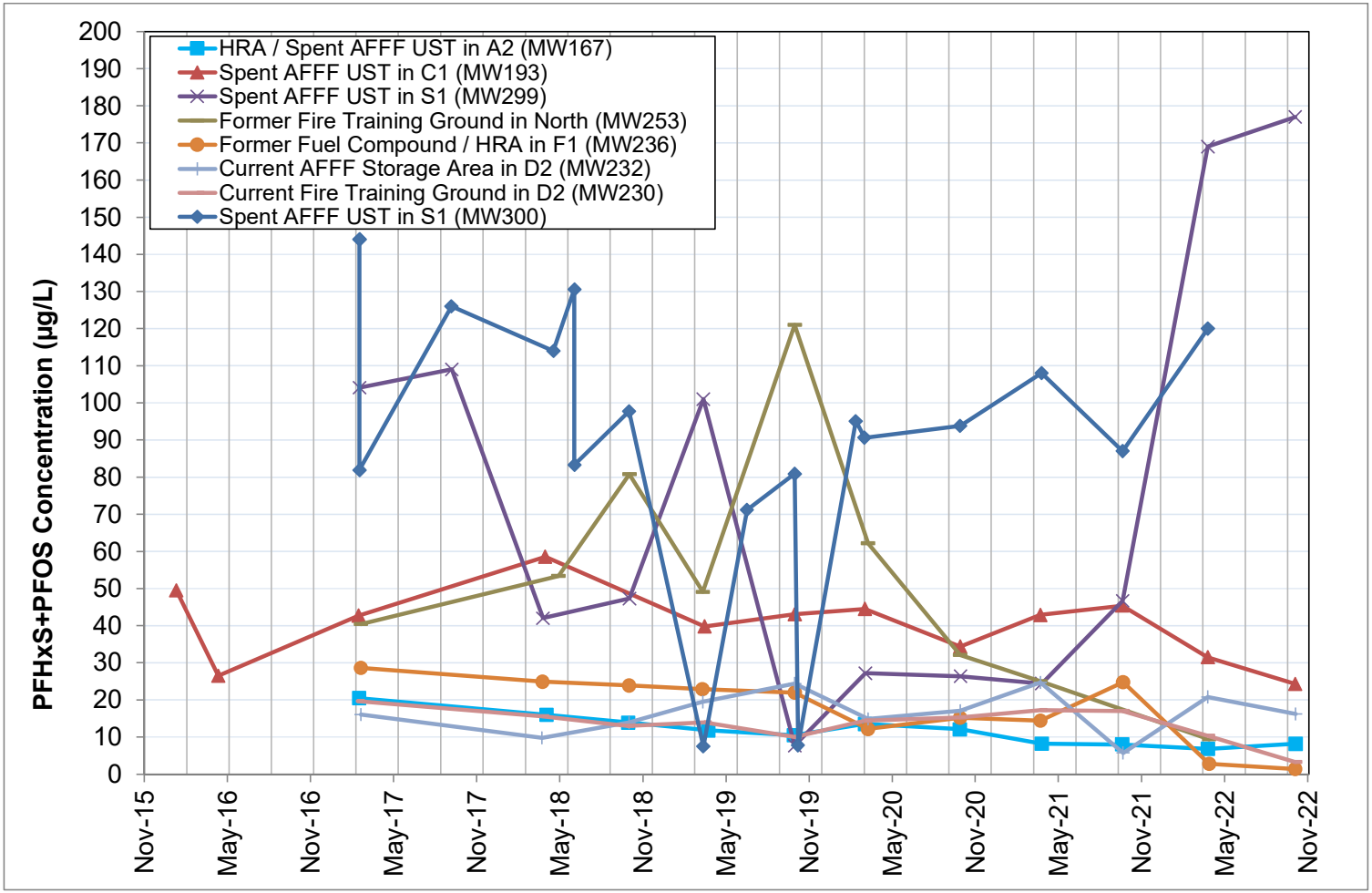
Appendix D

Charts

Appendix D Charts

Chart D1 Groundwater PFHxS + PFOS concentrations in selected on-Base monitoring wells: 2015 to 2022[1]



[1] MW253 and MW254 were destroyed during remediation works at the former fire training ground in Q4 2021. These wells were replaced with MW562 and MW563 in February 2022.

Chart D2 Groundwater PFHxS + PFOS concentrations in monitoring wells in the area of the former fire station: 2014 to 2022

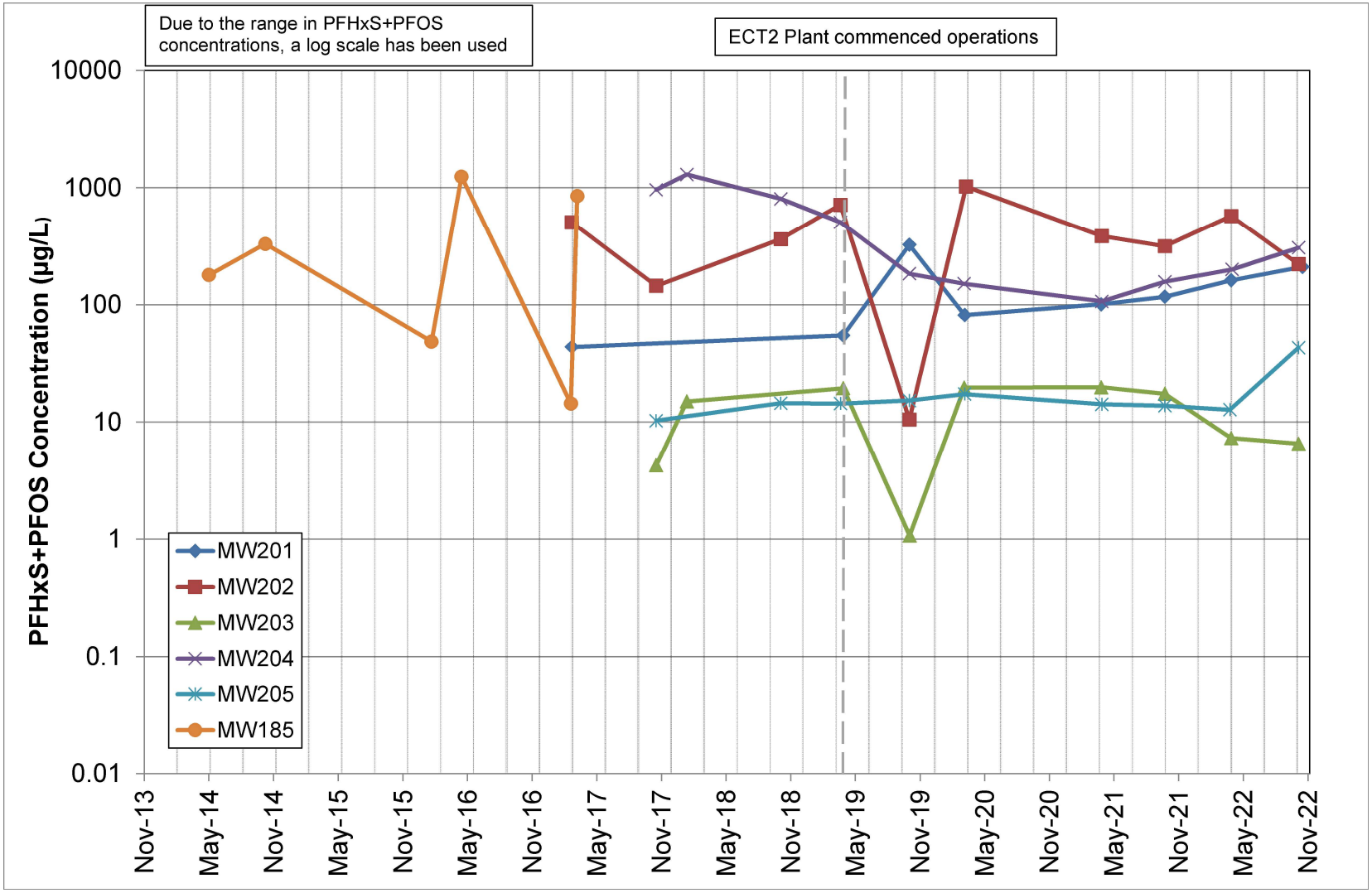


Chart D3 Groundwater PFHxS + PFOS concentrations in residential bores within 1 km of southern Base boundary: 2014 to 2022

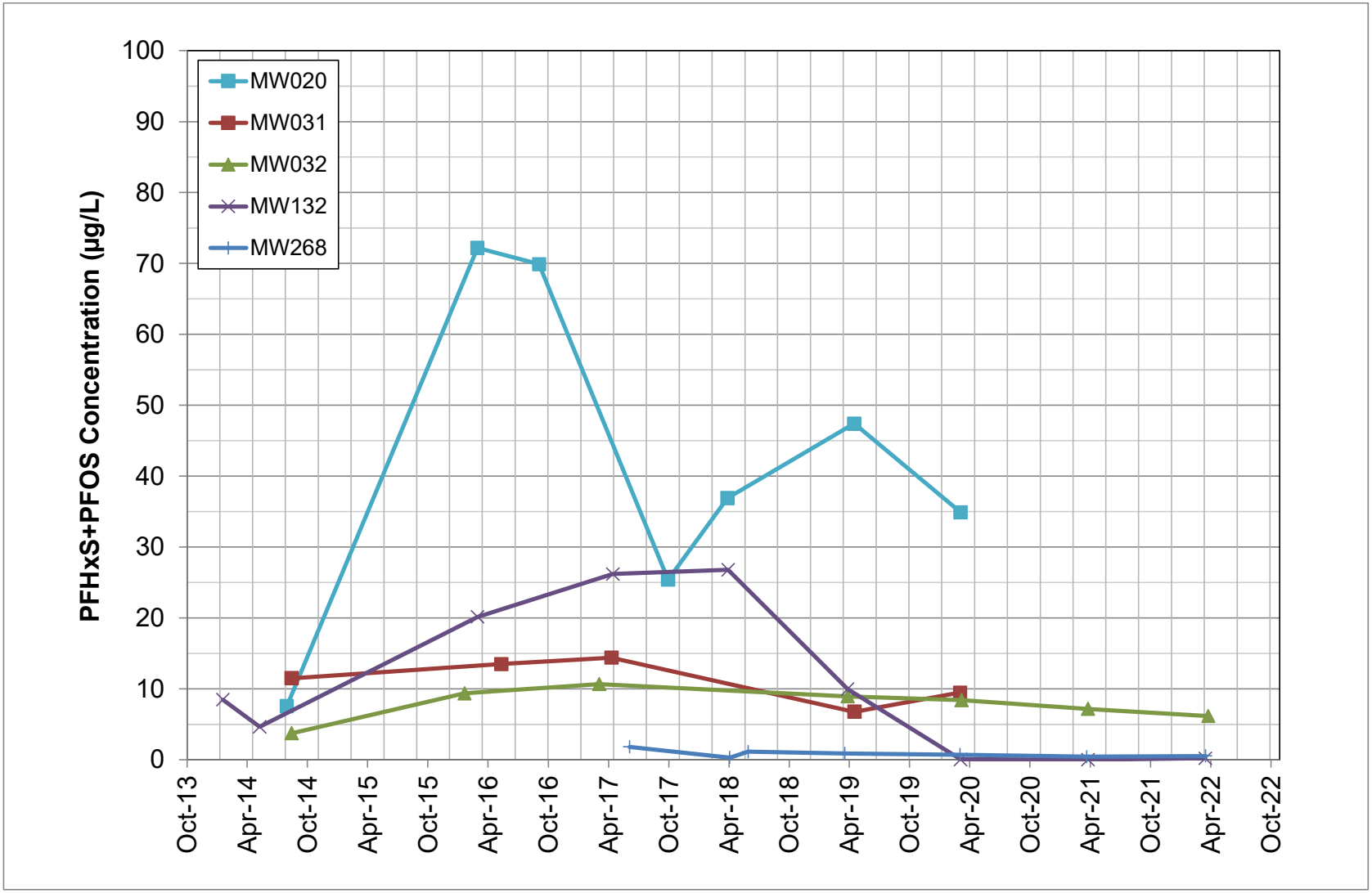


Chart D4 Groundwater PFHxS + PFOS concentrations in selected off-Base wells within approximately 1 km of the south-western corner of AACO: 2014 to 2022

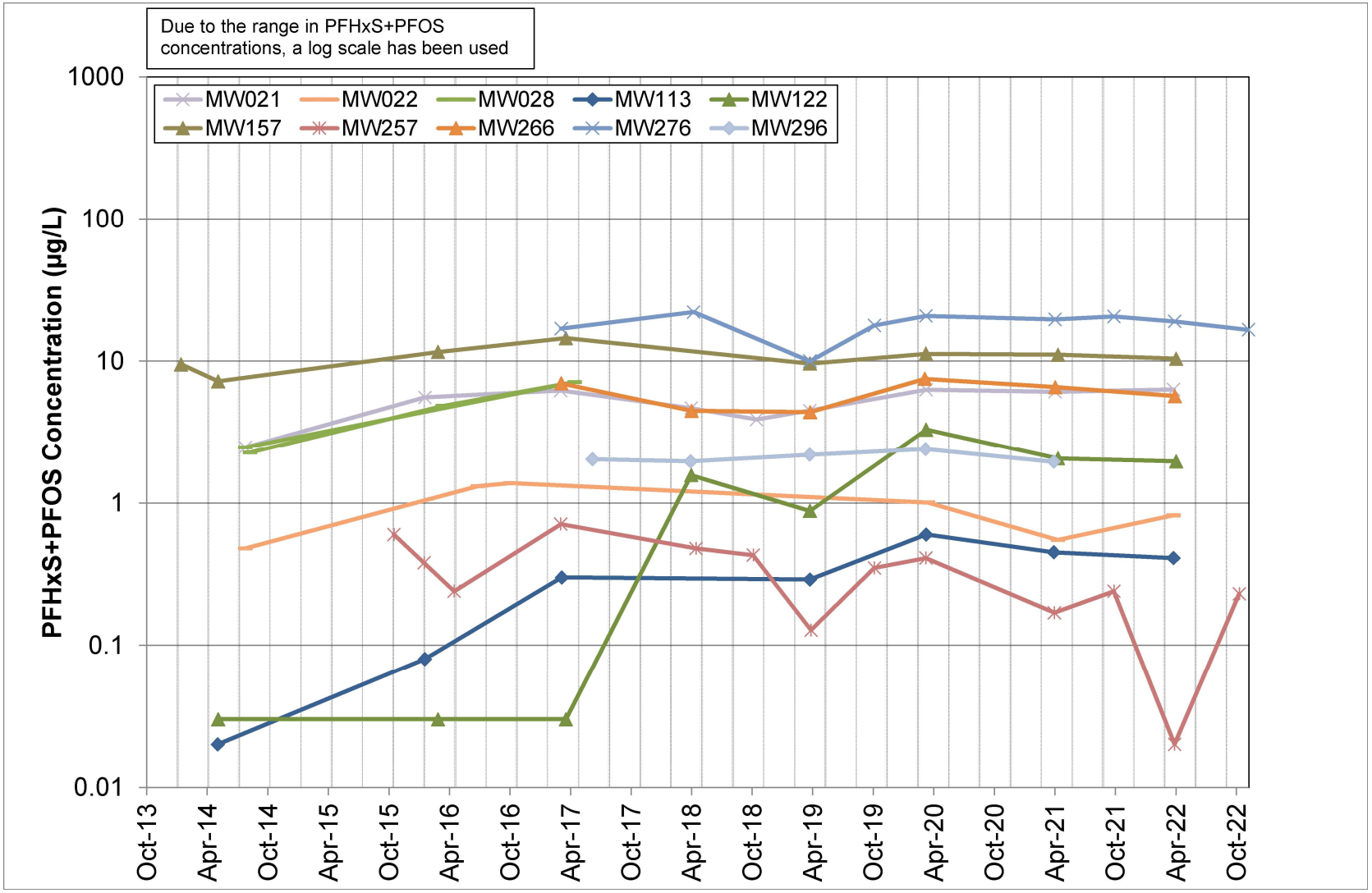


Chart D5 Groundwater PFHxS + PFOS concentrations in selected off-Base wells between 1 km and 2 km of the south-western corner of AACO: 2014 to 2022

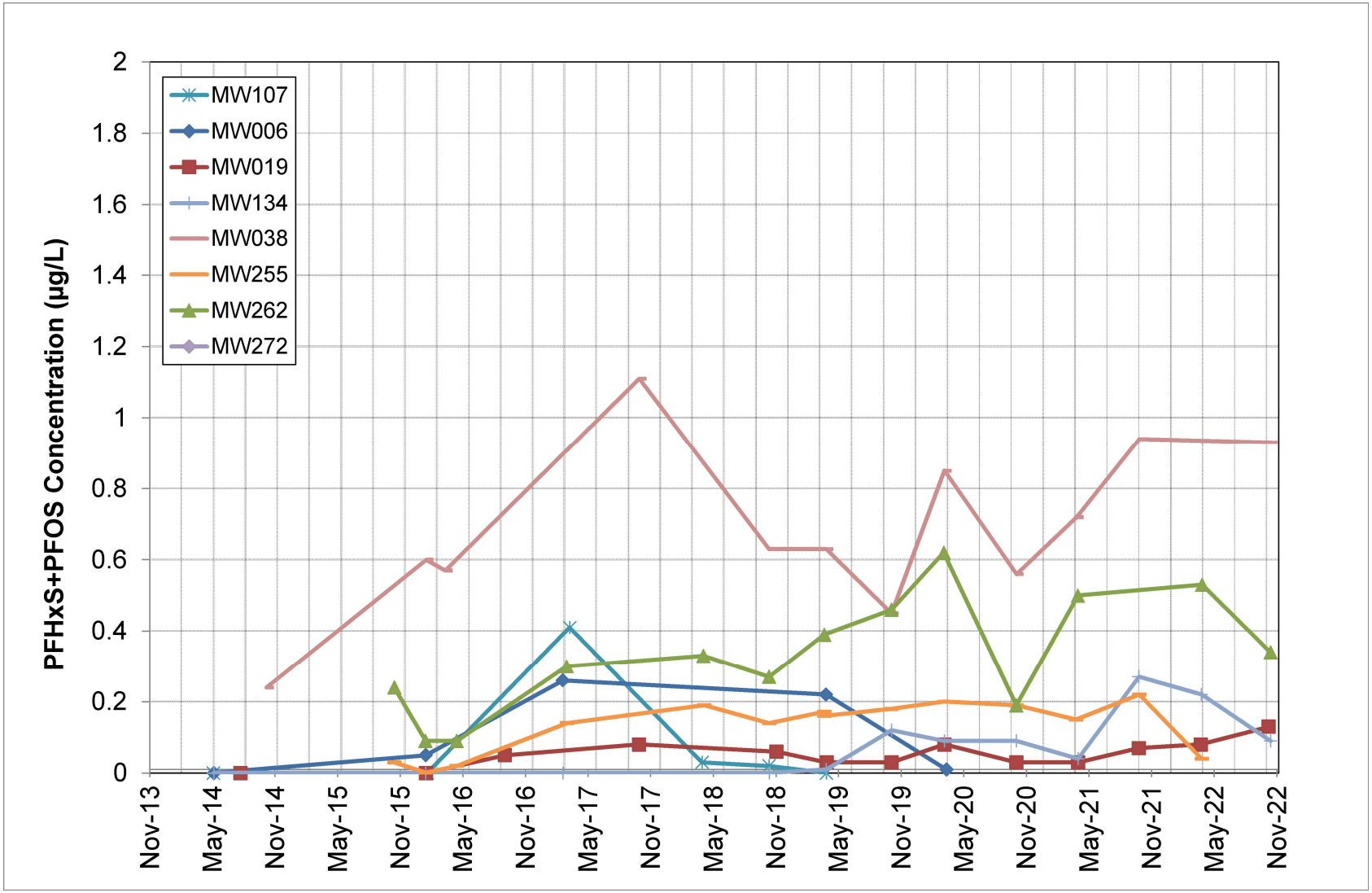


Chart D6 Groundwater PFHxS + PFOS concentrations in selected monitoring wells at Brymaroo: 2015 to 2022

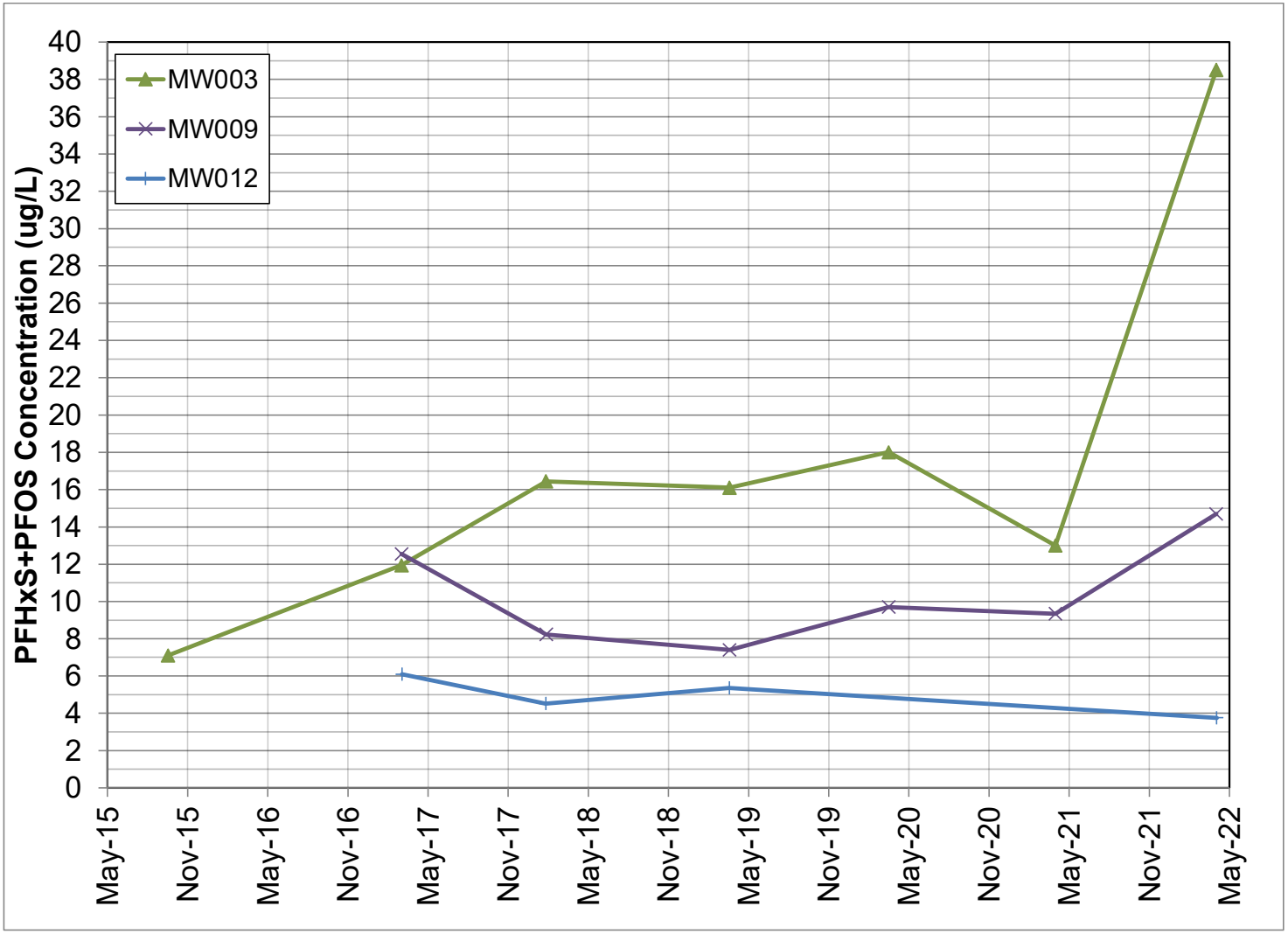


Chart D7 Groundwater PFHxS + PFOS concentrations in selected monitoring wells at Brymaroo: 2015 to 2022

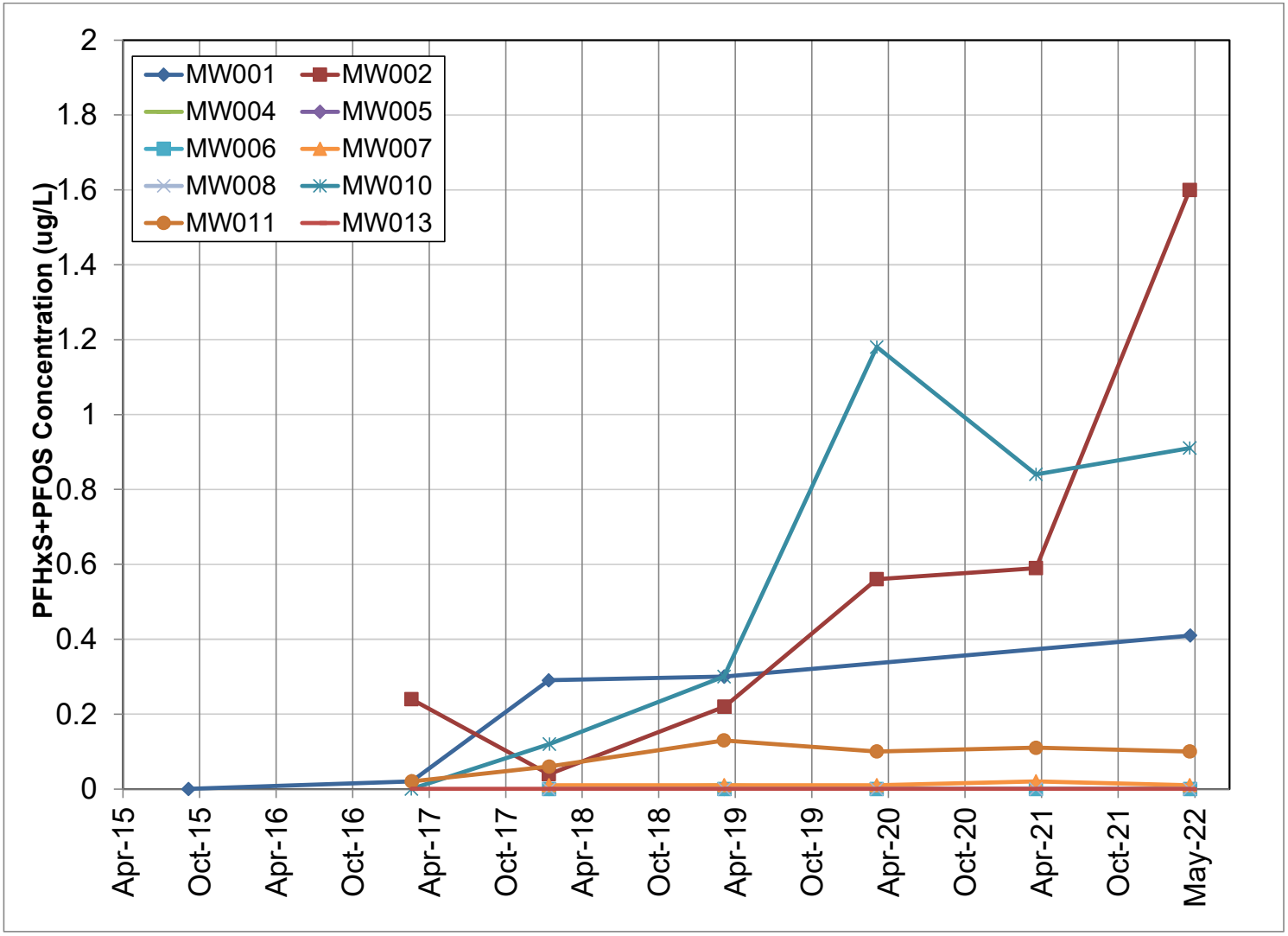


Chart D8 PFOS concentrations in surface water in drainage channels: 2014 to 2022

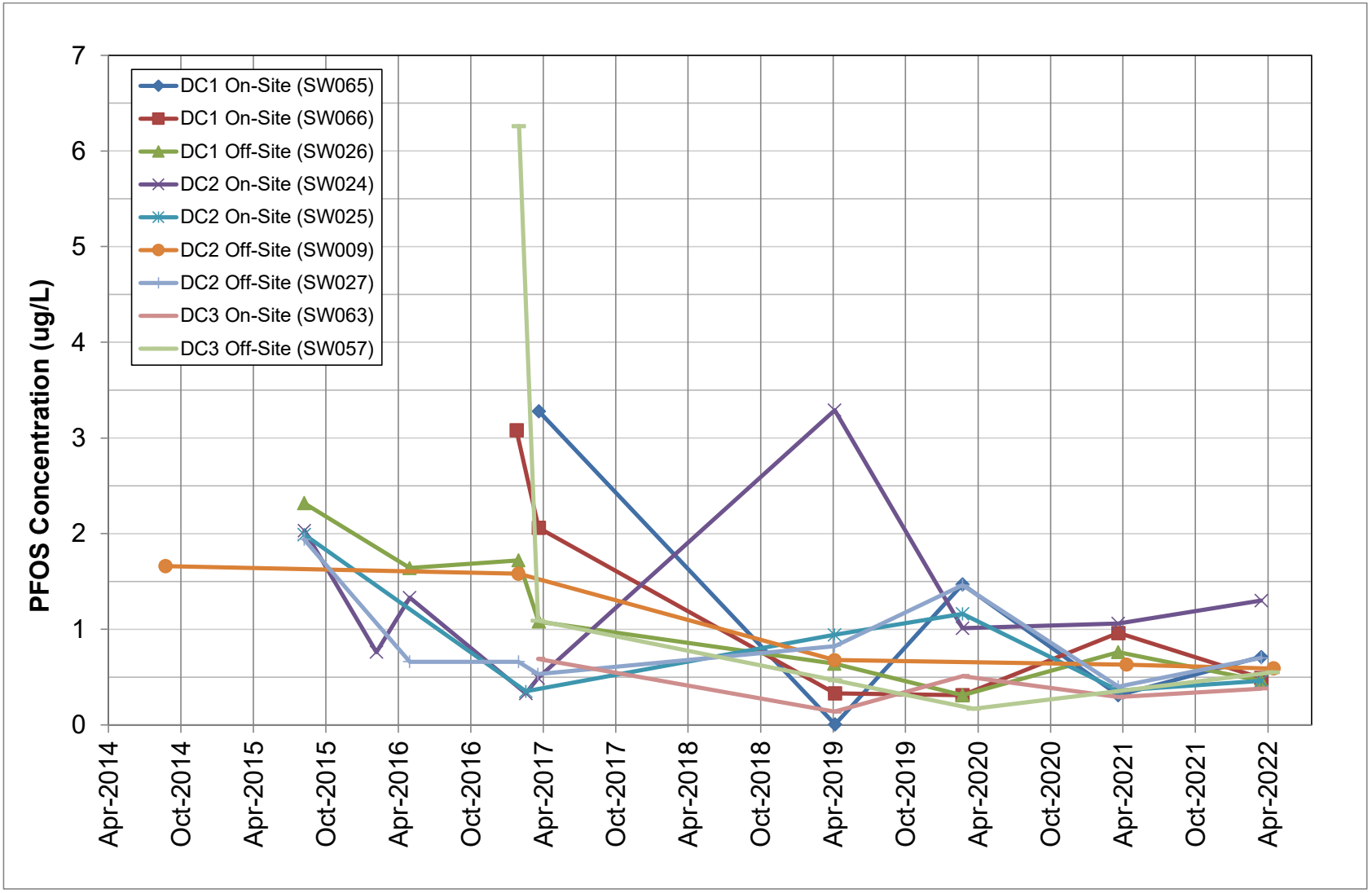
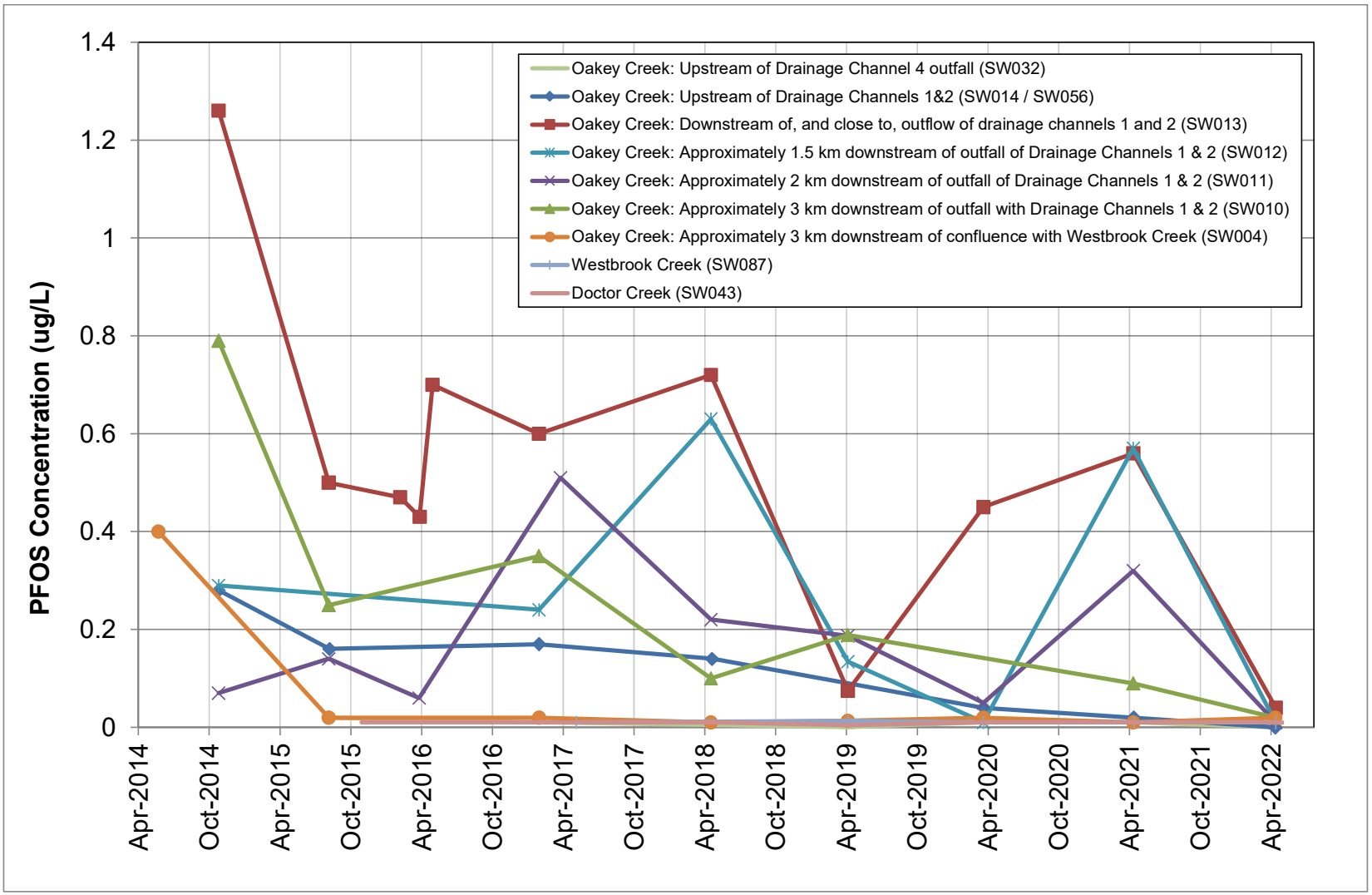


Chart D9 PFOS concentrations in surface water in creeks: 2014 to 2022



Appendix E

Sampling Event Factual Reports

Prepared for
Department of Defence
ABN: 68706814312

Sampling Event Factual Report, October 2021

PFAS OMP - Army Aviation Centre Oakey

17-Dec-2021
Doc No. 60612563_RP_043_0_211217

aecom.com

Delivering a better world

Sampling Event Factual Report, October 2021

PFAS OMP - Army Aviation Centre Oakey

Client: Department of Defence

ABN: 68706814312

Prepared by

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street, PO Box 1307, Fortitude Valley QLD 4006, Australia
T +61 7 3056 4800 www.aecom.com
ABN 20 093 846 925

17-Dec-2021

Job No.: 60612563

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

Quality Information

Document	Sampling Event Factual Report, October 2021
Ref	60612563
Date	17-Dec-2021
Prepared by	Camden McCosker
Reviewed by	Frances Lee

Revision History

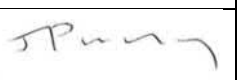
Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
A	19-Nov-2021	Draft	James Peachey Associate Director	
B	07-Dec-2021	Draft	James Peachey Associate Director	
0	17-Dec-2021	Final	James Peachey Associate Director	

Table of Contents

List of Tables (in Text)

List of Figures (in Appendix A)

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Abbreviations

Abbreviation	
AACO	Army Aviation Centre Oakey
AECOM	AECOM Australia Pty Ltd
ALS	Australian Laboratory Services
ASC NEPM	Assessment of Site Contamination National Environment Protection Measure 1999 (as amended 2013)
COC	Chain of Custody
DCMM	Defence Contamination Management Manual
Defence	Department of Defence
DO	Dissolved oxygen
EC	Electrical conductivity
HEPA	Heads of Environmental Protection Agencies
IP	Interface probe
LNAPL	Light non aqueous phase liquid
LOR	Limit of reporting
mAHD	metres Australian height datum
mbtoc	Metres below top of casing
NATA	National Association of Testing Authorities
NEMP	National Environmental Management Plan
NHMRC	National Health and Medical Research Council
NMI	National Measurement Institute
OMP	Ongoing management plan
ORP	Oxidation reduction potential
PFAS	Per- and poly-fluorinated alkyl substances
PFHxS	Perfluorohexane sulfonate
PFOA	Perflurooctanoic acid
PFOS	Perflurooctanesulfonic acid
PMAP	PFAS management area plan
QA/QC	Quality assurance / quality control
QLD	Queensland
RPD	Relative percent difference
SAQP	Sampling analysis and quality plan
SWL	Standing water level

PFAS Group	Compound	CAS No.
Perfluoroalkyl Sulfonic Acids	Perfluorobutane sulfonic acid (PFBS)	375-73-5
	Perfluoropentane sulfonic acid (PFPeS)	2706-91-4
	Perfluorohexane sulfonic acid (PFHxS)	355-46-4
	Perfluoroheptane sulfonic acid (PFHpS)	375-92-8
	Perfluorooctane sulfonic acid (PFOS)	1763-23-1
	Perfluorodecane sulfonic acid (PFDS)	335-77-3
Perfluoroalkyl Carboxylic Acids	Perfluorobutanoic acid (PFBA)	375-22-4
	Perfluoropentanoic acid (PFPeA)	2706-90-3
	Perfluorohexanoic acid (PFHxA)	307-24-4
	Perfluoroheptanoic acid (PFHpA)	375-85-9
	Perfluorooctanoic acid (PFOA)	335-67-1
	Perfluorononanoic acid (PFNA)	375-95-1
	Perfluorodecanoic acid (PFDA)	335-76-2
	Perfluoroundecanoic acid (PFUnDA)	2058-94-8
	Perfluorododecanoic acid (PFDoDA)	307-55-1
	Perfluorotridecanoic acid (PFTrDA)	72629-94-8
	Perfluorotetradecanoic acid (PFTeDA)	376-06-7
Perfluoroalkyl Sulfonamides	Perfluorooctane sulphonamide (FOSA)	754-91-6
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	2448-09-7
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2
	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6
(n:2) Fluorotelomer Sulfonic Acids	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0

Units of Measurement			
L	Litres	m	Metres
mg	Milligram	ha	Hectares
kg	Kilogram	µg	Microgram
mV	Millivolts		

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 (OMP) (Defence, 2019) at the Army Aviation Centre Oakey (AACO) (the 'Site') and the AACO Management Area in the South Queensland Region. The locations of the Site, and the Management Area are shown in **Figure 1** and **Figure 2** respectively in **Appendix A**. The OMP for AACO (Defence 2019) includes the following sampling events:

- Targeted groundwater sampling events in October 2019, October 2020 and October 2021
- Annual comprehensive sampling events in March/April 2020, April 2021 and April 2022 including groundwater, sediment and surface water sampling.

Following each comprehensive and targeted sampling event, sampling event factual reports 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 targeted sampling event completed in October 2021, specifically highlighting first time detections and/or first-time exceedances of human health screening criteria for perfluorohexane sulfonic acid (PFHxS) + perfluorooctane sulfonate (PFOS) and / or perfluorooctanoic acid (PFOA).

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

1.2 Objectives

The objectives of the OMP program are to:

- Implement the OMP prepared as part of the PFAS Management Area Plan (PMAP); and
- Collect data that will enable Defence to maintain an up to date understanding of the distribution, concentration and transport 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 PMAP.

The objective of this phase of works is to implement the scope of works for the targeted October 2021 sampling event in accordance with the sampling and analysis quality plan (SAQP) (AECOM, 2021).

2.0 Scope of Work

The sampling event at AACO was completed in general accordance with the SAQP (AECOM, 2021). In summary, the scope of works for this sampling event included:

- Obtaining access to private properties where some groundwater sampling locations are situated.
- Review of the SAQP prior to monitoring event to ensure compliance with the following:
  - PFAS National Environmental Management Plan (NEMP) (Heads of Environmental Protection Agencies [HEPA], 2020)
  - National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, as amended in 2013 (ASC NEPM, 2013)
  - Defence Routine Environment Water Quality Monitoring Manual
  - AS/NZ 5667:1998 Water quality – Sampling
  - Australian and New Zealand Guidelines for Fresh and Marine Water Quality
  - Relevant State regulatory guidelines.
- Gauging of groundwater level in monitoring wells prior to collection of samples (refer to **Table 1** below, and **Figure 3**, **Figure 4** and **Figure 5** in **Appendix A** for specific locations).
- As per the SAQP (AECOM, 2021), collection of groundwater samples at 49 locations including 41 monitoring wells (34 at AACO, and seven located off-Site) and eight off-Site residential bores (refer to **Table 1** below, and **Figure 3**, **Figure 4** and **Figure 5** in **Appendix A**). It is noted that groundwater samples from two on-Site monitoring wells and one off-Site residential bore could not be collected during this sampling event (refer to **Table 5** for details).
- Collection of a groundwater sample from one additional residential bore (MW031). However, the bore could not be sampled during this sampling event as the stakeholder did not respond to the sampling request.
- Collecting intra- and inter-laboratory duplicate samples at a rate of 1 in 10 primary samples and collecting one rinsate sample per fieldwork day when re-usable (i.e. decontaminated) equipment was in use.
- Analysis of all samples for a suite of 28 PFAS analytes at the standard limit of reporting (LOR).
- Data management of all OMP field and laboratory data in the Defence ESdat database.
- Preparation of this Sampling Event Factual Report.

Table 1 Groundwater Sampling Locations

Location		Monitoring Wells / Residential Bores
Source Area Bores	Fire training area in the north of the Site	MW253, MW254
	Former fire station in B3	MW201, MW202, MW203, MW204, MW205
	Aqueous film forming foam (AFFF) Storage Area / D20 appliance testing area	MW221, MW222, MW230, MW232
	AFFF recovery tank in F1 / hot refuel area	MW235, MW236, MW241
	AFFF recovery tank in A2 / hot refuel area	MW172, MW173
	AFFF recovery tank in S1	MW299, MW300
	AFFF Settling tank in C1	MW193, MW198, MW206, MW223, MW229
On-Site boundary bores (Oakey Creek Alluvium)		MW167, MW174, MW178, MW179, MW187, MW189, MW233, MW242, MW245, MW249, MW252
West and southwest of site		MW255, MW257, MW262, MW264, MW272, MW276, *MW003, MW019, MW022, MW031[1], MW038, MW056[2], MW134, MW147, MW151*
Underlying aquifers to south of the site		*MW269*

***Note**: Italics indicate residential bores.*

[1] MW031 is scheduled in the SAQP for sampling in the comprehensive event in April 2021. As the stakeholder did not provide access permission during the April 2021 sampling event, it was agreed with Defence to include sampling of this bore in the October 2021 event.
[2] Since October 2020, MW056 has replaced MW084 due to the property owner declining access.

3.0 Methodology

The methodology used for the annual targeted October 2021 sampling event was in accordance with the SAQP (AECOM, 2021) and is summarised below.

3.1 Groundwater Sampling Methodology

Table 2 Groundwater Sampling Methodology

Item	Details
Groundwater gauging	The depth to groundwater was measured in each monitoring well prior to the installation of HydraSleeves™ and immediately prior to collection of groundwater samples using an interface probe (IP).
Quality parameter field measurements	Temperature, electrical conductivity, dissolved oxygen, oxidation-reduction potential, pH and observations of water quality were recorded for all groundwater samples. Equipment calibration certificates are provided in **Appendix F**.
Sampling methodology	Groundwater samples were collected from all monitoring wells using no-purge methodology HydraSleeves™, which were installed within the screened interval of each well (based on a review of the well construction log) for a minimum of 24 hours prior to the sampling round. Once sampling was completed, new HydraSleeves™ were deployed at the screened interval depth in preparation for the next sampling round. There was insufficient groundwater in one monitoring wells (MW236) for Hydrasleeve sampling. Groundwater samples were collected by bailer. Bore water samples were collected by placing the laboratory sample bottle beneath the tap and the tap slowly opened to collect the “first flush” of water.
QA/QC samples	Field quality assurance / quality control (QA/QC) samples collected included intra-laboratory duplicate and inter-laboratory duplicate samples (i.e. splits) and rinsate samples. Refer to **Appendix C** for assessment of QA/QC sample data. Rinsate samples were collected at the rate of one sample per fieldwork day by pouring laboratory supplied PFAS-free deionised water over the decontaminated sampling equipment. The only reusable equipment that was decontaminated during the sampling event was the IP.
Sample analysis	All primary samples were submitted for analysis for the PFAS suite using the standard levels of detection. ALS Environmental (ALS) Brisbane, Queensland was used as the primary laboratory. The National Measurement Institute (NMI) of Sydney, NSW was used as the secondary laboratory. ALS and NMI methods for groundwater analyses were certified by the National Association of Testing Authorities (NATA). Chain of custody (COC) forms and laboratory certificates are presented in **Appendix D** and **Appendix E** respectively.

3.2 Adopted Screening Criteria

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

- PFAS NEMP, (HEPA, 2020)
- Department of Health, 2019. *Health Based Guidance Values for PFAS for use in site investigations in Australia.* April 2017 [updated September 2019]
- *National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1*, as amended in 2013

The adopted PFAS screening criteria to assess the data generated as part of the OMP are presented in **Table 3** below.

Table 3 Summary of Adopted Screening Criteria

Pathway	Compound	Criteria	Comment / Reference
Human Health Receptors			
Drinking water - groundwater	PFOS + PFHxS	0.07 µg/L	The values are from HEPA (2020). *All groundwater results will be compared to these criteria.*
	PFOA	0.56 µg/L	
Ecological Receptors			
Freshwater (99% species protection values)	PFOS	0.00023 µg/L	The values are from HEPA (2020). The 99% level of protection has been applied for slightly to moderately disturbed ecosystems. This approach is generally adopted for chemicals that bioaccumulate and biomagnify in wildlife. For the purposes of preliminary screening of analytical water results, the laboratory LOR will be adopted rather than sole use of the criteria value. *All groundwater results will be compared to these criteria.*
	PFOA	19 µg/L	

3.3 Data Quality Objectives and Data Validation

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

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

The 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 Defence Contamination Management Manual (DCMM) (Defence, 2018, amended 2019) requirements.

3.4 Deviations from the SAQP

Table 4 lists the deviations from the SAQP (AECOM, 2021) during this sampling event.

Table 4 Deviations from the SAQP during sampling event for October 2021

SAQP	October 2021 Sampling Event
Collection of groundwater samples at 49 locations	• The groundwater sample from residential bore MW022 was not collected as the stakeholder did not respond to the access request. • A groundwater sample was collected from MW056 in replacement to MW084. This change has been implemented since the October 2020 sampling event due to the MW084 stakeholder not providing access permission. • The groundwater samples from monitoring wells MW253 and MW254 were unable to be collected as the wells have been destroyed during a remediation project in this area.
Collection of groundwater samples from monitoring wells using no-purge HydraSleeves™	• The groundwater sample from monitoring well MW236 was collected via a grab sample using a bailer due to insufficient water column being present for Hydrasleeve sampling.

In addition, an attempt was made to sample bore MW031 in October 2021. MW031 was scheduled for sampling as part of the comprehensive event in April 2021, however, as the stakeholder did not provide access permission during the event, it was agreed with Defence to include sampling of this bore in October 2021. However, the stakeholder did not respond to the access request and a groundwater sample was not collected from MW031 during the October 2021 sampling event.

4.0 Field Observations and Results

The targeted October 2021 sampling event was completed between 11 and 15 October 2021. The results are summarised in following sections.

4.1 Groundwater

4.1.1 Groundwater Observations and Quality Parameter Field Measurements

Table 5 Groundwater Observations and Quality Parameter Field Measurements

Compound	Criteria
Access	All monitoring wells and bores were accessible except for the following: • The groundwater samples from residential bores MW022 and MW031 were not collected as the stakeholder did not respond to the access request. • The groundwater sample from monitoring wells MW253 and MW254 were unable to be collected as the wells have been destroyed during a remediation project in this area.
Monitoring Well Network	Covers to the following monitoring wells were noted to be damaged during the fieldworks: • The stick-up monument of monitoring well MW242 (on agricultural land leased from Defence) is broken and requires replacement. The well was able to be sampled.
Field Observations	A hydrocarbon odour and oil globules / sheen were noted during gauging of MW193 which is located east of Hangar C2 and close to Tank C59. The hydrocarbon contamination is associated with a known historical leak of petroleum hydrocarbons from Tank C60 in 2009 (AECOM, 2018) and is consistent with historical observations at this location. An organic odour was noted in MW257 and MW276. No visible or olfactory indications of contamination were observed during the sampling of the other monitoring wells. Field observations are presented **Table T1** in **Appendix B**.
Depth to LNAPL	Measurable LNAPL was not gauged in any of the monitoring wells during October 2021. Groundwater gauging data are presented in **Table T1** in **Appendix B**.
Depth to Groundwater	Depth to groundwater in the Oakey Creek Alluvium aquifer at AACO ranged between 4.307 (MW229) and 16.394 (MW201) mbtoc. Groundwater elevations in the Oakey Creek Alluvium aquifer ranged between 384.278 (MW264) and 401.226 (MW229) mAHD. Depth to groundwater in the one monitoring well that is screened in the Walloon Coal Measures (MW269) was 34.127 mbtoc at a corrected groundwater elevation of 367.831 mAHD. Groundwater gauging data are presented in **Table T1** in **Appendix B**.
Groundwater Flow Direction	Inferred groundwater contours and groundwater flow directions in the Oakey Creek Alluvium aquifer at the Site in October 2021 are shown on **Figure 5** in **Appendix A**. The inferred local groundwater flow direction is generally from east to west.

Compound	Criteria
Quality Parameter Field Measurements	Groundwater quality parameters were measured prior to collecting groundwater samples. The readings are presented in **Table T1** in **Appendix B** and are summarised below: • Electrical conductivity ranged from 200.9 µS/cm (MW232) to 8,986 µS/cm (MW300) indicating fresh to brackish conditions. • pH ranged from 6.36 (MW236) to 11.84 (MW269). pH results indicated near neutral to basic conditions. • Corrected redox ranged from -21.7 mV (MW269) to 130.9 mV (MW167) indicating mildly to strongly reducing conditions. • Temperature ranged from 21.8°C (MW173) to 27.7°C (MW229). • The dissolved oxygen results ranged between 0.25 (MW202) and 6.59 mg/L (MW167) indicating poorly to moderately oxygenated conditions).
Weather Conditions	Weather conditions during groundwater sampling were generally overcast with a total of 49 mm rainfall over the five-day sampling period between 11 – 15 October 2021 (Bureau of Meteorology (BOM) station 041359 – 'Oakey Aero').
Estate Management Works or Training Activities	During the sampling event no notable estate works or training activities were observed in the vicinity of sampling locations. In the period since the last sampling event in April 2021, one of the PFAS source areas at the Site (former fire training area) was remediated with soil excavated and removed off-site.

4.1.2 Groundwater Analytical Results

The PFAS groundwater analytical results from this sampling event are presented in **Table T2** in **Appendix B**. There were no first-time detections or first-time exceedances of the human health drinking water guideline values (HEPA, 2020) in the October 2021 sampling event for sum of PFHxS and PFOS and PFOA compared to the historical dataset.

Forty-one of the 46 groundwater samples exceeded the human health drinking water guideline value (HEPA, 2020) for sum of PFHxS and PFOS with 16 samples exceeding the PFOA guideline value. Forty-one groundwater samples exceeded the limit of reporting for PFOS and therefore exceeded the ecological guideline for PFOS for 99% protection of freshwater ecosystems (HEPA, 2020). None of the groundwater samples exceeded the PFOA ecological guideline value.

5.0 Summary and Next Sampling Event

5.1 Summary of Monitoring Event

A targeted groundwater monitoring event was completed within and outside of the AACO Management Area, between 11 October and 15 October 2021. The scope of work for the program included sampling of groundwater from 50 locations including 41 monitoring wells (34 at AACO, and seven located off-Site) and nine off-Site residential bores. Forty-six of the 50 groundwater sampling locations were able to be sampled.

Table 6 summarises the findings of the annual targeted October 2021 sampling event and the recommended actions.

Table 6 Summary of Sampling Event

Item	Comment	Recommended Actions
Access to sampling locations	Forty-six of the 50 groundwater sampling locations were able to be sampled. The non-sampling of the two residential bore sampling locations and on-base groundwater wells is not considered critical to understanding the distribution of PFAS in groundwater however effort should still be made to contact these stakeholders during future sampling events. The loss of MW253 and MW254 has the potential to impact on the understanding of the distribution of PFAS in groundwater.	Continue to attempt to engage stakeholders who did not respond to access permission requests. MW253 and MW254 are planned to be reinstated by the remediation contractor in February 2022.
Monitoring well network condition	No issues were identified in 45 out of the 46 monitoring wells sampled. Damage to one monitoring well was identified: • The stick-up monument for MW242 on Defence-leased land has been destroyed.	Defence to contact leaseholder to request repair of MW242 cover.
Analytical Results	PFAS concentrations were consistent with historical results for the 46 groundwater samples analysed.	Ongoing monitoring in accordance with the OMP.
First-time detections of Sum of PFHxS+PFOS or PFOA	There were no first-time detections of sum of PFHxS+PFOS or PFOA in the 46 groundwater samples analysed.	Ongoing monitoring in accordance with the OMP
First time exceedance of HEPA (2020) drinking water guideline values or NHMRC (2019) recreational use guidelines	There were no first-time exceedances of the HEPA (2020) drinking water guidelines.	Ongoing monitoring in accordance with the OMP

5.2 Upcoming Sampling Events

An annual comprehensive sampling event is scheduled for April 2022.

5.3 Upcoming Annual Interpretive Report

The next annual interpretative report is scheduled for September 2022.

6.0 References

AECOM, 2018, *Stage 1 Preliminary Investigation, Army Aviation Centre Oakey (0207), QLD*, October 2018.

AECOM, 2021, *PFAS OMP- AACO Sampling and Analysis Quality Plan*, 11 February 2021, Version 2.

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*.

Australian and New Zealand Governments and Australian state and territory governments [ANZG]. , 2018. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.*

Department of Defence, 2019. *PFAS Management Area Plan- Army Aviation Centre, Oakey*, July 2019.

Department of Defence, July 2018, Amended August 2019, *Defence Contamination Management Manual.*

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

Department of Health (DoH). (2019). Health Based Guidance Values for PFAS for use in site investigations in Australia. 2017, as updated in 2019.

FSANZ, 2017. *Supporting Document 1: Hazard assessment report – Perfluorooctane Sulfonate (PFOS), Perfluorooctanoic Acid (PFOA), Perfluorohexane Sulfonate (PFHxS)*.

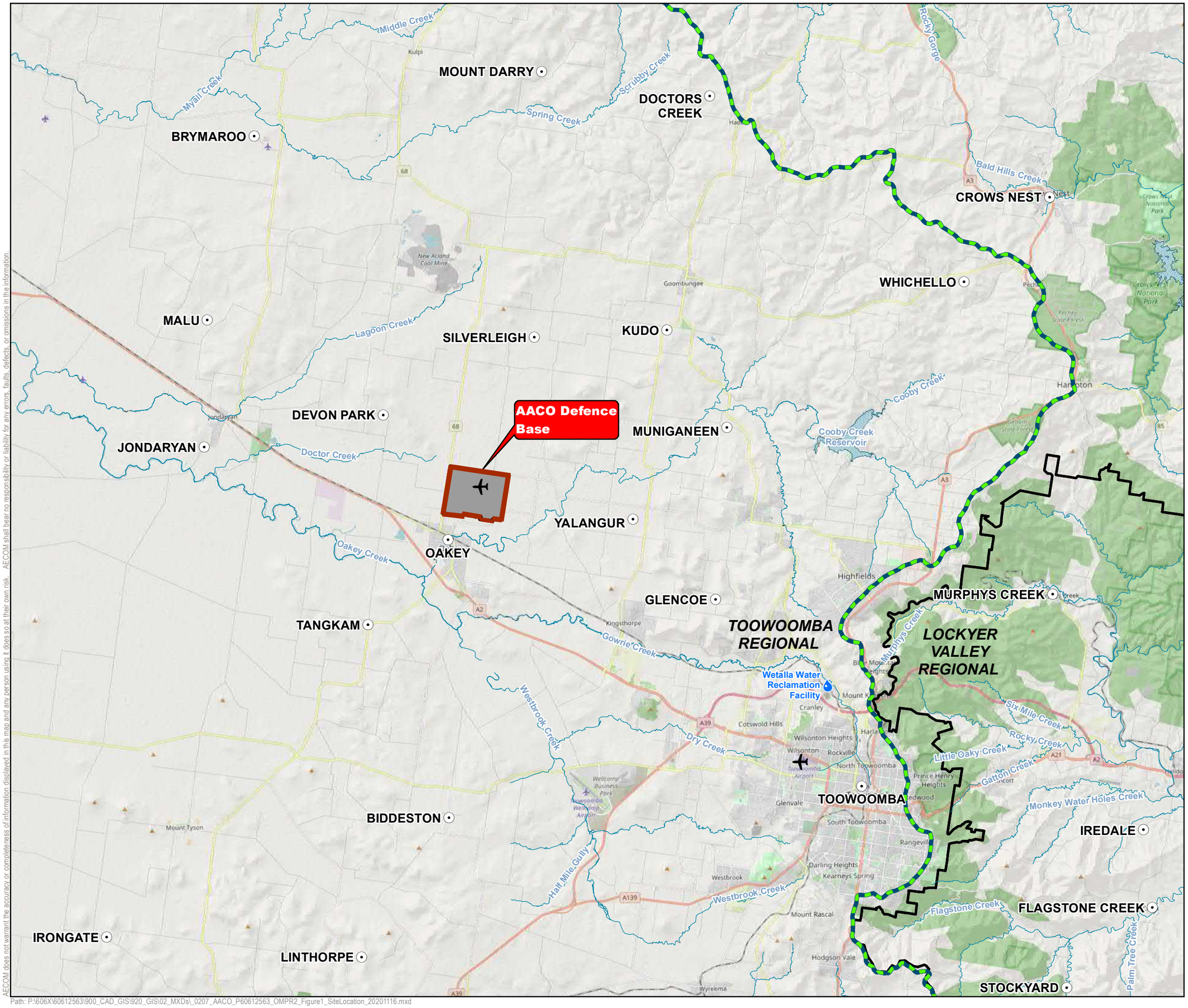
Heads of EPAs Australia and New Zealand, 2020. *PFAS National Environmental Management Plan*. January 2020

National Health and Medical Research Council, 2019. *Guidance on PFAS in Recreational Water. August 2019*. August 2019

Appendix A

Figures

Appendix A Figures



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AECOM
www.aecom.com

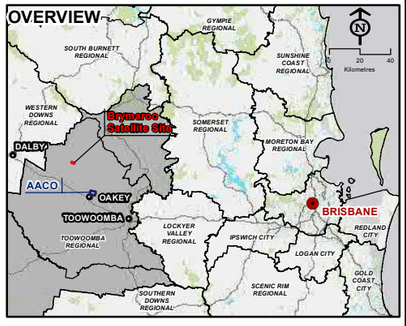
DATUM GDA 1994. PROJECTION MGA ZONE 56

0 2.5 5
Kilometres

1:200,000 (when printed at A3)

LEGEND

- Airport
- Watercourse/waterbody
- Great Dividing Range
- Investigation Area
- AACO Boundaries
- Local Governmental Area
- National Park



Data sources:

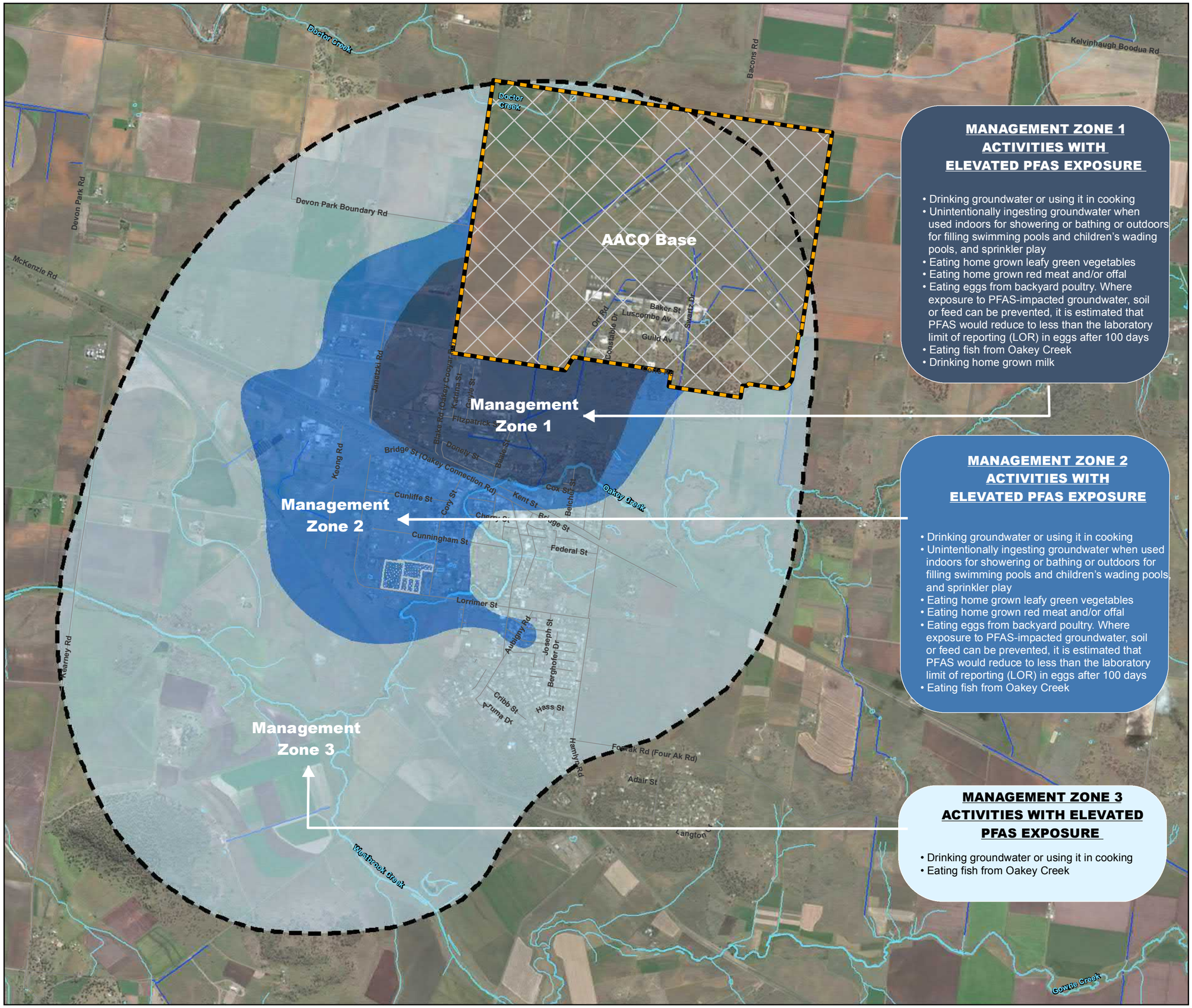
Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011

LOCATION OF AACO
PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: OCTOBER 2021

PROJECT ID	60612563
CREATED BY	WW
LAST MODIFIED	joel.bryant; 16/11/2020
VERSION:	1

FIGURE 1

A3 size



MANAGEMENT ZONE 1 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Unintentionally ingesting groundwater when used indoors for showering or bathing or outdoors for filling swimming pools and children's wading pools, and sprinkler play
- Eating home grown leafy green vegetables
- Eating home grown red meat and/or offal
- Eating eggs from backyard poultry. Where exposure to PFAS-impacted groundwater, soil or feed can be prevented, it is estimated that PFAS would reduce to less than the laboratory limit of reporting (LOR) in eggs after 100 days
- Eating fish from Oakey Creek
- Drinking home grown milk

MANAGEMENT ZONE 2 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Unintentionally ingesting groundwater when used indoors for showering or bathing or outdoors for filling swimming pools and children's wading pools, and sprinkler play
- Eating home grown leafy green vegetables
- Eating home grown red meat and/or offal
- Eating eggs from backyard poultry. Where exposure to PFAS-impacted groundwater, soil or feed can be prevented, it is estimated that PFAS would reduce to less than the laboratory limit of reporting (LOR) in eggs after 100 days
- Eating fish from Oakey Creek

MANAGEMENT ZONE 3 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Eating fish from Oakey Creek

LEGEND

- Drainage channel
- Watercourse/water body
- Former Landfill
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- AACO Base

km
0 0.25 0.5 1

SCALE 1:35,000
SIZE A3
SHEET 1 of 1
COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE
Figure 2 : Management Zones - Activities with Elevated PFAS Exposure

PROJECT
PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: OCTOBER 2021

CLIENT
DEPARTMENT OF DEFENCE

LEGEND

- On-Site Groundwater Monitoring Locations
- Destroyed Monitoring Well Location
- Drainage channel
- Watercourse/water body
- Site Boundary

0 75 150 300 m

AECOM

SCALE 1:9,000

SIZE A3

SHEET 1 of 1

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 3: On-Site Groundwater Monitoring Locations

PROJECT

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: OCTOBER 2021

CLIENT

DEPARTMENT OF DEFENCE

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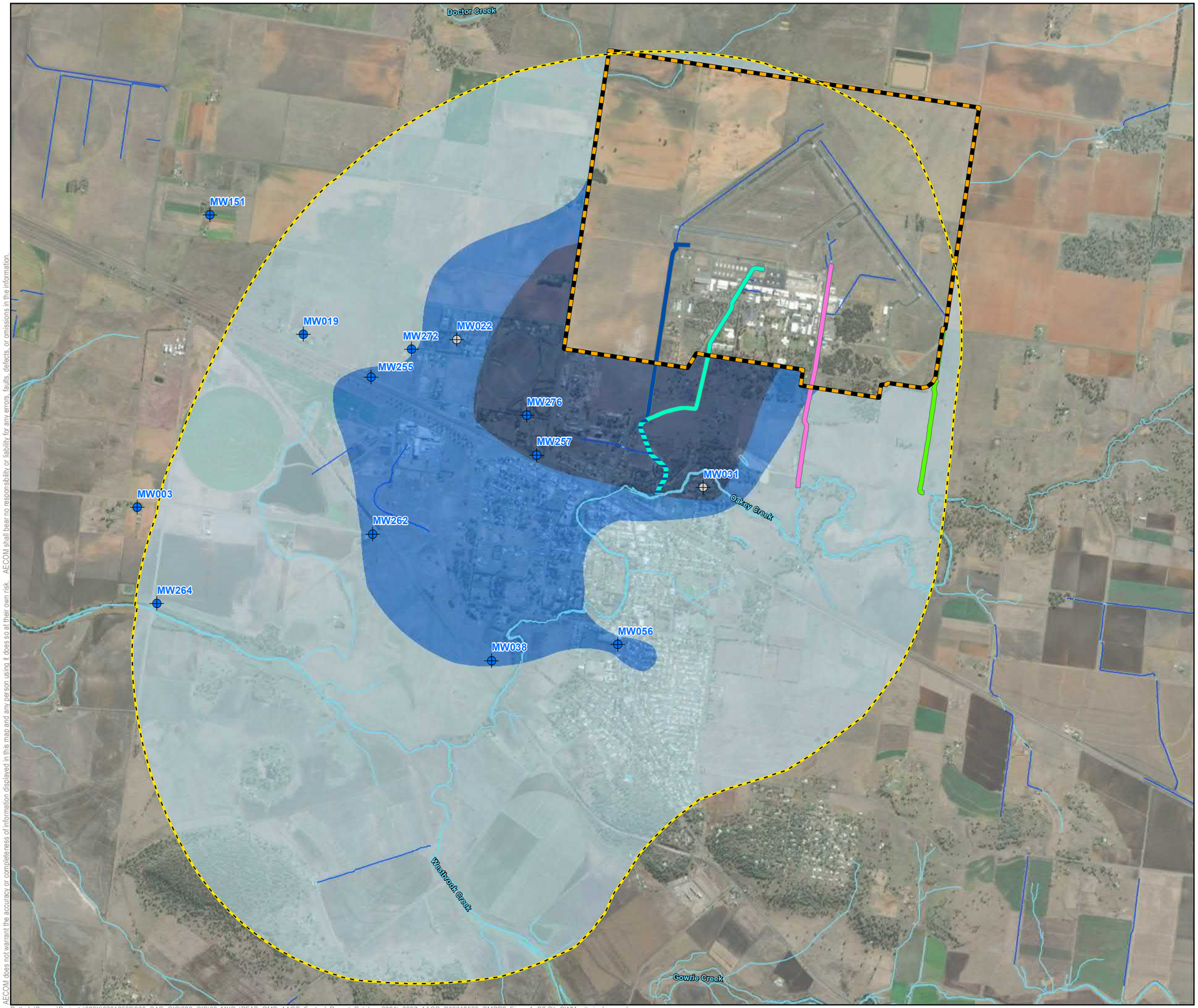

LEGEND

- Off-Site Groundwater Monitoring Locations
- Bores not accessible
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Management Area
- Site Boundary

Note that three bores are not displayed for privacy reasons.

N

0 0.25 0.5 1 km

AECOM

SCALE 1:32,000

SIZE A3

SHEET **1 of 1**

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 4: Off-Site Groundwater Monitoring Locations 2021

PROJECT

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: OCTOBER 2021

CLIENT

DEPARTMENT OF DEFENCE

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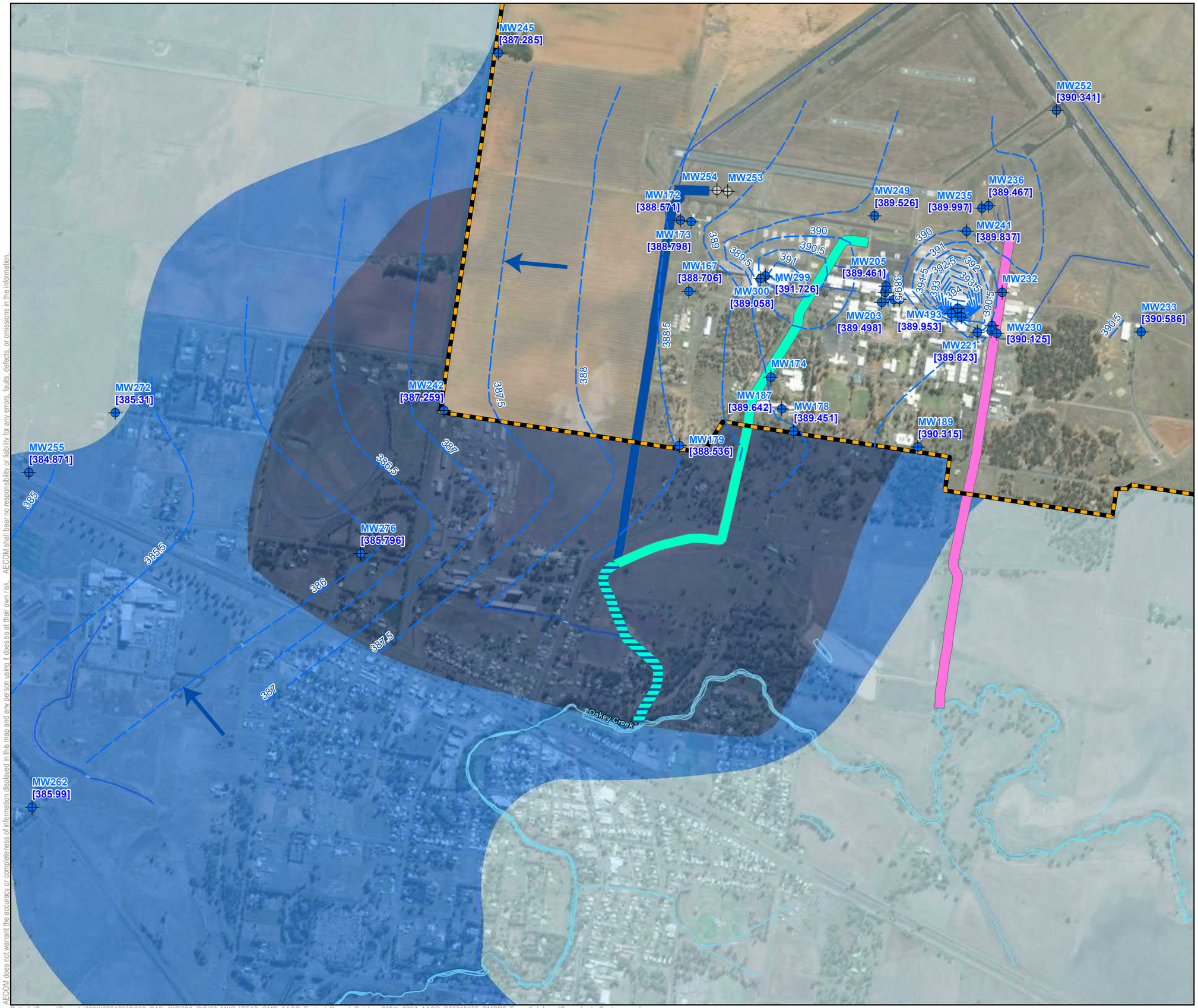

LEGEND

- On-Site Groundwater Monitoring Locations
- Destroyed Monitoring Well Location
- Groundwater Contour
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Management Area
- Site Boundary

[385.31] Groundwater elevation in mAHD

N

0 0.25 0.5 km

AECOM

SCALE 1:15,000	SIZE A3
SHEET **1 of 1**	COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 5: Inferred Groundwater Contours: October 2021

PROJECT

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: OCTOBER 2021

CLIENT

DEPARTMENT OF DEFENCE

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Appendix B

Tables

Appendix B Tables

Table T1 Groundwater Gauging and Quality Parameter Field Measurement Results

Property ID	Well ID		Date Hydrasleeve Installed	Date Hydrasleeve Sampled	Gauging Date	Depth to LNAPL (mbtoc)	Depth to Water (mbtoc)	TOC Elevation (mAHD)	Groundwater Elevation (mAHD)	Corrected Groundwater Elevation (mAHD)*	Well Depth (mbtoc)	Condition of Gatic	DO (mg/L) *Field measurement*	EC (µS/cm) *Field measurement*	pH *Field measurement*	E_r (mV) *Field measurement*	E_h (mV)	Temp (°C) *Field measurement*	Turbidity	Water Colour	Odour	Sheen	Sample Method / Comments
0207	MW003	0207_MW003_211014	None- tap	None- tap	-	-	-	-	-	-	-		1.74	2448	7.29	83.7	288.7	26.8	Clear	Clear	No odour	No sheen	Tap sample
0207	MW019	0207_MW019_211014	None- tap	None- tap	-	-	-	-	-	-	-	-	3.17	2648	7.15	110.2	315.2	23.5	Low	Clear	No odour	No sheen	Tap sample
0207	MW022	-	None- tap	None- tap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Stakeholder unable to be contacted
0207	MW031	-	None- tap	None- tap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Stakeholder unable to be contacted
0207	MW038	0207_MW038_211015	None- tap	None- tap	-	-	-	-	-	-	-	-	1.1	1047	8.61	43.4	248.4	24.1	Clear	Clear	No odour	No sheen	Tap sample
0207	MW056	0207_MW056_211014	13/04/2021	14/10/2021	14/10/2021	-	10.246	Unknown	-	-	20.68	Good	2.51	2343	6.9	97.8	302.8	23.9	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW134	0207_MW134_211014	None- tap	None- tap	-	-	-	-	-	-	-	-	2.17	2491	7.16	-21.1	183.9	24.1	Low	Orange/brown	No odour	No sheen	Tap sample
0207	MW147	0207_MW147_211014	None- tap	None- tap	-	-	-	-	-	-	-	-	2.36	3689	7.02	-87.2	117.8	22.3	Medium	Clear		No sheen	Tap sample
0207	MW151	0207_MW151_211014	None- tap	None- tap	-	-	-	-	-	-	-	-	4.24	2020	7.17	83	288	22.2	Clear	Clear	No odour	No sheen	Tap sample
0207	MW160	-	None- tap	None- tap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Stakeholder unable to be contacted
0207	MW167	0207_MW167_211011	17/04/2021	11/10/2021	11/10/2021	-	13.722	402.428	388.706	388.706	15.27	Good	6.59	1918	7.41	130.9	335.9	23.1	Medium	Clear	No odour	No sheen	Hydrasleeve
0207	MW172	0207_MW172_211013	14/04/2021	13/10/2021	13/10/2021	-	14.247	402.818	388.571	388.571	17.17	Good	2.61	1546	7.12	86.6	291.6	21.9	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW173	0207_MW173_211013	14/04/2021	13/10/2021	13/10/2021	-	14.464	403.262	388.798	388.798	17.86	Good	3.28	1683	9.67	86.4	291.4	21.8	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW174	0207_MW174_211013	11/10/2021	13/10/2021	11/10/2021	-	14.962	404.072	389.110	389.110	23.12	Good	2.73	2611	7.08	55.2	260.2	22.6	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW178	0207_MW178_211011	17/04/2021	11/10/2021	11/10/2021	-	14.062	403.513	389.451	389.451	17.41	Good	1.02	2972	7.15	-107.6	97.4	26.6	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW179	0207_MW179_211011	16/04/2021	11/10/2021	11/10/2021	-	14.464	403.000	388.536	388.536	19.42	Good	1.53	3996	7.28	-23.1	181.9	23	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW187	0207_MW187_211013	17/04/2021	13/10/2021	13/10/2021	-	14.934	404.576	389.642	389.642	18.31	Good	0.75	3698	6.56	63	268	23.9	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW189	0207_MW189_211013	17/04/2021	13/10/2021	13/10/2021	-	15.116	405.431	390.315	390.315	21.03	Good	1.47	4292	6.74	49.4	254.4	24	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW193	0207_MW193_211011	14/04/2021	11/10/2021	11/10/2021	-	15.723	405.676	389.953	389.953	19.65	Good	0.46	5676	6.92	-162.8	42.2	23.4	Clear	Clear	HC odour	Oil globules / sheen	Hydrasleeve
0207	MW198	0207_MW198_211011	14/04/2021	11/10/2021	11/10/2021	-	7.603	405.505	397.902	397.902	13.47	Good	0.54	2118	6.93	21.3	226.3	23.1	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW201	0207_MW201_211012	15/04/2021	12/10/2021	12/10/2021	-	16.394	404.900	388.506	388.506	19.86	Good	1.04	3824	6.67	51.8	256.8	22.1	Medium	Clear	No odour	No sheen	Hydrasleeve
0207	MW202	0207_MW202_211012	17/04/2021	12/10/2021	12/10/2021	-	15.482	405.100	389.618	389.618	19.18	Good	0.25	3533	6.89	45	250	22.7	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW203	0207_MW203_211012	15/04/2021	12/10/2021	12/10/2021	-	15.602	405.100	389.498	389.498	20.1	Good	4.3	2946	6.88	41.1	246.1	24.3	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW204	0207_MW204_211012	17/04/2021	12/10/2021	12/10/2021	-	15.782	405.200	389.418	389.418	19.99	Good	4.28	5478	6.84	59.3	264.3	22.7	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW205	0207_MW205_211012	17/04/2021	12/10/2021	12/10/2021	-	16.239	405.700	389.461	389.461	20.09	Good	2.76	2338	6.91	51.5	256.5	22.9	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW206	0207_MW206_211011	14/04/2021	11/10/2021	11/10/2021	-	14.461	405.72	391.259	391.259	19.13	Good	1.65	4156	7.2	-9.4	195.6	23.7	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW221	0207_MW221_211012	14/04/2021	12/10/2021	12/10/2021	-	15.673	405.496	389.823	389.823	19.35	Good	0.6	2269	7.26	22.5	227.5	24.7	Medium	Clear	No odour	No sheen	Hydrasleeve
0207	MW222	0207_MW222_211012	14/04/2021	12/10/2021	12/10/2021	-	15.896	405.658	389.762	389.762	19.01	Good	3.8	2626	7.15	58.4	263.4	23.4	Medium	Light brown	No odour	No sheen	Hydrasleeve
0207	MW223	0207_MW223_211012	14/04/2021	12/10/2021	12/10/2021	-	15.915	405.788	389.873	389.873	20.92	Good	4.72	2280	7.06	70.9	275.9	23.9	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW229	0207_MW229_211012	14/04/2021	12/10/2021	12/10/2021	-	4.307	405.533	401.226	401.226	15.68	Good	0.75	2215	7.58	-20.8	184.2	27.7	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW230	0207_MW230_211012	14/04/2021	12/10/2021	12/10/2021	-	15.291	405.416	390.125	390.125	18.97	Good	3.14	1872	7.08	52.4	257.4	23.2	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW232	0207_MW232_211013	14/04/2021	13/10/2021	13/10/2021	-	11.106	405.898	394.792	394.792		Good	4.47	200.9	6.68	75.9	280.9	22.5	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW233	0207_MW233_211014	17/04/2021	14/10/2021	14/10/2021	-	15.884	406.470	390.586	390.586	17.84	Good	4.56	1037	7.28	74.2	279.2	23	Turbid	Light brown	No odour	No sheen	Hydrasleeve
0207	MW235	0207_MW235_211013	14/04/2021	13/10/2021	13/10/2021	-	16.311	406.308	389.997	389.997	22.65	Good	0.76	1816	6.73	-51	154	23.3	Low	Light brown	No odour	No sheen	Hydrasleeve
0207	MW236	0207_MW236_211013	-	-	13/10/2021	-	16.186	405.653	389.467	389.467	16.72	Good	1.38	2013	6.36	76	281	24.8	Turbid	Clear	No odour	No sheen	Grab sample with bailer
0207	MW241	0207_MW241_211013	14/04/2021	13/10/2021	13/10/2021	-	16.046	405.883	389.837	389.837	18.08	Good	4.41	935	6.78	74.6	279.6	23.6	Turbid	Clear	No odour	No sheen	Hydrasleeve
0207	MW242	0207_MW242_211011	20/04/2021	11/10/2021	11/10/2021	-	14.771	402.030	387.259	387.259	20.03	Damaged	1.63	2351	7.58	-33.8	171.2	24.5	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW245	0207_MW245_211011	20/04/2021	11/10/2021	11/10/2021	-	15.696	402.981	387.285	387.285	20.55	Good	3.32	1535	7.15	66.7	271.7	21.9	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW249	0207_MW249_211013	14/04/2021	13/10/2021	13/10/2021	-	15.243	404.769	389.526	389.526	18.76	Good	3.86	1699	7.06	73.4	278.4	21.9	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW252	0207_MW252_211013	20/10/2020	13/10/2021	13/10/2021	-	15.821	406.162	390.341	390.341	16.64	Good	0.78	695	6.67	61.8	266.8	25.3	Turbid	Clear	No odour	No sheen	Hydrasleeve
0207	MW253	-	14/04/2021	-	-	-		-	-	-		-	-	-	-	-	-	-	-	-	-	-	Destroyed by remediation project.
0207	MW254	-	14/04/2021	-	-	-		-	-	-		-	-	-	-	-	-	-	-	-	-	-	Destroyed by remediation project.
0207	MW255	0207_MW255_211015	13/04/2021	15/10/2021	15/10/2021	-	12.913	397.784	384.871	384.871	24.06	Good	3.86	2796	7.23	69	274	23	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW257	0207_MW257_211014	17/04/2021	14/10/2021	14/10/2021	-	14.563	400.833	386.270	386.270	23.94	Good	0.9	3073	9.66	-183.5	21.5	26	Low	Clear	Organic odour	No sheen	Hydrasleeve
0207	MW262	0207_MW262_211014	19/04/2021	14/10/2021	14/10/2021	-	12.339	398.329	385.990	385.990	17.84	Good	1.5	2686	7.14	12.2	217.2	26.8	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW264	0207_MW264_211014	13/04/2021	14/10/2021	14/10/2021	-	8.477	392.755	384.278	384.278	11.04	Good	1	3270	6.83	20.8	225.8	24.6	Low	Clear	No odour	No sheen	Hydrasleeve
0207	MW269	0207_MW269_211015	15/04/2021	15/10/2021	15/10/2021	-	34.127	401.958	367.831	367.831		Good	1.46	2895	11.84	-226.7	-21.7	22.4	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW272	0207_MW272_211015	19/04/2021	15/10/2021	15/10/2021	-	12.662	397.972	385.310	385.310	19.99	Good		2722	7.21	81.3	286.3	23.8	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW276	0207_MW276_211014	19/04/2021	14/10/2021	14/10/2021	-	14.678	400.474	385.796	385.796	19.84	Good	1.04	3097	6.99	55.3	260.3	25	Medium	Clear	Organic odour	No sheen	Hydrasleeve
0207	MW299	0207_MW299_211012	17/04/2021	12/10/2021	12/10/2021	-	12.244	403.970	391.726	391.726	15.44	Good	0.54	8647	6.77	17.3	222.3	23.8	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW300	0207_MW300_211012	17/04/2021	12/10/2021	12/10/2021	-	14.657	403.715	389.058	389.058	16.43	Good	0.81	8986	7.38	32.3	237.3	24.7	Low	Clear	No odour	No sheen	Hydrasleeve

Notes

* = Corrected Groundwater Elevation, $h_c = h_{measured} + (H_{PSH} * (r_{PSH}/r_{water}))$

mbtoc is metres below top of casing

mAHD is metres above Australian height datum

LNAPL is light non-aqueous phase liquid

DO is dissolved oxygen

EC is electrical conductivity

E_h is oxidation reduction potential

Oxidation reducation potential (E_r) measured with a platinum electrode and a silver/silver chloride reference electrode (E_r) and converted to E_h by $E_h = E_r + 205$ mV (based on a groundwater temperature of 21°C)

Temp is Temperature

µS/cm is microsiemens per centrimetre

ºC is degrees Celcius

mV is millivolts

Table T2 Groundwater PFAS Analytical Results

		PFHxS and PFOS	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFDA	PFNA	PFDoDA	PFTeDA	PFTrDA	PFUnDA	FOSA	MeFOSE	EtFOSE	MeFOSA	EtFOSA	MFOSAA	EtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.02	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	0.05	0.02	0.02	0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.05	0.05	0.05	0.05	0.01
PFAS NEMP Human Health Drinking Water		**0.07**											**0.56**																		
PFAS NEMP Ecological Freshwater 99% Species Protection							*0.00023*						*19*																		
Location ID	**Sample ID**	**Lab Report Number**	**Sample Date**																												
MW003	0207_MW003_211014	EB2129563	14/10/2021	<0.01	<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	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.01
MW019	0207_MW019_211014	EB2129555	14/10/2021	**0.07**	<0.02	<0.02	0.05	<0.02	*0.02*	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.07
MW038	0207_MW038_211015	EB2129551	15/10/2021	**0.94**	0.05	0.05	0.32	0.03	*0.62*	<0.02	<0.1	<0.02	0.08	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	1.19
MW056	0207_MW056_211014	EB2129558	14/10/2021	**0.43**	0.05	0.03	0.32	<0.02	*0.11*	<0.02	<0.1	0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.62
MW134	0207_MW134_211014	EB2129553	14/10/2021	**0.27**	0.02	0.02	0.13	<0.02	*0.14*	<0.02	<0.1	<0.02	0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.34
MW147	0207_MW147_211014	EB2129559	14/10/2021	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	0.03	<0.02	0.03	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.07
MW151	0207_MW151_211014	EB2129560	14/10/2021	<0.01	<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	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.01
MW167	0207_MW167_211011	EB2129575	11/10/2021	**8.04**	0.7	0.63	3.03	0.29	*5.01*	<0.05	0.3	0.3	1.43	0.24	0.43	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	12.4
MW172	0207_MW172_211013	EB2129575	13/10/2021	**3.7**	0.22	0.23	1.2	0.09	*2.5*	<0.02	0.4	1.06	0.79	0.66	0.36	0.04	0.08	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.05	0.42	0.24	<0.05	8.29
MW173	0207_MW173_211013	EB2129575	13/10/2021	**5**	0.27	0.28	2.54	0.21	*2.46*	<0.02	0.3	1.1	1.18	0.63	**0.6**	0.02	0.14	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.76	<0.05	<0.05	10.5
MW174	0207_MW174_211013	EB2129575	13/10/2021	**0.16**	<1.43	<0.02	0.08	<0.02	*0.08*	<0.02	<0.1	0.4	0.16	0.09	0.01	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.16	<0.05	<0.05	0.98
MW178	0207_MW178_211011	EB2129575	11/10/2021	<0.01	<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	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.01
MW179	0207_MW179_211011	EB2129575	11/10/2021	**6.65**	0.62	0.56	2.76	0.31	*3.89*	<0.02	0.2	0.28	1.7	0.26	0.43	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	11
MW187	0207_MW187_211013	EB2129575	13/10/2021	**1.04**	<0.06	0.07	0.67	<0.05	*0.37*	<0.05	<0.2	<0.05	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.23
MW189	0207_MW189_211013	EB2129575	13/10/2021	**0.19**	<0.02	<0.02	0.1	<0.02	*0.09*	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.19
MW193	0207_MW193_211011	EB2129575	11/10/2021	**45.4**	4.26	4.47	20.7	2.28	*24.7*	<0.02	4.2	2.47	11.3	2.75	**4.16**	<0.02	0.05	<0.02	<0.06	<0.02	<0.02	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	0.14	<0.05	<0.05	81.5
MW198	0207_MW198_211011	EB2129575	11/10/2021	**8.73**	0.25	0.29	2	0.33	*6.73*	<0.02	0.1	0.25	0.67	0.2	0.31	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	11.1
MW201	0207_MW201_211012	EB2129575	12/10/2021	**117**	12.6	14.3	80.2	5.58	*36.5*	<0.1	2.1	3.57	19.8	2.7	**5.41**	<0.1	<0.1	<0.1	<0.24	<0.1	<0.1	<0.1	<0.24	<0.24	<0.24	<0.24	<0.1	<0.1	<0.1	0.44	<0.1	<0.1	183
MW202	0207_MW202_211012	EB2129575	12/10/2021	**316**	17.1	17.5	114	8.28	*202*	<0.24	3.6	6.6	31.1	4.26	**9.33**	<0.24	0.26	<0.24	<0.6	<0.24	<0.24	<0.24	<0.6	<0.6	<0.6	<0.6	<0.24	<0.24	<0.24	1.6	<0.24	<0.24	416
MW203	0207_MW203_211012	EB2129575	12/10/2021	**17.5**	1.83	1.92	11	0.83	*6.46*	<0.02	0.4	0.65	3.46	0.58	**1**	<0.02	0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	28.2
MW204	0207_MW204_211012	EB2129575	12/10/2021	**157**	16.9	24.3	140	7.07	*17*	<0.1	3	4.58	27	4.81	**8.14**	<0.1	<0.1	<0.1	<0.25	<0.1	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	<0.1	<0.1	<0.1	0.44	<0.1	<0.1	253
MW205	0207_MW205_211012	EB2129575	12/10/2021	**13.8**	1.24	1.31	7.61	0.52	*6.17*	<0.02	0.3	0.42	2.25	0.37	**0.6**	<0.02	0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	20.8
MW206	0207_MW206_211011	EB2129575	11/10/2021	**9.76**	0.79	0.74	4.92	0.42	*4.84*	<0.02	0.2	0.28	1.3	0.33	0.52	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	14.3
MW221	0207_MW221_211012	EB2129575	12/10/2021	**3.87**	0.42	0.42	2.04	0.18	*1.83*	<0.02	0.2	0.25	1.11	0.26	0.38	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	7.09
MW222	0207_MW222_211012	EB2129575	12/10/2021	**27.9**	1.82	1.94	12.3	1.44	*15.6*	<0.05	2	5	9.61	4.17	**5.83**	<0.05	0.88	<0.05	<0.12	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	3.67	0.06	<0.05	64.3
MW223	0207_MW223_211012	EB2129575	12/10/2021	**23.5**	0.98	1.11	8.89	0.86	*14.6*	<0.02	8.9	40.8	18.7	13.1	**11**	0.05	2.23	<0.02	<0.06	<0.02	<0.02	0.04	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	8.98	0.58	<0.05	131
MW229	0207_MW229_211012	EB2129575	12/10/2021	**29.8**	0.79	1	7.35	0.63	*32.9*	<0.05	<0.2	0.3	1.93	0.17	0.54	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	35.1
MW230	0207_MW230_211012	EB2129575	12/10/2021	**17**	0.98	0.96	6.66	0.74	*10.3*	<0.02	4.7	22.5	13.4	8.33	**7.44**	0.04	1.73	<0.02	<0.06	<0.02	<0.02	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	4.35	0.18	<0.05	82.3
MW232	0207_MW232_211013	EB2129575	13/10/2021	**5.73**	0.08	0.12	1.19	0.04	*4.54*	<0.02	0.5	2.09	1.32	0.68	**0.59**	0.35	0.12	<0.02	<0.06	<0.02	<0.02	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	0.09	1.38	<0.05	13.1
MW233	0207_MW233_211014	EB2129575	14/10/2021	**1.97**	0.17	0.16	1.06	0.05	*0.91*	<0.02	<0.1	0.06	0.22	0.04	0.09	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	2.76
MW235	0207_MW235_211013	EB2129575	13/10/2021	**27.3**	6.94	8.2	22.1	0.61	*5.19*	<0.02	1.9	2.53	13.7	1.27	**1.03**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	63.5
MW236	0207_MW236_211013	EB2129575	13/10/2021	**24.78**	6.94	7.24	21	0.39	*3.78*	<0.1	0.9	2.42	13.4	1.25	**1.06**	<0.1	<0.1	<0.1	<0.24	<0.1	<0.1	<0.1	<0.24	<0.24	<0.24	<0.24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	24.8
MW241	0207_MW241_211013	EB2129575	13/10/2021	**5.96**	0.16	0.21	1.67	0.15	*4.29*	<0.02	0.1	0.08	0.25	0.07	0.17	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	7.15
MW242	0207_MW242_211011	EB2129575	11/10/2021	**1.34**	0.1	0.09	0.59	0.04	*0.75*	<0.02	<0.1	0.04	0.16	0.02	0.04	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	1.83
MW245	0207_MW245_211011	EB2129575	11/10/2021	**0.38**	0.04	0.04	0.24	<0.02	*0.14*	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.53
MW249	0207_MW249_211013	EB2129575	13/10/2021	**4.52**	0.91	1.03	4.34	0.08	*0.18*	<0.02	0.3	0.51	1.82	0.21	0.14	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	9.52
MW252	0207_MW252_211013	EB2129575	13/10/2021	**17.3**	0.97	1.21	6.13	0.47	*11.2*	<0.02	0.3	0.51	1.22	0.31	0.53	<0.02	0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	22.9
MW255	0207_MW255_211015	EB2129575	15/10/2021	**0.22**	0.03	0.03	0.15	<0.02	*0.07*	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.3
MW257	0207_MW257_211014	EB2129575	14/10/2021	**0.24**	<0.02	<0.02	0.14	<0.02	*0.1*	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.24
MW262	0207_MW262_211014	EB2129575	14/10/2021	**0.42**	0.05	0.05	0.24	<0.02	*0.18*	<0.02	<0.1	<0.02	0.04	<0.02	0.03	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.59
MW264	0207_MW264_211014	EB2129575	14/10/2021	<0.01	<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	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.01
MW269	0207_MW269_211015	EB2129565	15/10/2021	**0.12**	<0.02	<0.02	0.04	<0.02	*0.08*	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.12
MW272	0207_MW272_211015	EB2129575	15/10/2021	**0.76**	0.09	0.1	0.55	0.02	*0.21*	<0.02	<0.1	0.02	0.12	<0.02	0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	1.13
MW276	0207_MW276_211014	EB2129575	14/10/2021	**20.6**	1.09	1.38	8.98	0.71	*11.6*	<0.02	0.4	0.47	1.94	0.34	**0.68**	<0.02	<0.02	<0.02	<0.06	<0.02	<0.02	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	27.6
MW299	0207_MW299_211012	EB2129575	12/10/2021	**46.7**	7.5	7.16	31.3	1.73	*15.4*	<0.02	2.4	4.27	18.6	3.92	**6.39**	<0.02	<0.02	<0.02	<0.06	<0.02	<0.02	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	0.25	<0.05	<0.05	98.9
MW300	0207_MW300_211012	EB2129575	12/10/2021	**87**	9.58	9.84	42.9	4.27	*44.1*	<0.05	3.5	4.75	19.3	4.48	**8.59**	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	0.13	<0.05	<0.05	151

LOR is limit of reporting
µg/L is micrograms per litre
-' denotes no analysis undertaken
<' denotes concentration is less than
NEMP is National Environmental Mangement Plan
NHMRC is National Health Medical Research Council
Denotes first time detection above LOR
Denotes new exceedance of human health guideline values

Appendix C

Analytical Data Validation

Appendix C Analytical Data Validation

DATA VALIDATION REPORT

Project No.:	60612563	**Validation by:** Camden McCosker	**Date:** 04/11/21
Client:	Department of Defence		
Site:	Army Aviation Centre Oakey		
Matrix type:	Groundwater	**Data verified by:** Frances Lee	**Date:** 17/11/21
No. of primary samples:	46 groundwater		
Laboratory:	ALS (Brisbane), NMI (Sydney)	**Project Manager:** James Peachey	
Lab reference:	EB2129551; EB2129553; EB2129555; EB2129558; EB2129559; EB2129560; EB2129565; EB2129575; RN1332382		

Key Issues:	No QA/QC issues were identified in the field or laboratory datasets that could have a material implication on data interpretation and therefore decision-making on the project. The data are therefore considered appropriate for use to meet the project objectives.

Field QA/QC

Sampling personnel	Sampling was conducted by Camden McCosker on 11 – 15 October 2021.
Sampling Methodology	Samples were collected using appropriate methods as identified within the main body of the report.
Hydrasleeve duration	All Hydrasleeves were installed in monitoring wells for a minimum of 24 hours.
Chain of Custody (COC)	COC documents completed as per AECOM procedures.
Rinsate Blank (refer to **Table C2**)	Rinsate blank samples were collected at a frequency of one per day of sampling (five in total). All rinsates were collected from the decontaminated interface probe. PFAS concentrations were reported below the LOR for all analytes tested.
Frequency of field QC	Field duplicate (intra-laboratory duplicates) and triplicates (inter-laboratory duplicates) were collected in at a frequency of one in ten primary samples (total of six duplicate / triplicate pairs @ 13.04%).
Handling and preservation	Primary, duplicate and triplicate samples were received preserved and chilled at the laboratory. All samples were received at the laboratory in appropriate sample containers with no sample container / preservation non-compliances noted.

Laboratory QA/QC

Holding time compliance	Samples were extracted and analysed within the recommended holding times.
Laboratory Accreditation	The laboratory analysis was conducted by ALS Environmental Pty Ltd (Brisbane) a National Association of Testing Authorities (NATA) accredited laboratory. The triplicate samples were analysed at the national Measurement Institute (Sydney), also a NATA accredited laboratory.

Frequency of laboratory QC	The laboratory reported a sufficient frequency of quality control samples to assess whether the results have been reported to an acceptable accuracy and precision, except: • Laboratory duplicates for PFAS (0.00%) which was below the expected rate of 10.0% in EB2129551 (eight samples in batch); EB2129553 (eight samples in batch); EB2129555 (eight samples in batch); EB2129558 (eight samples in batch); EB2129559 (eight samples in batch); EB2129560 (eight samples in batch); EB2129563 (eight samples in batch); EB2129565 (eight samples in batch). • Matrix spikes for PFAS (0.00%) w which was below the expected rate of 5.00% in EB2129551 (eight samples in batch); EB2129553 (eight samples in batch); EB2129555 (eight samples in batch); EB2129558 (eight samples in batch); EB2129559 (eight samples in batch); EB2129560 (eight samples in batch); EB2129563 (eight samples in batch); EB2129565 (eight samples in batch). • Laboratory duplicates for PFAS (8.16%) which was below the expected rate of 10.0% in EB2129575 (49 samples in batch) • Matrix spikes for PFAS (4.08%) which was below the expected rate of 5.00% in EB2129575 (49 samples in batch) The reason for insufficient laboratory and matrix spikes being analysed for the above batches is unknown as the laboratory was provided with sufficient sample volume for the project. The laboratory was queried on this discrepancy and provided the below response: "*…Analytical "runs" are created in 20 sample lots. The Duplicates are assigned 2 in every 20 samples and the Matrix Spikes are assigned 1 in every 20 samples. Depending on the size of your work order some runs may also include samples from other submissions.* *Either way, runs are created in chronological order of the "IDs" within the work order (ie how they've been submitted on the COC). Our LIMS then assigns laboratory QC to samples with sufficient bottles within the analytical run. It is not smart enough to create runs with samples "out of order" to allow for frequency compliance using samples with extra containers, to be distributed throughout multiple runs within an entire work order.* *Because all of your extra containers are within the first half of the work order, there were no samples in the last two analytical runs on which to assign laboratory QC.* *For future submissions it will be better to provide extra containers on the 1st, 2nd, 11th, 21st 22nd, 31st samples etc. This will ensure the laboratory QC can be assigned in line with how our analytical runs are created*." As all other QC results met control limits this is not expected to impact data quality. This issue is being addressed with the laboratory.
Method Blank	Method blank concentrations were not detected above the LOR for all analytes tested.
Laboratory duplicate RPDs	Laboratory duplicate Relative Percentage Differences (RPD) were within control limits for all samples.
Laboratory control spike recovery	Laboratory Control Spikes (LCS) recoveries were within the control limits across all primary laboratory batches.
Matrix spike recovery	All Matrix Spike (MS) recoveries (where reported) were within control limits, except: • PFHxS, PFOS and PFHxA in 0207_MW221_211012 where MS recovery was not determined due to background level greater than or equal to four times spike level in EB2129575 • PFOS in 0207_MW241_211013 where MS recovery was not determined due to background level greater than or equal to four times spike level in EB2129575 These non-conformances are not expected to impact data quality.
Surrogate spike recovery	Surrogate spike recoveries were within control limits.

QA/QC Data Evaluation	
Comparison of Field Observations and Laboratory Results	No anomalous results between field observations and analysis results were noted.
Data transcription	A random 10% check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by AECOM.
Limits of reporting	Limits of Reporting (LORs) were sufficiently low to enable assessment against adopted screening levels except for PFOS for NEMP (HEPA, 2020) ecological guideline values for the 99% protection of freshwater species. The potential exists for concentrations of PFOS to be above the adopted guideline, but below the laboratory LOR. This should be taken into consideration when interpreting and using this data quantitatively where results are reported below LOR.
Field duplicate RPDs (refer to **Table C1**)	Field duplicate RPDs were reported within control limits except the following (the sample with the higher concentration is in bold): • 0207_MW229_211012 and **0207_QC159_211012** for PFOS (38%) • 0207_MW236_211013 and **0207_QC160_211013** for PFBS (70%) • • 0207_MW236_211013 and **0207_QC160_211013** for PFHpA (98%). • 0207_MW236_211013 and **0207_QC160_211013** for PFHxA (101%) • 0207_MW236_211013 and **0207_QC160_211013** for PFPeS (107%) • 0207_MW236_211013 and **0207_QC160_211013** for PFPeA (75%) • 0207_MW236_211013 and **0207_QC160_211013** for PFOA (42%) • 0207_MW236_211013 and **0207_QC160_211013** for PFHxS (94%) The reason(s) for the discrepancies is unknown. Although the duplicate samples highlighted above reported a higher concentration than the primary sample, the higher duplicate sample concentrations do not constitute a first-time detection of PFOA or PFHxS+PFOS or a new maximum of the same concentrations and therefore the elevated RPDs are not considered to affect data interpretation for use in this report.. The higher concentration has however conservatively been adopted in the report tables.
Field triplicate RPDs (refer to **Table C1)**	Field triplicate RPDs were reported within control limits with the exception of the following (the sample with the higher concentration is in bold): • **0207_MW206_211011** and 0207_QC156_211011 for PFBS (32%) • **0207_MW206_211011** and 0207_QC156_211011 for PFHpS (63%) • **0207_MW206_211011** and 0207_QC156_211011 for PFHxA (35%) • **0207_MW206_211011** and 0207_QC156_211011 for PFPeS (37%) • **0207_MW206_211011** and 0207_QC156_211011 for PFUnDA (35%) • **0207_MW221_211012** and 0207_QC157_211012 for PFHxA (44%) • **0207_MW221_211012** and 0207_QC157_211012 for PFPeS (30%) • **0207_MW221_211012** and 0207_QC157_211012 for PFOS (50%) • **0207_MW222_211012** and 0207_QC158_211012 for 6:2 FTS (34%) • **0207_MW222_211012** and 0207_QC158_211012 for PFHpS (48%) • **0207_MW222_211012** and 0207_QC158_211012 for PFHxA (45%) • **0207_MW222_211012** and 0207_QC158_211012 for PFPeS (40%) • **0207_MW222_211012** and 0207_QC158_211012 for PFOS (35%) • **0207_MW222_211012** and 0207_QC158_211012 for PFHxS (33%) • **0207_MW229_211012** and 0207_QC159_211012 for PFHpS (74%) • **0207_MW229_211012** and 0207_QC159_211012 for PFHxA (39%) • **0207_MW229_211012** and 0207_QC159_211012 for PFPeS (44%) • **0207_MW229_211012** and 0207_QC159_211012 for PFOA (37%) • 0207_MW236_211013 and **0207_QC260_211013** for PFBS (41%) • 0207_MW236_211013 and **0207_QC260_211013** for PFHpA (68%). • 0207_MW236_211013 and **0207_QC260_211013** for PFHxA (68%) • 0207_MW236_211013 and **0207_QC260_211013** for PFPeS (67%) • 0207_MW236_211013 and **0207_QC260_211013** for PFPeA (67%) • 0207_MW236_211013 and **0207_QC260_211013** for PFHxS (66%)

	The differences are considered to be due to different extraction methods between laboratories and are within an order of magnitude variation. As there are no adopted guidelines for the majority of these PFAS compounds, the identified elevated RPD does not affect the interpretation of the data against guidelines but should be taken into consideration when interpreting the data quantitatively. For compounds with adopted guidelines (i.e. PFOS and PFHxS in groundwater), it is noted that the primary sample generally reported the higher concentration with the exception of MW236 and QC260. Where the triplicate samples highlighted above reported a higher concentration than the primary sample, the higher triplicate sample concentrations do not constitute a first-time detection of PFOA or PFHxS+PFOS or a new maximum of the same concentrations and therefore the elevated RPDs are not considered to affect data interpretation for use in this report.. The higher concentration has however conservatively been adopted in the report tables
Other	
Other observations	Evaluation of the data does not indicate any first-time detections of PFHxS+PFOS or PFOA compounds above LOR and no new exceedances of human health guideline values.

Table C1 Groundwater Duplicate and Triplicate Analytical Results

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		Lab Report No.	EB2129575	EB2129575		RN1332382		EB2129575	EB2129575		RN1332382		EB2129575	EB2129575		RN1332382	
		Sample ID	0207_MW245_211011	0207_QC155_211011	**RPD**	0207_QC255_21011	**RPD**	0207_MW206_211011	0207_QC156_211011	**RPD**	0207_QC256_21011	**RPD**	0207_MW221_211012	0207_QC157_211012	**RPD**	0207_QC257_21012	**RPD**
		Sample Date	11/10/2021 8:21	11/10/2021 8:21		11/10/2021 8:21		11/10/2021 8:21	11/10/2021 8:21		11/10/2021 8:21		12/10/2021 8:21	12/10/2021 8:21		12/10/2021 8:21	
		Sample Type	Primary	Duplicate		Triplicate		Primary	Duplicate		Triplicate		Primary	Duplicate		Triplicate	
Analyte	**Units**	**LOR**															
10:2 FTS	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.01	0	<0.05	<0.05	0	<0.01	0	<0.05	<0.05	0	<0.01	0
4:2 FTS	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.01	0	<0.05	<0.05	0	<0.01	0	<0.05	<0.05	0	<0.01	0
6:2 FtS	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.01	0	<0.05	<0.05	0	<0.01	0	<0.05	<0.05	0	<0.01	0
8:2 FTS	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.01	0	<0.05	<0.05	0	<0.01	0	<0.05	<0.05	0	<0.01	0
EtFOSA	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.02	0	<0.05	<0.05	0	<0.02	0	<0.05	<0.05	0	<0.02	0
EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0
EtFOSE	µg/L	0.05	<0.05	<0.05	0	<0.05	0	<0.05	<0.05	0	<0.05	0	<0.05	<0.05	0	<0.05	0
MeFOSA	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.02	0	<0.05	<0.05	0	<0.02	0	<0.05	<0.05	0	<0.02	0
MFOSAA	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0
MeFOSE	µg/L	0.05	<0.05	<0.05	0	<0.05	0	<0.05	<0.05	0	<0.05	0	<0.05	<0.05	0	<0.05	0
PFBS	µg/L	0.02 : 0.01 (Interlab)	0.04	0.04	0	0.031	25	0.79	0.79	0	**0.57**	32	0.42	0.4	5	0.33	24
PFBA	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.1	0	<0.05	0	0.2	0.2	0	0.18	11	0.2	0.2	0	0.14	35
PFDS	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0
PFDA	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0
PFDoDA	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0
PFHpS	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.01	0	0.42	0.41	2	**0.22**	63	0.18	0.2	11	0.081	76
PFHpA	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.01	0	0.33	0.33	0	0.25	28	0.26	0.28	7	0.2	26
PFHxA	µg/L	0.02 : 0.01 (Interlab)	0.06	0.06	0	0.044	31	1.3	1.31	1	**0.91**	35	1.11	1.04	7	**0.71**	44
PFNA	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0
FOSA	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0
PFPeS	µg/L	0.02 : 0.01 (Interlab)	0.04	0.05	22	0.031	25	0.74	0.82	10	**0.51**	37	0.42	0.48	13	**0.31**	30
PFPeA	µg/L	0.02	<0.02	<0.02	0	<0.02	0	0.28	0.27	4	0.23	20	0.25	0.26	4	0.21	17
PFTeDA	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.02	0	<0.05	<0.05	0	<0.02	0	<0.05	<0.05	0	<0.02	0
PFTrDA	µg/L	0.02	<0.02	<0.02	0	<0.02	0	<0.02	<0.02	0	<0.02	0	<0.02	<0.02	0	<0.02	0
PFUnDA	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0	<0.02	<0.02	0	<0.01	0
PFOS	µg/L	0.01 : 0.02 (Interlab)	0.14	0.13	7	0.082	52	4.84	5.13	6	**3.4**	35	1.83	1.68	9	**1.1**	50
PFOA	µg/L	0.01	0.01	0.01	0	<0.01	0	0.52	0.59	13	0.39	29	0.38	0.42	10	0.29	27
PFHxS	µg/L	0.02 : 0.01 (Interlab)	0.24	0.26	8	0.19	23	4.92	5.26	7	3.9	23	2.04	2.26	10	1.7	18

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: NL (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table C1 Groundwater Duplicate and Triplicate Analytical Results

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		Lab Report No.	EB2129575	EB2129575		RN1332382		EB2129575	EB2129575		RN1332382		EB2129575	EB2129575		RN1332382		
		Sample ID	0207_MW222_211012	0207_QC158_211012	**RPD**	0207_QC258_21012	**RPD**	0207_MW229_211012	0207_QC159_211012	**RPD**	0207_QC259_21012	**RPD**	0207_MW236_211013	0207_QC160_211013	**RPD**	0207_QC260_21013	**RPD**	
		Sample Date	12/10/2021 8:21	12/10/2021 8:21		12/10/2021 8:21		12/10/2021 8:21	12/10/2021 8:21		12/10/2021 8:21		13/10/2021 8:21	13/10/2021 8:21		13/10/2021 8:21		
		Sample Type	Primary	Duplicate		Triplicate		Primary	Duplicate		Triplicate		Primary	Duplicate		Triplicate		
Analyte	**Units**	**LOR**																
10:2 FTS	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.01	0	<0.05	<0.05	0	<0.01	0	<0.1	<0.05	0	<0.01	0	
4:2 FTS	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.01	0	<0.05	<0.05	0	<0.01	0	<0.1	<0.05	0	<0.01	0	
6:2 FtS	µg/L	0.05 : 0.01 (Interlab)	3.67	3.57	3	**2.6**	34	<0.05	<0.05	0	<0.01	0	<0.1	<0.05	0	<0.01	0	
8:2 FTS	µg/L	0.05 : 0.01 (Interlab)	0.06	0.1	50	0.058	3	<0.05	<0.05	0	<0.01	0	<0.1	<0.05	0	<0.01	0	
EtFOSA	µg/L	0.05 : 0.02 (Interlab)	<0.12	<0.05	0	<0.02	0	<0.12	<0.11	0	<0.02	0	<0.24	<0.06	0	<0.02	0	
EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.01	0	<0.05	<0.04	0	<0.01	0	<0.1	<0.02	0	<0.01	0	
EtFOSE	µg/L	0.05	<0.12	<0.05	0	<0.05	0	<0.12	<0.11	0	<0.05	0	<0.24	<0.06	0	<0.05	0	
MeFOSA	µg/L	0.05 : 0.02 (Interlab)	<0.12	<0.05	0	<0.02	0	<0.12	<0.11	0	<0.02	0	<0.24	<0.06	0	<0.02	0	
MFOSAA	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.01	0	<0.05	<0.04	0	<0.01	0	<0.1	<0.02	0	<0.01	0	
MeFOSE	µg/L	0.05	<0.12	<0.05	0	<0.05	0	<0.12	<0.11	0	<0.05	0	<0.24	<0.06	0	<0.05	0	
PFBS	µg/L	0.02 : 0.01 (Interlab)	1.82	1.72	6	1.4	26	0.79	0.83	5	0.62	24	**3.36**	**6.94**	70	**5.1**	41	
PFBA	µg/L	0.1 : 0.05 (Interlab)	2	2.1	5	1.9	5	<0.2	0.3	40	0.17	0	0.9	2	76	1.7	62	
PFDS	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.01	0	<0.05	<0.04	0	<0.01	0	<0.1	<0.02	0	<0.01	0	
PFDA	µg/L	0.02 : 0.01 (Interlab)	<0.05	0.02	0	0.015	0	<0.05	<0.04	0	<0.01	0	<0.1	<0.02	0	<0.01	0	
PFDoDA	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.01	0	<0.05	<0.04	0	<0.01	0	<0.1	<0.02	0	<0.01	0	
PFHpS	µg/L	0.02 : 0.01 (Interlab)	1.44	1.61	11	**0.88**	48	0.63	0.72	13	**0.29**	74	0.39	0.48	21	0.26	40	
PFHpA	µg/L	0.02 : 0.01 (Interlab)	4.17	4.35	4	3.1	29	0.17	0.19	11	0.12	34	**0.43**	**1.25**	98	**0.87**	68	
PFHxA	µg/L	0.02 : 0.01 (Interlab)	9.61	9.38	2	**6.1**	45	1.93	1.78	8	**1.3**	39	**4.41**	**13.4**	101	**9**	68	
PFNA	µg/L	0.02 : 0.01 (Interlab)	0.88	1.04	17	0.84	5	<0.05	<0.04	0	<0.01	0	<0.1	<0.02	0	<0.01	0	
FOSA	µg/L	0.02 : 0.01 (Interlab)	<0.05	0.04	0	0.013	0	<0.05	<0.04	0	<0.01	0	<0.1	<0.02	0	<0.01	0	
PFPeS	µg/L	0.02 : 0.01 (Interlab)	1.94	2.02	4	**1.3**	40	1	1.06	6	**0.64**	44	**2.2**	**7.24**	107	**4.4**	67	
PFPeA	µg/L	0.02	5	5.06	1	4	22	0.3	0.32	6	0.25	18	**1.1**	**2.42**	75	**2.2**	67	
PFTeDA	µg/L	0.05 : 0.02 (Interlab)	<0.12	<0.05	0	<0.02	0	<0.12	<0.11	0	<0.02	0	<0.24	<0.06	0	<0.02	0	
PFTrDA	µg/L	0.02	<0.05	<0.02	0	<0.02	0	<0.05	<0.04	0	<0.02	0	<0.1	<0.02	0	<0.02	0	
PFUnDA	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.01	0	<0.05	<0.04	0	<0.01	0	<0.1	<0.02	0	<0.01	0	
PFOS	µg/L	0.01 : 0.02 (Interlab)	15.6	17.9	14	**11**	35	**22.4**	**32.9**	38	19	16	3.78	4.87	25	3.2	17	
PFOA	µg/L	0.01	5.83	6.8	15	4.6	24	0.54	0.57	5	**0.37**	37	**0.69**	**1.06**	42	0.68	1	
PFHxS	µg/L	0.02 : 0.01 (Interlab)	12.3	12.5	2	**8.8**	33	7.35	7.95	8	5.5	29	**7.57**	**21**	94	**15**	66	

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: NL (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table C2 Rinsate Analytical Results

AECOM Imagine it. Delivered.

Lab Report Number		LSE-Brisbane 18-Oct-2	LSE-Brisbane 18-Oct-2	LSE-Brisbane 18-Oct-2	LSE-Brisbane 18-Oct-2	LSE-Brisbane 18-Oct-2
Sample ID		0207_QC331_211011	0207_QC332_211012	0207_QC333_211013	0207_QC334_211014	0207_QC335_211015
Sample Date		11/10/2021 8:21	12/10/2021 8:21	13/10/2021 8:21	14/10/2021 8:21	15/10/2021 8:21
Sample Type		Rinsate	Rinsate	Rinsate	Rinsate	Rinsate
Chemical Name	**Units**	**LOR**				
10:2 FTS	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4:2 FTS	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 FtS	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 FTS	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EtFOSA	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EtFOSAA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
EtFOSE	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MeFOSA	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MFOSAA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
MeFOSE	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PFBS	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFBA	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PFDS	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFDA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFDoDA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFHpS	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFHpA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFHxA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFNA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
FOSA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFPeS	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFPeA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFTeDA	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PFTrDA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFUnDA	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of PFAS	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PFOS	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PFOA	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PFHxS	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Appendix D

Chain of Custody Forms

Appendix D Chain of Custody Forms

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address:
Contact Name: ALS Brisbane
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
	0207_MW038-241015	15/10		✓				✓		1x28	✓		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2129551

Telephone [redacted]

Comments: Please send ESdat files to [redacted] 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: 15/10	Relinquished by:	Signed:	Date:
Received by:	Signed: 0935	Date: 15/10	Received by:	Signed:	Date:

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Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address: ALS Brisbane
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
	0207_MW134-211014	14/10		✓				✓		1x2P	✓		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2129553

Telephone : [redacted]

Comments: Please send ESdat files to [redacted] 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: 14/10	Relinquished by:	Signed:	Date:
Received by:	Signed: 0950	Date: 15/10	Received by:	Signed:	Date:

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Chain of Custody

COC Page 1 of 1

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Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to:
catherine.hansen@acom.com; DERP.labreports@Esdat.com.au; james.peachey@aecom.com; camden.mccosker@aecom.com; lucy.muir@aecom.com

Laboratory Details
Lab. Name:
Lab. Address:
Contact Name: ALS Brisbane
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: Camden McCosker 0499 990 214 **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: James Peachey

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
	0207_MW019-210/4	14/10		✓				✓		1x 2P	✓		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division Brisbane
Work Order Reference
EB2129555

Telephone : +61-7-3243 7222

Comments: Please send ESdat files to [redacted] and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & invoice: [redacted]

Lab Report No | Esky ID

Relinquished by: Camden	Signed:	Date: 18/10	Relinquished by:	Signed:	Date:
Received by:	Signed: 0930	Date: 18/10	Received by:	Signed:	Date:

AECOM — **Chain of Custody** — COC Page 1 of 1

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address:
Contact Name: ALS Drisbane
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
	0207_ML056-211014	14/10		~				~		1x28			
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division Brisbane
Work Order Reference
EB2129558

Telephone : [redacted]

Comments: Please send ESdat files to [redacted] 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: 18/10	Relinquished by:	Signed:	Date:
Received by:	Signed: 6.9	Date: 18/10	Received by:	Signed:	Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address:
Contact Name: ALS Brisbane
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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 [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
	0207_MW147-211014	14/10		✓				✓		1x28	\		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division Brisbane
Work Order Reference
EB2129559

Telephone : [redacted]

Comments: Please send ESdat files to [redacted] 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: 12/10	Relinquished by:	Signed:	Date:
Received by:	Signed: 0930	Date: 18/10	Received by:	Signed:	Date:

AECOM — **Chain of Custody** — COC Page 1 of 1

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address:
Contact Name: ALS Brisbane
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
	0207_MW51-211014	14/10		✓				✓		1x28	✓		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2129560

Telephone : [redacted]

Comments: Please send ESdat files to [redacted] and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & invoice: [redacted]

Relinquished by: [redacted]	Signed:	Date: 18/10	Relinquished by:	Signed:	Date:
Received by:	Signed: 0930	Date: 18/10	Received by:	Signed:	Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address:
Contact Name: ALS Brisbane
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
	0207_MW003_211014	14/10		✓				✓		1x28	✓		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2129563

Telephone : [redacted]

Comments: Please send ESdat files to [redacted] and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & invoice: [redacted]

Relinquished by: [redacted]	Signed:		Date: 18/10	Relinquished by:	Signed:	Date:
Received by:	Signed:	0930	Date: 18/10	Received by:	Signed:	Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address: ALS Brisbane
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
	0207_MW269-211015	15/10		✓				✓		1x 2P	✓		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2129565

Telephone : [redacted]

Comments: Please send ESdat files to [redacted] 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: 18/10	Relinquished by:	Signed:	Date:
Received by:	Signed:	0930	Date: 18/10	Received by:	Signed:	Date:

AECOM — **Chain of Custody** — COC Page 1 of 4

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS
Lab. Address: Brisbane
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase**

Environmental Division Brisbane
Work Order Reference
EB2129575

Telephone [redacted]

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: [redacted]

Analysis Re

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	
1	0207_MW167-211011	11/10		✓				✓		1x2P	✓		
2	0207_MW179-211011	11		✓				✓		11	✓		
3	0207_MW245-211011	11		✓				✓		3x2P	✓		LD+MS
4	0207_MW242-211011	11		✓				✓		2x2P	✓		LD
5	0207_MW178-211011	11		✓				✓		1x2P	✓		MW178
6	0207_MW206-211011	11		✓				✓		11	✓		
7	0207_MW198-211011	11		✓				✓		11	✓		
8	0207_MW193-211011	11		✓				✓		11	✓		
9	0207_MW221-211012	12/10		✓				✓		3x2P	✓		LD+MS
10	0207_MW223-211012	11		✓				✓		2x2P	✓		LD
11	0207_MW229-211012	11		✓				✓		1x2P	✓		
12	0207_MW222-211012	11		✓				✓		11	✓		
13	0207_MW230-211012	11		✓				✓		11	✓		
14	0207_MW300-211012												

Comments: Please send ESdat files to [redacted] 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: 18/10	Relinquished by:	Signed:		Date:
Received by:	Signed:	0930	Date: 18/10	Received by:	Signed:		Date:

AECOM

Chain of Custody

COC Page 2 of 4

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address: ALS Brisbane
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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 [redacted]

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
15	0207_MW299_211012	12/10		✓				✓		1x2P	✓		
16	0207_MW203_211012	"		✓				✓		3x2P	✓		LD+MS
17	0207_MW206_211012	"		✓				✓		2x2P	✓		LD
18	0207_MW205_211012	"		✓				✓		1x2P	✓		
19	0207_MW202_211012	"		✓				✓		"	✗		
20	0207_MW201_211012	"		✓				✓		"	✓		
21	0207_MW173_211013	13/10		✓				✓		"	✓		
22	0207_MW172_211013	"		✓				✓		"	✓		
23	0207_MW249_211013	"		✓				✓		"	✓		
24	0207_MW252_211013	"		✓				✓		"	✓		
25	0207_MW236_211013	"		✓				✓		"	✓		
26	0207_MW235_211013	"		✓				✓		3x2P	✓		LD+MS
27	0207_MW241_211013	"		✓				✓		2x2P	✓		LD
28	0207_MW232_211013	"		✓				✓		1x2P	✓		

Comments: Please send ESdat files to [redacted] 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: 18/10

Received by: Signed: Date:

Relinquished by: Signed: Date:

Received by: Signed: Date:

AECOM

Chain of Custody

COC Page 3 of 4

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address:
Contact Name: ALS Brisbane
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
29	0207_MW107-211013	13/10		✓				✓		1x 2P	✓		
30	0207_MW109-211013	"		✓				✓		"	✓		
31	0207_MW174-211013	"		✓				✓		"	✓		
32	0207_MW266-211014	14/10		✓				✓		"	✓		
33	0207_MW276-211014	"		✓				✓		"	✓		
34	0207_MW257-211014	"		✓				✓		"	✓		
35	0207_MW233-211014	"		✓				✓		"	✓		
36	0207_MW262-211014	"		✓				✓		"	✓		
37	0207_MW272-211015	15/10		✓				✓		"	✓		
38	0207_MW255-211015	"		✓				✓		"	✓		
	0207_												
	0207_												
	0207_												
	0207_												

Comments: Please send ESdat files to [redacted] and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & invoice: [redacted]

Lab Report No: ESky ID:

Relinquished by: [redacted] Signed: [signature] Date: 15/10

Received by: Signed: Date:

Relinquished by: Signed: Date:

Received by: Signed: Date:

AECOM

Chain of Custody

COC Page 4 of 4

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address:
Contact Name: ALS Brisbane
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
39	0207_QC331-211011	11/10		✓				✓		1x28	✓		
40	0207_QC155-211011	11		✓				✓		11	✓		
41	0207_QC156-211011	11		✓				✓		11	✓		
42	0207_QC332-211012	12/10		✓				✓		11	✓		
43	0207_QC157-211012	11		✓				✓		11	✓		
44	0207_QC158-211012	11		✓				✓		11	✓		
45	0207_QC159-211012	11		✓				✓		11	✓		
46	0207_QC333-211013	13/10		✓				✓		11	✓		
47	0207_QC160-211013	11		✓				✓		11	✓		
48	0207_QC334-211014	14/10		✓				✓		11	✓		
49	0207_QC335-211015	15/10		✓				✓		11	✓		
	0207_												
	0207_												
	0207_												

Comments: Please send ESdat files to [redacted] 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: 10/10	Relinquished by:	Signed:	Date:
Received by:	Signed:	Date:	Received by:	Signed:	Date:

Please forward to NMI with THD CoC 28/10

AECOM — **Chain of Custody** — AECOO6/211021 — COC Page 1 of 1

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street
Fortitude Valley, QLD, 4006
PO Box 1307 Fortitude Valley QLD 4006

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address: NMI
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request: EP231X (PFAS Std 28) | HOLD | Notes

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X	HOLD	Notes
N21/023625	0207_QC255-211011	4/10		✓				✓		Le 28	✓		Forward to NMI
N21/023626	0207_QC256-211011	11		✓				✓		11	✓		11
N21/023627	0207_QC257-211012	12/10		✓				✓		11	✓		11
N21/023628	0207_QC258-211012	11		✓				✓		11	✓		11
N21/023629	0207_QC259-211012	11		✓				✓		11	✓		11
N21/023630	0207_QC260-211013	13/10		✓				✓		11	✓		11
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

RECEIVED 21 OCT 2021 BY: AO 9:00 C

Comments: Please send ESdat files t[redacted] 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: 18/10

Received by: Signed: Date:

Relinquished by: Signed: Date: 19/10

Received by: Signed: Date:

Appendix E

Laboratory Analytical Certificates and QA/QC Reports

Appendix E Laboratory Analytical Certificates and QA/QC Reports

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EB2129551**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail Telephone Facsimile	: [redacted]	E-mail Telephone Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 18-Oct-2021 09:30	Issue Date	: 18-Oct-2021
Client Requested Due Date	: 25-Oct-2021	Scheduled Reporting Date	: **25-Oct-2021**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.4°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2129551-001	15-Oct-2021 00:00	0207_MW038_211015	✓

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

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2129551**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
[redacted]30			
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021 11:29
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW038_211015	----	----	----	----
				Sampling date / time	15-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129551-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.05**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.05**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**0.32**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.03**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.62**	----	----	----	----
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		**0.08**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.04**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW038_211015	----	----	----	----
				Sampling date / time	15-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129551-001	--------	--------	--------	--------
					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		**1.19**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.94**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.11**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.3**	----	----	----	----
13C8-PFOA	----	0.02	%		**98.7**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2129551**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
[redacted]-2021			
C-O-C number	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 3962440)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	111	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	98.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	103	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	107	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3962440)								
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	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	118	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	99.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	110	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3962440)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	120	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	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: 3962440)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	105	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: 3962440) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	75.1	64.2	133
EP231P: PFAS Sums (QCLot: 3962440)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2129551**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Site	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	8	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) 0207_MW038_211015	**15-Oct-2021**	**20-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW038_211015	**15-Oct-2021**	**20-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW038_211015	**15-Oct-2021**	**20-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW038_211015	**15-Oct-2021**	**20-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW038_211015	**15-Oct-2021**	**20-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-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	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2129553**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 18-Oct-2021 09:30	Issue Date	: 18-Oct-2021
Client Requested Due Date	: 25-Oct-2021	Scheduled Reporting Date	: **25-Oct-2021**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.4°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2129553-001	14-Oct-2021 00:00	0207_MW134_211014	✓

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

[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 - ESDAT (ESDAT) — Email

[redacted]

- [redacted] - 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 - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2129553**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021 09:30
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021 11:29
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW134_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129553-001	--------	--------	--------	--------
					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	0.02	µg/L		**0.13**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.14**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW134_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129553-001	--------	--------	--------	--------
					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		**0.34**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.27**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.32**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.2**	----	----	----	----
13C8-PFOA	----	0.02	%		**98.0**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2129553**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 3962440)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	111	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	98.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	103	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	107	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3962440)								
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	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	118	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	99.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	110	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3962440)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	120	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	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: 3962440)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	105	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: 3962440) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	75.1	64.2	133
EP231P: PFAS Sums (QCLot: 3962440)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2129553**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Site	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	8	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) 0207_MW134_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW134_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW134_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW134_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW134_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-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	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2129555**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 18-Oct-2021 09:30	Issue Date	: 18-Oct-2021
Client Requested Due Date	: 25-Oct-2021	Scheduled Reporting Date	: **25-Oct-2021**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.4°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2129555-001	14-Oct-2021 00:00	0207_MW019_211014	✓

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

[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 - ESDAT (ESDAT)	Email

[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 - ESDAT (ESDAT)	Email

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT)	Email

[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 - ESDAT (ESDAT)	Email

[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 - ESDAT (ESDAT)	Email

[redacted]

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2129555**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 3962440)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	111	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	98.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	103	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	107	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3962440)								
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	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	118	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	99.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	110	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3962440)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	120	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	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: 3962440)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	105	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: 3962440) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	75.1	64.2	133
EP231P: PFAS Sums (QCLot: 3962440)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2129555**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Site	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	8	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***	*Due for extraction*	*Evaluation*	*Analysis* ***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW019_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW019_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW019_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW019_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW019_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-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	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**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.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2129555**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021 09:30
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021 11:29
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW019_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129555-001	--------	--------	--------	--------
					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	0.02	µg/L		**0.05**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW019_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129555-001	--------	--------	--------	--------
					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		**0.07**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.07**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.07**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.5**	----	----	----	----
13C8-PFOA	----	0.02	%		**102**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2129558**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Site	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	8	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) 0207_MW056_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW056_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW056_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW056_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW056_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-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	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EB2129558**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail Telephone Facsimile	: [redacted]	E-mail Telephone Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 18-Oct-2021 09:30	Issue Date	: 18-Oct-2021
Client Requested Due Date	: 25-Oct-2021	Scheduled Reporting Date	: **25-Oct-2021**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.4°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2129558-001	14-Oct-2021 00:00	0207_MW056_211014	✓

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

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2129558**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021 09:30
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021 11:28
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW056_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129558-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.05**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.03**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**0.32**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.11**	----	----	----	----
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		**0.07**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW056_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129558-001	--------	--------	--------	--------
					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		**0.62**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.43**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.59**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	----	----	----	----
13C8-PFOA	----	0.02	%		**101**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2129558**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 3962440)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	111	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	98.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	103	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	107	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3962440)								
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	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	118	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	99.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	110	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3962440)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	120	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	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: 3962440)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	105	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: 3962440) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	75.1	64.2	133
EP231P: PFAS Sums (QCLot: 3962440)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EB2129559**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail Telephone Facsimile	: [redacted]	E-mail Telephone Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 18-Oct-2021 09:30	Issue Date	: 18-Oct-2021
Client Requested Due Date	: 25-Oct-2021	Scheduled Reporting Date	: **25-Oct-2021**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.4°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2129559-001	14-Oct-2021 00:00	0207_MW147_211014	✓

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

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT) — Email

[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
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[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 - ESDAT (ESDAT) — Email

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2129559**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021 09:30
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021 11:28
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW147_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129559-001	--------	--------	--------	--------
					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	0.02	µg/L		<0.02	----	----	----	----
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		**0.03**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.03**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW147_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129559-001	--------	--------	--------	--------
					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		**0.07**	----	----	----	----
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		**0.07**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**109**	----	----	----	----
13C8-PFOA	----	0.02	%		**102**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2129559**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 3962440)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	111	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	98.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	103	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	107	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3962440)								
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	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	118	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	99.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	110	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3962440)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	120	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	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: 3962440)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	105	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: 3962440) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	75.1	64.2	133
EP231P: PFAS Sums (QCLot: 3962440)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2129559**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Site	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	8	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) 0207_MW147_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW147_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW147_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW147_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW147_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-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	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2129560**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail Telephone Facsimile	: [redacted]	E-mail Telephone Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 18-Oct-2021 09:30	Issue Date	: 18-Oct-2021
Client Requested Due Date	: 25-Oct-2021	Scheduled Reporting Date	: **25-Oct-2021**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.4°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2129560-001	14-Oct-2021 00:00	0207_MW151_211014	✓

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

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[redacted]

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- *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

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2129560**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021 09:30
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021 11:28
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW151_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129560-001	--------	--------	--------	--------
					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	0.02	µg/L		<0.02	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW151_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129560-001	--------	--------	--------	--------
					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		<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	%		**97.7**	----	----	----	----
13C8-PFOA	----	0.02	%		**99.0**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2129560**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 3962440)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	111	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	98.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	103	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	107	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3962440)								
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	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	118	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	99.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	110	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3962440)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	120	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	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: 3962440)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	105	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: 3962440) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	75.1	64.2	133
EP231P: PFAS Sums (QCLot: 3962440)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2129560**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Site	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	8	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) 0207_MW151_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW151_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW151_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW151_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW151_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-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	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EB2129563**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail Telephone Facsimile	: [redacted]	E-mail Telephone Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
[redacted]	CAMDEN McCOSKER		

Dates

Date Samples Received	: 18-Oct-2021 09:30	Issue Date	: 18-Oct-2021
Client Requested Due Date	: 25-Oct-2021	Scheduled Reporting Date	: **25-Oct-2021**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.4°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2129563-001	14-Oct-2021 00:00	0207_MW003_211014	✓

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

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2129563**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021 09:30
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021 10:28
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW003_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129563-001	--------	--------	--------	--------
					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	0.02	µg/L		<0.02	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW003_211014	----	----	----	----
				Sampling date / time	14-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129563-001	--------	--------	--------	--------
					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		<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	%		**89.4**	----	----	----	----
13C8-PFOA	----	0.02	%		**98.7**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2129563**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]Y	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 3962440)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	111	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	98.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	103	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	107	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3962440)								
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	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	118	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	99.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	110	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3962440)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	120	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	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: 3962440)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	105	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: 3962440) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	75.1	64.2	133
EP231P: PFAS Sums (QCLot: 3962440)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2129563**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Site	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	8	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) 0207_MW003_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW003_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW003_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW003_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW003_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-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	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2129565**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: [redacted]	E-mail	[redacted]
Telephone	: [redacted]	Telephone	
Facsimile	: [redacted]	Facsimile	
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 18-Oct-2021 09:30	Issue Date	: 18-Oct-2021
Client Requested Due Date	: 25-Oct-2021	Scheduled Reporting Date	: **25-Oct-2021**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.4°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2129565-001	15-Oct-2021 00:00	0207_MW269_211015	✓

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

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2129565**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021 09:30
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021 11:25
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW269_211015	----	----	----	----
				Sampling date / time	15-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129565-001	--------	--------	--------	--------
					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	0.02	µg/L		**0.04**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.08**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW269_211015	----	----	----	----
				Sampling date / time	15-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2129565-001	--------	--------	--------	--------
					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		**0.12**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.12**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.12**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	----	----	----	----
13C8-PFOA	----	0.02	%		**96.9**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2129565**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 3962440)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	111	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	98.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	103	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	107	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3962440)								
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	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	118	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	99.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	110	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3962440)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	120	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	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: 3962440)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	105	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: 3962440) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	75.1	64.2	133
EP231P: PFAS Sums (QCLot: 3962440)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2129565**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Site	: ----	Issue Date	: 22-Oct-2021
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	8	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) 0207_MW269_211015	**15-Oct-2021**	**20-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW269_211015	**15-Oct-2021**	**20-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW269_211015	**15-Oct-2021**	**20-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW269_211015	**15-Oct-2021**	**20-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW269_211015	**15-Oct-2021**	**20-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-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	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2129575**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	:
Facsimile	: ----	Facsimile	:
Project	: QLD_0207_PFASOMP	Page	: 1 of 4
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 18-Oct-2021 09:30	Issue Date	: 19-Oct-2021
Client Requested Due Date	: 25-Oct-2021	Scheduled Reporting Date	: **25-Oct-2021**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 3.4°C, 3.7°C - Ice present
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 49 / 49

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please be advised that a sample container for MW229 was received empty at receipt.
- Please be advised that analysis has been assigned to sample MW300 as per phone directive C McCosker 19/10/2021 9:40am
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- **Samples QC255, QC256, QC257, QC258, QC259, QC260 have been forwarded to NMI , as requested. Please note that this will incur a freight forwarding fee.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2129575-001	11-Oct-2021 00:00	0207_MW167_211011	✓
EB2129575-002	11-Oct-2021 00:00	0207_MW179_211011	✓
EB2129575-003	11-Oct-2021 00:00	0207_MW245_211011	✓
EB2129575-004	11-Oct-2021 00:00	0207_MW242_211011	✓
EB2129575-005	11-Oct-2021 00:00	0207_MW178_211011	✓
EB2129575-006	11-Oct-2021 00:00	0207_MW206_211011	✓
EB2129575-007	11-Oct-2021 00:00	0207_MW198_211011	✓
EB2129575-008	11-Oct-2021 00:00	0207_MW193_211011	✓
EB2129575-009	12-Oct-2021 00:00	0207_MW221_211012	✓
EB2129575-010	12-Oct-2021 00:00	0207_MW223_211012	✓
EB2129575-011	12-Oct-2021 00:00	0207_MW229_211012	✓
EB2129575-012	12-Oct-2021 00:00	0207_MW222_211012	✓
EB2129575-013	12-Oct-2021 00:00	0207_MW230_211012	✓
EB2129575-014	12-Oct-2021 00:00	0207_MW300_211012	✓
EB2129575-015	12-Oct-2021 00:00	0207_MW299_211012	✓
EB2129575-016	12-Oct-2021 00:00	0207_MW203_211012	✓
EB2129575-017	12-Oct-2021 00:00	0207_MW204_211012	✓
EB2129575-018	12-Oct-2021 00:00	0207_MW205_211012	✓
EB2129575-019	12-Oct-2021 00:00	0207_MW202_211012	✓
EB2129575-020	12-Oct-2021 00:00	0207_MW201_211012	✓
EB2129575-021	13-Oct-2021 00:00	0207_MW173_211013	✓
EB2129575-022	13-Oct-2021 00:00	0207_MW172_211013	✓
EB2129575-023	13-Oct-2021 00:00	0207_MW249_211013	✓
EB2129575-024	13-Oct-2021 00:00	0207_MW252_211013	✓
EB2129575-025	13-Oct-2021 00:00	0207_MW236_211013	✓
EB2129575-026	13-Oct-2021 00:00	0207_MW235_211013	✓
EB2129575-027	13-Oct-2021 00:00	0207_MW241_211013	✓
EB2129575-028	13-Oct-2021 00:00	0207_MW232_211013	✓
EB2129575-029	13-Oct-2021 00:00	0207_MW187_211013	✓
EB2129575-030	13-Oct-2021 00:00	0207_MW189_211013	✓
EB2129575-031	13-Oct-2021 00:00	0207_MW174_211013	✓
EB2129575-032	14-Oct-2021 00:00	0207_MW264_211014	✓
EB2129575-033	14-Oct-2021 00:00	0207_MW276_211014	✓
EB2129575-034	14-Oct-2021 00:00	0207_MW257_211014	✓
EB2129575-035	14-Oct-2021 00:00	0207_MW233_211014	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
EB2129575-036	14-Oct-2021 00:00	0207_MW262_211014	✓
EB2129575-037	15-Oct-2021 00:00	0207_MW272_211015	✓
EB2129575-038	15-Oct-2021 00:00	0207_MW255_211015	✓
EB2129575-039	11-Oct-2021 00:00	0207_QC331_211011	✓
EB2129575-040	11-Oct-2021 00:00	0207_QC155_211011	✓
EB2129575-041	11-Oct-2021 00:00	0207_QC156_211011	✓
EB2129575-042	12-Oct-2021 00:00	0207_QC332_211012	✓
EB2129575-043	12-Oct-2021 00:00	0207_QC157_211012	✓
EB2129575-044	12-Oct-2021 00:00	0207_QC158_211012	✓
EB2129575-045	12-Oct-2021 00:00	0207_QC159_211012	✓
EB2129575-046	13-Oct-2021 00:00	0207_QC333_211013	✓
EB2129575-047	13-Oct-2021 00:00	0207_QC160_211013	✓
EB2129575-048	14-Oct-2021 00:00	0207_QC334_211014	✓
EB2129575-049	15-Oct-2021 00:00	0207_QC335_211015	✓

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

[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 - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT) — Email

[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
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- Chain of Custody (CoC) (COC) — Email
- EDI Format - ESDAT (ESDAT) — Email

[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 - ESDAT (ESDAT) — Email

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2129575**	Page	: 1 of 23
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021 09:30
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 25-Oct-2021 13:35
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 49		
No. of samples analysed	: 49		

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]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231X PFAS: The LOR for PFBS has been raised for samples 0207_MW187_211013 (EB2129575-029) and 0207_MW174_211013 (EB2129575-031) due to matrix interference.
- EP231X PFAS: Samples 0207_MW236_211013 (EB2129575-025) and 0207_MW187_211013 (EB2129575-029) required dilution prior to extraction due to matrix interference. LORs 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: WATER (Matrix: WATER)				Sample ID	0207_MW167_211011	0207_MW179_211011	0207_MW245_211011	0207_MW242_211011	0207_MW178_211011
				Sampling date / time	11-Oct-2021 00:00	11-Oct-2021 00:00	11-Oct-2021 00:00	11-Oct-2021 00:00	11-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-001	EB2129575-002	EB2129575-003	EB2129575-004	EB2129575-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.70**	**0.62**	**0.04**	**0.10**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.63**	**0.56**	**0.04**	**0.09**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**3.03**	**2.76**	**0.24**	**0.59**	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.29**	**0.31**	<0.02	**0.04**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**5.01**	**3.89**	**0.14**	**0.75**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.3**	**0.2**	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.30**	**0.28**	<0.02	**0.04**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.43**	**1.70**	**0.06**	**0.16**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.24**	**0.26**	<0.02	**0.02**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.43**	**0.43**	**0.01**	**0.04**	<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		<0.05	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW167_211011	0207_MW179_211011	0207_MW245_211011	0207_MW242_211011	0207_MW178_211011
				Sampling date / time	11-Oct-2021 00:00	11-Oct-2021 00:00	11-Oct-2021 00:00	11-Oct-2021 00:00	11-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-001	EB2129575-002	EB2129575-003	EB2129575-004	EB2129575-005
					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	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.05	<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		**12.4**	**11.0**	**0.53**	**1.83**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**8.04**	**6.65**	**0.38**	**1.34**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**11.4**	**10.1**	**0.49**	**1.70**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**104**	**99.1**	**98.4**	**102**	**106**
13C8-PFOA	----	0.02	%		**102**	**104**	**102**	**102**	**103**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW206_211011	0207_MW198_211011	0207_MW193_211011	0207_MW221_211012	0207_MW223_211012
				Sampling date / time	11-Oct-2021 00:00	11-Oct-2021 00:00	11-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00
					EB2129575-006	EB2129575-007	EB2129575-008	EB2129575-009	EB2129575-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.79**	**0.25**	**4.26**	**0.42**	**0.98**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.74**	**0.29**	**4.47**	**0.42**	**1.11**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**4.92**	**2.00**	**20.7**	**2.04**	**8.89**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.42**	**0.33**	**2.28**	**0.18**	**0.86**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**4.84**	**6.73**	**24.7**	**1.83**	**14.6**
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		**0.2**	**0.1**	**4.2**	**0.2**	**8.9**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.28**	**0.25**	**2.47**	**0.25**	**40.8**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.30**	**0.67**	**11.3**	**1.11**	**18.7**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.33**	**0.20**	**2.75**	**0.26**	**13.1**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.52**	**0.31**	**4.16**	**0.38**	**11.0**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	**0.05**	<0.02	**2.23**
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	<0.02
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	<0.06	<0.05	<0.06
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.04**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.06	<0.05	<0.06
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.06	<0.05	<0.06

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW206_211011	0207_MW198_211011	0207_MW193_211011	0207_MW221_211012	0207_MW223_211012
				Sampling date / time	11-Oct-2021 00:00	11-Oct-2021 00:00	11-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-006	EB2129575-007	EB2129575-008	EB2129575-009	EB2129575-010
					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	<0.06	<0.05	<0.06
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.06	<0.05	<0.06
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	**0.14**	<0.05	**8.98**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	**0.58**
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		**14.3**	**11.1**	**81.5**	**7.09**	**131**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**9.76**	**8.73**	**45.4**	**3.87**	**23.5**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**13.2**	**10.5**	**74.7**	**6.49**	**126**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**104**	**95.2**	**102**	**101**	**100**
13C8-PFOA	----	0.02	%		**103**	**102**	**102**	**102**	**102**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW229_211012	0207_MW222_211012	0207_MW230_211012	0207_MW300_211012	0207_MW299_211012
				Sampling date / time	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00
					EB2129575-011	EB2129575-012	EB2129575-013	EB2129575-014	EB2129575-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.79**	**1.82**	**0.98**	**9.58**	**7.50**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**1.00**	**1.94**	**0.96**	**9.84**	**7.16**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**7.35**	**12.3**	**6.66**	**42.9**	**31.3**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.63**	**1.44**	**0.74**	**4.27**	**1.73**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**22.4**	**15.6**	**10.3**	**44.1**	**15.4**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.05	<0.05	<0.02	<0.05	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.2	**2.0**	**4.7**	**3.5**	**2.4**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.30**	**5.00**	**22.5**	**4.75**	**4.27**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.93**	**9.61**	**13.4**	**19.3**	**18.6**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.17**	**4.17**	**8.33**	**4.48**	**3.92**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.54**	**5.83**	**7.44**	**8.59**	**6.39**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.05	**0.88**	**1.73**	<0.05	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.05	<0.05	**0.04**	<0.05	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.05	<0.05	<0.02	<0.05	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.05	<0.05	<0.02	<0.05	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.05	<0.05	<0.02	<0.05	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.12	<0.12	<0.06	<0.12	<0.06
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.05	<0.05	<0.02	<0.05	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.12	<0.12	<0.06	<0.12	<0.06
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.12	<0.12	<0.06	<0.12	<0.06

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW229_211012	0207_MW222_211012	0207_MW230_211012	0207_MW300_211012	0207_MW299_211012
				Sampling date / time	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-011	EB2129575-012	EB2129575-013	EB2129575-014	EB2129575-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.12	<0.12	<0.06	<0.12	<0.06
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.12	<0.12	<0.06	<0.12	<0.06
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.05	<0.05	<0.02	<0.05	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.05	<0.05	<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		<0.05	**3.67**	**4.35**	**0.13**	**0.25**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	**0.06**	**0.18**	<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		**35.1**	**64.3**	**82.3**	**151**	**98.9**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**29.8**	**27.9**	**17.0**	**87.0**	**46.7**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**33.5**	**60.1**	**78.8**	**137**	**90.0**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**90.1**	**105**	**96.9**	**98.8**	**95.7**
13C8-PFOA	----	0.02	%		**103**	**102**	**101**	**104**	**103**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW203_211012	0207_MW204_211012	0207_MW205_211012	0207_MW202_211012	0207_MW201_211012
				Sampling date / time	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00
					EB2129575-016	EB2129575-017	EB2129575-018	EB2129575-019	EB2129575-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**1.83**	**16.9**	**1.24**	**17.1**	**12.6**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**1.92**	**24.3**	**1.31**	**17.5**	**14.3**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**11.0**	**140**	**7.61**	**114**	**80.2**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.83**	**7.07**	**0.52**	**8.28**	**5.58**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**6.46**	**17.0**	**6.17**	**202**	**36.5**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.10	<0.02	<0.24	<0.10
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.4**	**3.0**	**0.3**	**3.6**	**2.1**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.65**	**4.58**	**0.42**	**6.60**	**3.57**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**3.46**	**27.0**	**2.25**	**31.1**	**19.8**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.58**	**4.81**	**0.37**	**4.26**	**2.70**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**1.00**	**8.14**	**0.60**	**9.33**	**5.41**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.02**	<0.10	**0.02**	**0.26**	<0.10
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.10	<0.02	<0.24	<0.10
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.10	<0.02	<0.24	<0.10
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.10	<0.02	<0.24	<0.10
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.10	<0.02	<0.24	<0.10
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.25	<0.05	<0.60	<0.24
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.10	<0.02	<0.24	<0.10
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.25	<0.05	<0.60	<0.24
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.25	<0.05	<0.60	<0.24

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW203_211012	0207_MW204_211012	0207_MW205_211012	0207_MW202_211012	0207_MW201_211012
				Sampling date / time	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-016	EB2129575-017	EB2129575-018	EB2129575-019	EB2129575-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.25	<0.05	<0.60	<0.24
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.25	<0.05	<0.60	<0.24
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.10	<0.02	<0.24	<0.10
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.10	<0.02	<0.24	<0.10
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.10	<0.05	<0.24	<0.10
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	**0.44**	<0.05	**1.60**	**0.44**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.10	<0.05	<0.24	<0.10
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.10	<0.05	<0.24	<0.10
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**28.2**	**253**	**20.8**	**416**	**183**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**17.5**	**157**	**13.8**	**316**	**117**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**25.4**	**222**	**19.0**	**390**	**163**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**101**	**99.6**	**104**	**99.7**
13C8-PFOA	----	0.02	%		**102**	**102**	**99.0**	**102**	**103**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW173_211013	0207_MW172_211013	0207_MW249_211013	0207_MW252_211013	0207_MW236_211013
				Sampling date / time	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-021	EB2129575-022	EB2129575-023	EB2129575-024	EB2129575-025
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.27**	**0.22**	**0.91**	**0.97**	**3.36**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.28**	**0.23**	**1.03**	**1.21**	**2.20**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**2.54**	**1.20**	**4.34**	**6.13**	**7.57**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.21**	**0.09**	**0.08**	**0.47**	**0.39**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**2.46**	**2.50**	**0.18**	**11.2**	**3.78**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.10
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.3**	**0.4**	**0.3**	**0.3**	**0.9**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**1.10**	**1.06**	**0.51**	**0.51**	**1.10**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.18**	**0.79**	**1.82**	**1.22**	**4.41**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.63**	**0.66**	**0.21**	**0.31**	**0.43**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.60**	**0.36**	**0.14**	**0.53**	**0.69**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.14**	**0.08**	<0.02	**0.02**	<0.10
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		**0.02**	**0.04**	<0.02	<0.02	<0.10
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.10
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.10
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.10
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.24
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.10
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.24
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.24

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW173_211013	0207_MW172_211013	0207_MW249_211013	0207_MW252_211013	0207_MW236_211013
				Sampling date / time	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-021	EB2129575-022	EB2129575-023	EB2129575-024	EB2129575-025
					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	<0.24
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.24
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.10
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.10
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	<0.10
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.76**	**0.42**	<0.05	<0.05	<0.10
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	**0.24**	<0.05	<0.05	<0.10
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.10
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**10.5**	**8.29**	**9.52**	**22.9**	**24.8**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**5.00**	**3.70**	**4.52**	**17.3**	**11.4**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**9.84**	**7.85**	**8.41**	**21.2**	**22.2**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**81.3**	**91.8**	**99.8**	**84.6**	**98.4**
13C8-PFOA	----	0.02	%		**101**	**102**	**102**	**102**	**98.8**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW235_211013	0207_MW241_211013	0207_MW232_211013	0207_MW187_211013	0207_MW189_211013
				Sampling date / time	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-026	EB2129575-027	EB2129575-028	EB2129575-029	EB2129575-030
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**6.94**	**0.16**	**0.08**	<0.06	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**8.20**	**0.21**	**0.12**	**0.07**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**22.1**	**1.67**	**1.19**	**0.67**	**0.10**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.61**	**0.15**	**0.04**	<0.05	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**5.19**	**4.29**	**4.54**	**0.37**	**0.09**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**1.9**	**0.1**	**0.5**	<0.2	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**2.53**	**0.08**	**2.09**	<0.05	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**13.7**	**0.25**	**1.32**	**0.12**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**1.27**	**0.07**	**0.68**	<0.05	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**1.03**	**0.17**	**0.59**	<0.05	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	**0.12**	<0.05	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	**0.35**	<0.05	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.06	<0.12	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.06	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.06	<0.12	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW235_211013	0207_MW241_211013	0207_MW232_211013	0207_MW187_211013	0207_MW189_211013
				Sampling date / time	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00	13-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-026	EB2129575-027	EB2129575-028	EB2129575-029	EB2129575-030
					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	<0.06	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.06	<0.12	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<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		<0.05	<0.05	**0.09**	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	**1.38**	<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		**63.5**	**7.15**	**13.1**	**1.23**	**0.19**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**27.3**	**5.96**	**5.73**	**1.04**	**0.19**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**54.7**	**6.79**	**12.5**	**1.16**	**0.19**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.6**	**97.3**	**82.6**	**95.6**	**89.8**
13C8-PFOA	----	0.02	%		**99.3**	**95.8**	**104**	**100**	**98.6**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW174_211013	0207_MW264_211014	0207_MW276_211014	0207_MW257_211014	0207_MW233_211014
				Sampling date / time	13-Oct-2021 00:00	14-Oct-2021 00:00	14-Oct-2021 00:00	14-Oct-2021 00:00	14-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-031	EB2129575-032	EB2129575-033	EB2129575-034	EB2129575-035
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<1.43	<0.02	**1.09**	<0.02	**0.17**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**1.38**	<0.02	**0.16**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**0.08**	<0.02	**8.98**	**0.14**	**1.06**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.71**	<0.02	**0.05**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.08**	<0.01	**11.6**	**0.10**	**0.91**
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	**0.4**	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.40**	<0.02	**0.47**	<0.02	**0.06**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.16**	<0.02	**1.94**	<0.02	**0.22**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.09**	<0.02	**0.34**	<0.02	**0.04**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	<0.01	**0.68**	<0.01	**0.09**
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	<0.06	<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	<0.06	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.06	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW174_211013	0207_MW264_211014	0207_MW276_211014	0207_MW257_211014	0207_MW233_211014
				Sampling date / time	13-Oct-2021 00:00	14-Oct-2021 00:00	14-Oct-2021 00:00	14-Oct-2021 00:00	14-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-031	EB2129575-032	EB2129575-033	EB2129575-034	EB2129575-035
					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	<0.06	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.06	<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		**0.16**	<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		**0.98**	<0.01	**27.6**	**0.24**	**2.76**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.16**	<0.01	**20.6**	**0.24**	**1.97**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.98**	<0.01	**25.5**	**0.24**	**2.55**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**88.4**	**100**	**93.5**	**95.2**	**101**
13C8-PFOA	----	0.02	%		**102**	**104**	**101**	**103**	**95.1**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW262_211014	0207_MW272_211015	0207_MW255_211015	0207_QC331_211011	0207_QC155_211011
				Sampling date / time	14-Oct-2021 00:00	15-Oct-2021 00:00	15-Oct-2021 00:00	11-Oct-2021 00:00	11-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-036	EB2129575-037	EB2129575-038	EB2129575-039	EB2129575-040
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.05**	**0.09**	**0.03**	<0.02	**0.04**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.05**	**0.10**	**0.03**	<0.02	**0.05**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**0.24**	**0.55**	**0.15**	<0.02	**0.26**
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		**0.18**	**0.21**	**0.07**	<0.01	**0.13**
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		**0.04**	**0.12**	**0.02**	<0.02	**0.06**
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		**0.03**	**0.02**	<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: WATER (Matrix: WATER)				Sample ID	0207_MW262_211014	0207_MW272_211015	0207_MW255_211015	0207_QC331_211011	0207_QC155_211011
				Sampling date / time	14-Oct-2021 00:00	15-Oct-2021 00:00	15-Oct-2021 00:00	11-Oct-2021 00:00	11-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-036	EB2129575-037	EB2129575-038	EB2129575-039	EB2129575-040
					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		**0.59**	**1.13**	**0.30**	<0.01	**0.55**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.42**	**0.76**	**0.22**	<0.01	**0.39**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.54**	**1.01**	**0.27**	<0.01	**0.50**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**90.6**	**93.7**	**102**	**91.7**	**87.4**
13C8-PFOA	----	0.02	%		**98.3**	**97.1**	**102**	**105**	**100**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_QC156_211011	0207_QC332_211012	0207_QC157_211012	0207_QC158_211012	0207_QC159_211012
				Sampling date / time	11-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-041	EB2129575-042	EB2129575-043	EB2129575-044	EB2129575-045
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.79**	<0.02	**0.40**	**1.72**	**0.83**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.82**	<0.02	**0.48**	**2.02**	**1.06**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		**5.26**	<0.02	**2.26**	**12.5**	**7.95**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.41**	<0.02	**0.20**	**1.61**	**0.72**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**5.13**	<0.01	**1.68**	**17.9**	**32.9**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.04
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.2**	<0.1	**0.2**	**2.1**	**0.3**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.27**	<0.02	**0.26**	**5.06**	**0.32**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.31**	<0.02	**1.04**	**9.38**	**1.78**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.33**	<0.02	**0.28**	**4.35**	**0.19**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.59**	<0.01	**0.42**	**6.80**	**0.57**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	**1.04**	<0.04
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	**0.02**	<0.04
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	<0.11
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	**0.04**	<0.04
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.11

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_QC156_211011	0207_QC332_211012	0207_QC157_211012	0207_QC158_211012	0207_QC159_211012
				Sampling date / time	11-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00	12-Oct-2021 00:00
Compound	CAS Number	LOR	Unit		EB2129575-041	EB2129575-042	EB2129575-043	EB2129575-044	EB2129575-045
					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	<0.11
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.11
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	**3.57**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	**0.10**	<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		**15.1**	<0.01	**7.22**	**68.2**	**46.6**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**10.4**	<0.01	**3.94**	**30.4**	**40.8**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**13.9**	<0.01	**6.54**	**63.5**	**44.8**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.6**	**94.9**	**91.9**	**88.8**	**95.6**
13C8-PFOA	----	0.02	%		**102**	**102**	**101**	**94.9**	**99.9**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_QC333_211013	0207_QC160_211013	0207_QC334_211014	0207_QC335_211015	----
				Sampling date / time	13-Oct-2021 00:00	13-Oct-2021 00:00	14-Oct-2021 00:00	15-Oct-2021 00:00	----
Compound	CAS Number	LOR	Unit		EB2129575-046	EB2129575-047	EB2129575-048	EB2129575-049	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**6.94**	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**7.24**	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	**21.0**	<0.02	<0.02	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	**0.48**	<0.02	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**4.87**	<0.01	<0.01	----
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	**2.0**	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**2.42**	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	**13.4**	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**1.25**	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**1.06**	<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	<0.06	<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	<0.06	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.06	<0.05	<0.05	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_QC333_211013	0207_QC160_211013	0207_QC334_211014	0207_QC335_211015	----
				Sampling date / time	13-Oct-2021 00:00	13-Oct-2021 00:00	14-Oct-2021 00:00	15-Oct-2021 00:00	----
Compound	CAS Number	LOR	Unit		EB2129575-046	EB2129575-047	EB2129575-048	EB2129575-049	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.06	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.06	<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		<0.01	**60.7**	<0.01	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**25.9**	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**52.9**	<0.01	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.7**	**89.3**	**92.9**	**95.7**	----
13C8-PFOA	----	0.02	%		**100**	**98.8**	**104**	**99.5**	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2129575**	Page	: 1 of 12
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Order number	: 60612563 2.1	Date Analysis Commenced	: 20-Oct-2021
C-O-C number	: ----	Issue Date	: 25-Oct-2021
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 49		
No. of samples analysed	: 49		

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]	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 3963694)									
EB2129575-026	0207_MW235_211013	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	5.19	5.04	2.9	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	6.94	6.73	3.0	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	8.20	7.40	10.2	0% - 20%
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	22.1	20.2	9.1	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.61	0.54	12.8	0% - 20%
		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: 3963695)									
EB2129575-003	0207_MW245_211011	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.14	0.15	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	0.24	0.24	0.0	0% - 50%
		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
EB2129575-016	0207_MW203_211012	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	6.46	6.72	4.0	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	1.83	1.84	0.0	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	1.92	1.95	1.2	0% - 20%
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	11.0	10.8	1.1	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.83	0.85	2.3	0% - 20%
		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: 3963696)									
EB2129575-010	0207_MW223_211012	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	14.6	14.0	4.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.98	1.02	4.5	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	1.11	1.07	3.7	0% - 20%
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	8.89	8.88	0.1	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: 3963696) - continued									
EB2129575-010	0207_MW223_211012	EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.86	0.82	4.1	0% - 20%
		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: 3963694)									
EB2129575-026	0207_MW235_211013	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	1.03	1.00	3.3	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	2.53	2.49	1.6	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	13.7	13.3	3.4	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	1.27	1.23	3.0	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	1.9	1.9	0.0	0% - 50%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 3963695)									
EB2129575-003	0207_MW245_211011	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	0.06	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
		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
EB2129575-016	0207_MW203_211012	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	1.00	1.01	1.1	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.65	0.65	0.0	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	3.46	3.47	0.0	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.58	0.58	0.0	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	0.4	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 3963696)									
EB2129575-010	0207_MW223_211012	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	11.0	11.3	2.8	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	40.8	40.4	0.8	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: 3963696) - continued									
EB2129575-010	0207_MW223_211012	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	18.7	18.6	0.2	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	13.1	12.9	1.5	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	2.23	2.49	10.9	0% - 20%
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	0.05	0.06	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	<0.06	<0.06	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	8.9	9.0	0.0	0% - 20%
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 3963694)									
EB2129575-026	0207_MW235_211013	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: 3963695)									
EB2129575-003	0207_MW245_211011	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
EB2129575-016	0207_MW203_211012	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

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: 3963695) - continued									
EB2129575-016	0207_MW203_211012	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: 3963696)									
EB2129575-010	0207_MW223_211012	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	0.04	0.05	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	<0.06	<0.06	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.06	<0.06	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 3963694)									
EB2129575-026	0207_MW235_211013	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: 3963695)									
EB2129575-003	0207_MW245_211011	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

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: 3963695) - continued									
EB2129575-003	0207_MW245_211011	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EB2129575-016	0207_MW203_211012	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	0.06	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: 3963696)									
EB2129575-010	0207_MW223_211012	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	8.98	9.53	5.9	0% - 20%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	0.58	0.65	11.7	0% - 50%
		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: 3963694)									
EB2129575-026	0207_MW235_211013	EP231X: Sum of PFAS	----	0.01	µg/L	63.5	59.8	5.9	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	27.3	25.2	7.8	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	54.7	51.9	5.2	0% - 20%
EP231P: PFAS Sums (QC Lot: 3963695)									
EB2129575-003	0207_MW245_211011	EP231X: Sum of PFAS	----	0.01	µg/L	0.53	0.54	1.9	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.38	0.39	2.6	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.49	0.50	2.0	0% - 20%
EB2129575-016	0207_MW203_211012	EP231X: Sum of PFAS	----	0.01	µg/L	28.2	28.4	0.7	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	17.5	17.5	0.3	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	25.4	25.5	0.6	0% - 20%
EP231P: PFAS Sums (QC Lot: 3963696)									
EB2129575-010	0207_MW223_211012	EP231X: Sum of PFAS	----	0.01	µg/L	131	131	0.0	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	23.5	22.9	2.6	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	126	126	0.2	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: 3963694)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	118	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	107	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	116	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	104	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	118	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 3963695)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	122	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	108	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	98.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	105	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	103	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 3963696)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	107	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.2373 µg/L	106	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	116	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	110	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	118	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3963694)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	97.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	97.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	110	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	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	120	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	108	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3963695)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.8	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: 3963695) - continued								
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	99.8	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	110	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	113	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	112	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	124	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	109	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3963696)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	108	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	120	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	105	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	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	112	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	106	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3963694)								
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	105	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	104	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	91.2	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	109	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	103	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	118	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3963695)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	114	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	119	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	111	60.5	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
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3963695) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	104	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	116	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	113	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	107	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3963696)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	110	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	106	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	102	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	108	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	116	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 3963694)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	98.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	115	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	114	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	106	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 3963695)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	110	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	129	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	97.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	78.0	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 3963696)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	124	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	122	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	119	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	104	64.2	133
EP231P: PFAS Sums (QCLot: 3963694)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----

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
EP231P: PFAS Sums (QCLot: 3963694) - continued								
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 3963695)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 3963696)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 3963694)							
EB2129575-027	0207_MW241_211013	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	111	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	120	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	92.1	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	125	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	119	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 3963695)							
EB2129575-009	0207_MW221_211012	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	121	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	110	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	# Not Determined	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	120	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	110	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3963694)							
EB2129575-027	0207_MW241_211013	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	100	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: 3963694) - continued							
EB2129575-027	0207_MW241_211013	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	100	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	108	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	119	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	106	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	112	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	106	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	120	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	104	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3963695)							
EB2129575-009	0207_MW221_211012	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	92.2	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	98.6	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	96.4	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	110	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	105	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	103	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	114	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	102	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	121	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	110	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3963694)							
EB2129575-027	0207_MW241_211013	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	104	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	122	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	103	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	104	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	103	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	104	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	110	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 3963695)							
EB2129575-009	0207_MW221_211012	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	116	59.0	135

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: 3963695) - continued							
EB2129575-009	0207_MW221_211012	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	115	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	112	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	103	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	106	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	107	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	108	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 3963694)							
EB2129575-027	0207_MW241_211013	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	118	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	130	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	104	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	89.2	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 3963695)							
EB2129575-009	0207_MW221_211012	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	98.1	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	126	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	105	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	90.9	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2129575**	Page	: 1 of 9
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 18-Oct-2021
Site	: ----	Issue Date	: 25-Oct-2021
Sampler	: [redacted]	No. of samples received	: 49
Order number	: 60612563 2.1	No. of samples analysed	: 49

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	EB2129575--009	0207_MW221_211012	**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	EB2129575--027	0207_MW241_211013	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EB2129575--009	0207_MW221_211012	**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	EB2129575--009	0207_MW221_211012	**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	49	8.16	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	2	49	4.08	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*

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) 0207_MW167_211011, 0207_MW179_211011, 0207_MW245_211011, 0207_MW242_211011, 0207_MW178_211011, 0207_MW206_211011, 0207_MW198_211011, 0207_MW193_211011	**11-Oct-2021**	**20-Oct-2021**	09-Apr-2022	✓	**21-Oct-2021**	09-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC331_211011, 0207_QC155_211011, 0207_QC156_211011	**11-Oct-2021**	**21-Oct-2021**	09-Apr-2022	✓	**21-Oct-2021**	09-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW221_211012, 0207_MW223_211012, 0207_MW229_211012, 0207_MW222_211012, 0207_MW230_211012, 0207_MW300_211012, 0207_MW299_211012, 0207_MW203_211012, 0207_MW204_211012, 0207_MW205_211012, 0207_MW202_211012, 0207_MW201_211012	**12-Oct-2021**	**20-Oct-2021**	10-Apr-2022	✓	**21-Oct-2021**	10-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC332_211012, 0207_QC157_211012, 0207_QC158_211012, 0207_QC159_211012	**12-Oct-2021**	**21-Oct-2021**	10-Apr-2022	✓	**21-Oct-2021**	10-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW173_211013, 0207_MW172_211013, 0207_MW249_211013, 0207_MW252_211013, 0207_MW236_211013, 0207_MW232_211013, 0207_MW187_211013, 0207_MW189_211013, 0207_MW174_211013	**13-Oct-2021**	**20-Oct-2021**	11-Apr-2022	✓	**21-Oct-2021**	11-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW235_211013, 0207_MW241_211013, 0207_QC333_211013, 0207_QC160_211013	**13-Oct-2021**	**21-Oct-2021**	11-Apr-2022	✓	**21-Oct-2021**	11-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW264_211014, 0207_MW276_211014, 0207_MW257_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW233_211014, 0207_MW262_211014, 0207_QC334_211014	**14-Oct-2021**	**21-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW272_211015, 0207_MW255_211015, 0207_QC335_211015	**15-Oct-2021**	**21-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-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
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW167_211011, 0207_MW179_211011, 0207_MW245_211011, 0207_MW242_211011, 0207_MW178_211011, 0207_MW206_211011, 0207_MW198_211011, 0207_MW193_211011	**11-Oct-2021**	**20-Oct-2021**	09-Apr-2022	✓	**21-Oct-2021**	09-Apr-2022	✓
HDPE (no PTFE) (EP231X)							
0207_QC331_211011, 0207_QC155_211011, 0207_QC156_211011	**11-Oct-2021**	**21-Oct-2021**	09-Apr-2022	✓	**21-Oct-2021**	09-Apr-2022	✓
HDPE (no PTFE) (EP231X)							
0207_MW221_211012, 0207_MW223_211012, 0207_MW229_211012, 0207_MW222_211012, 0207_MW230_211012, 0207_MW300_211012, 0207_MW299_211012, 0207_MW203_211012, 0207_MW204_211012, 0207_MW205_211012, 0207_MW202_211012, 0207_MW201_211012	**12-Oct-2021**	**20-Oct-2021**	10-Apr-2022	✓	**21-Oct-2021**	10-Apr-2022	✓
HDPE (no PTFE) (EP231X)							
0207_QC332_211012, 0207_QC157_211012, 0207_QC158_211012, 0207_QC159_211012	**12-Oct-2021**	**21-Oct-2021**	10-Apr-2022	✓	**21-Oct-2021**	10-Apr-2022	✓
HDPE (no PTFE) (EP231X)							
0207_MW173_211013, 0207_MW172_211013, 0207_MW249_211013, 0207_MW252_211013, 0207_MW236_211013, 0207_MW232_211013, 0207_MW187_211013, 0207_MW189_211013, 0207_MW174_211013	**13-Oct-2021**	**20-Oct-2021**	11-Apr-2022	✓	**21-Oct-2021**	11-Apr-2022	✓
HDPE (no PTFE) (EP231X)							
0207_MW235_211013, 0207_MW241_211013, 0207_QC333_211013, 0207_QC160_211013	**13-Oct-2021**	**21-Oct-2021**	11-Apr-2022	✓	**21-Oct-2021**	11-Apr-2022	✓
HDPE (no PTFE) (EP231X)							
0207_MW264_211014, 0207_MW276_211014, 0207_MW257_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
HDPE (no PTFE) (EP231X)							
0207_MW233_211014, 0207_MW262_211014, 0207_QC334_211014	**14-Oct-2021**	**21-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
HDPE (no PTFE) (EP231X)							
0207_MW272_211015, 0207_MW255_211015, 0207_QC335_211015	**15-Oct-2021**	**21-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-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) 0207_MW167_211011, 0207_MW179_211011, 0207_MW245_211011, 0207_MW242_211011, 0207_MW178_211011, 0207_MW206_211011, 0207_MW198_211011, 0207_MW193_211011	**11-Oct-2021**	**20-Oct-2021**	09-Apr-2022	✓	**21-Oct-2021**	09-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC331_211011, 0207_QC155_211011, 0207_QC156_211011	**11-Oct-2021**	**21-Oct-2021**	09-Apr-2022	✓	**21-Oct-2021**	09-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW221_211012, 0207_MW223_211012, 0207_MW229_211012, 0207_MW222_211012, 0207_MW230_211012, 0207_MW300_211012, 0207_MW299_211012, 0207_MW203_211012, 0207_MW204_211012, 0207_MW205_211012, 0207_MW202_211012, 0207_MW201_211012	**12-Oct-2021**	**20-Oct-2021**	10-Apr-2022	✓	**21-Oct-2021**	10-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC332_211012, 0207_QC157_211012, 0207_QC158_211012, 0207_QC159_211012	**12-Oct-2021**	**21-Oct-2021**	10-Apr-2022	✓	**21-Oct-2021**	10-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW173_211013, 0207_MW172_211013, 0207_MW249_211013, 0207_MW252_211013, 0207_MW236_211013, 0207_MW232_211013, 0207_MW187_211013, 0207_MW189_211013, 0207_MW174_211013	**13-Oct-2021**	**20-Oct-2021**	11-Apr-2022	✓	**21-Oct-2021**	11-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW235_211013, 0207_MW241_211013, 0207_QC333_211013, 0207_QC160_211013	**13-Oct-2021**	**21-Oct-2021**	11-Apr-2022	✓	**21-Oct-2021**	11-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW264_211014, 0207_MW276_211014, 0207_MW257_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW233_211014, 0207_MW262_211014, 0207_QC334_211014	**14-Oct-2021**	**21-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW272_211015, 0207_MW255_211015, 0207_QC335_211015	**15-Oct-2021**	**21-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-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) 0207_MW167_211011, 0207_MW179_211011, 0207_MW245_211011, 0207_MW242_211011, 0207_MW178_211011, 0207_MW206_211011, 0207_MW198_211011, 0207_MW193_211011	**11-Oct-2021**	**20-Oct-2021**	09-Apr-2022	✓	**21-Oct-2021**	09-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC331_211011, 0207_QC155_211011, 0207_QC156_211011	**11-Oct-2021**	**21-Oct-2021**	09-Apr-2022	✓	**21-Oct-2021**	09-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW221_211012, 0207_MW223_211012, 0207_MW229_211012, 0207_MW222_211012, 0207_MW230_211012, 0207_MW300_211012, 0207_MW299_211012, 0207_MW203_211012, 0207_MW204_211012, 0207_MW205_211012, 0207_MW202_211012, 0207_MW201_211012	**12-Oct-2021**	**20-Oct-2021**	10-Apr-2022	✓	**21-Oct-2021**	10-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC332_211012, 0207_QC157_211012, 0207_QC158_211012, 0207_QC159_211012	**12-Oct-2021**	**21-Oct-2021**	10-Apr-2022	✓	**21-Oct-2021**	10-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW173_211013, 0207_MW172_211013, 0207_MW249_211013, 0207_MW252_211013, 0207_MW236_211013, 0207_MW232_211013, 0207_MW187_211013, 0207_MW189_211013, 0207_MW174_211013	**13-Oct-2021**	**20-Oct-2021**	11-Apr-2022	✓	**21-Oct-2021**	11-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW235_211013, 0207_MW241_211013, 0207_QC333_211013, 0207_QC160_211013	**13-Oct-2021**	**21-Oct-2021**	11-Apr-2022	✓	**21-Oct-2021**	11-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW264_211014, 0207_MW276_211014, 0207_MW257_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW233_211014, 0207_MW262_211014, 0207_QC334_211014	**14-Oct-2021**	**21-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW272_211015, 0207_MW255_211015, 0207_QC335_211015	**15-Oct-2021**	**21-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-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) 0207_MW167_211011, 0207_MW179_211011, 0207_MW245_211011, 0207_MW242_211011, 0207_MW178_211011, 0207_MW206_211011, 0207_MW198_211011, 0207_MW193_211011	**11-Oct-2021**	**20-Oct-2021**	09-Apr-2022	✓	**21-Oct-2021**	09-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC331_211011, 0207_QC155_211011, 0207_QC156_211011	**11-Oct-2021**	**21-Oct-2021**	09-Apr-2022	✓	**21-Oct-2021**	09-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW221_211012, 0207_MW223_211012, 0207_MW229_211012, 0207_MW222_211012, 0207_MW230_211012, 0207_MW300_211012, 0207_MW299_211012, 0207_MW203_211012, 0207_MW204_211012, 0207_MW205_211012, 0207_MW202_211012, 0207_MW201_211012	**12-Oct-2021**	**20-Oct-2021**	10-Apr-2022	✓	**21-Oct-2021**	10-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC332_211012, 0207_QC157_211012, 0207_QC158_211012, 0207_QC159_211012	**12-Oct-2021**	**21-Oct-2021**	10-Apr-2022	✓	**21-Oct-2021**	10-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW173_211013, 0207_MW172_211013, 0207_MW249_211013, 0207_MW252_211013, 0207_MW236_211013, 0207_MW232_211013, 0207_MW187_211013, 0207_MW189_211013, 0207_MW174_211013	**13-Oct-2021**	**20-Oct-2021**	11-Apr-2022	✓	**21-Oct-2021**	11-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW235_211013, 0207_MW241_211013, 0207_QC333_211013, 0207_QC160_211013	**13-Oct-2021**	**21-Oct-2021**	11-Apr-2022	✓	**21-Oct-2021**	11-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW264_211014, 0207_MW276_211014, 0207_MW257_211014	**14-Oct-2021**	**20-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW233_211014, 0207_MW262_211014, 0207_QC334_211014	**14-Oct-2021**	**21-Oct-2021**	12-Apr-2022	✓	**21-Oct-2021**	12-Apr-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW272_211015, 0207_MW255_211015, 0207_QC335_211015	**15-Oct-2021**	**21-Oct-2021**	13-Apr-2022	✓	**21-Oct-2021**	13-Apr-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	4	49	**8.16**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	49	**6.12**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	49	**6.12**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	49	**4.08**	**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.

Australian Government
Department of Industry, Science, Energy and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: LEVEL 8
FORTITUDE VALLEY QLD 4006

Email: [redacted]

Telephone:

Fax:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: [redacted]

Address: 105 Delhi Road, North Ryde, NSW
NSW 2113

Email: [redacted]

Telephone: [redacted]

Fax:

SAMPLE DETAILS

NMI Job Name: **AECO06/211021**

Total No. of Samples: **6**

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N21/023625	28-OCT-2021	0207_QC255_21011	WATER 11/10/21
N21/023626	28-OCT-2021	0207_QC256_21011	WATER 11/10/21
N21/023627	28-OCT-2021	0207_QC257_21012	WATER 12/10/21
N21/023628	28-OCT-2021	0207_QC258_21012	WATER 12/10/21
N21/023629	28-OCT-2021	0207_QC259_21012	WATER 12/10/21
N21/023630	28-OCT-2021	0207_QC260_21013	WATER 13/10/21

SAMPLE RECEIVED CONDITION

Date samples received:	21-OCT-2021
Sample received in good order:	Yes
NMI Quotation no. provided:	
Client purchase order number:	60612563_2_1
Temperature of samples:	Chilled
Comments:	ALL OK
Mode of Delivery:	Courier

Additional Terms and Conditions

Incomplete / unclear information about samples or required testing will delay the start of the analysis work

If you require your Purchase Order (PO) number to be included on our invoice, please provide the number during sample submission and before the completion of work to avoid unnecessary delays and/or additional processing/handling fees.

The lodgement of an order or receipt of samples for NMI services referenced in this Sample Receipt Notification constitutes an acceptence of the current version of NMI Terms and Conditions or other applicable Terms referenced in the NMI Quotation. NMI Terms and Conditions are available on the web at https://www.industry.gov.au/client-services/testing-and-analysis-services/chemical-and-biological-analysis-services-terms-and-conditions

REPORT OF ANALYSIS

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/211021
	LEVEL 8	**Quote No.**	: QT-02018
	540 WICKHAM STREET	**Order No.**	: 60612563_2_1
		Date Received	: 21-OCT-2021
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: QLD_0207_PFASOMP		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N21/023625	0207_QC255_21011	WATER 11/10/21
N21/023626	0207_QC256_21011	WATER 11/10/21
N21/023627	0207_QC257_21012	WATER 12/10/21
N21/023628	0207_QC258_21012	WATER 12/10/21

Lab Reg No.		N21/023625	N21/023626	N21/023627	N21/023628	
Date Sampled		11-OCT-2021	11-OCT-2021	12-OCT-2021	12-OCT-2021	
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	0.18	0.14	1.9	NR70
PFPeA (2706-90-3)	ug/L	<0.02	0.23	0.21	4.0	NR70
PFHxA (307-24-4)	ug/L	0.044	0.91	0.71	6.1	NR70
PFHpA (375-85-9)	ug/L	<0.01	0.25	0.20	3.1	NR70
PFOA (335-67-1)	ug/L	<0.01	0.39	0.29	4.6	NR70
PFNA (375-95-1)	ug/L	<0.01	<0.01	<0.01	0.84	NR70
PFDA (335-76-2)	ug/L	<0.01	<0.01	<0.01	0.015	NR70
PFUdA (2058-94-8)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFDoA (307-55-1)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFTrDA (72629-94-8)	ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFTeDA (376-06-7)	ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFHxDA (67905-19-5)	ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFODA (16517-11-6)	ug/L	<0.05	<0.05	<0.05	<0.05	NR70
FOUEA (70887-84-2)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFDS (335-77-3)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFPeS (2706-91-4)	ug/L	0.031	0.51	0.31	1.3	NR70
PFHxS (355-46-4)	ug/L	0.19	3.9	1.7	8.8	NR70
PFHpS (375-92-8)	ug/L	<0.01	0.22	0.081	0.88	NR70
PFOS (1763-23-1)	ug/L	0.082	3.4	1.1	11	NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFBS (375-73-5)	ug/L	0.031	0.57	0.33	1.4	NR70
PFOSA (754-91-6)	ug/L	<0.01	<0.01	<0.01	0.013	NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02	<0.02	<0.02	<0.02	NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02	<0.02	<0.02	<0.02	NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05	<0.05	<0.05	<0.05	NR70

REPORT OF ANALYSIS

Lab Reg No.		N21/023625	N21/023626	N21/023627	N21/023628	
Date Sampled		11-OCT-2021	11-OCT-2021	12-OCT-2021	12-OCT-2021	
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
N-EtFOSE (1691-99-2)	ug/L	<0.05	<0.05	<0.05	<0.05	NR70
4:2 FTS (757124-72-4)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
6:2 FTS (27619-97-2)	ug/L	<0.01	<0.01	<0.01	2.6	NR70
8:2 FTS (39108-34-4)	ug/L	<0.01	<0.01	<0.01	0.058	NR70
10:2 FTS (120226-60-0)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
8:2 diPAP (678-41-1)	ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFBA (Surrogate Recovery)	%	98	93	101	93	NR70
PFPeA (Surrogate Recovery)	%	98	94	93	89	NR70
PFHxA (Surrogate Recovery)	%	97	84	94	90	NR70
PFHpA (Surrogate Recovery)	%	98	86	88	100	NR70
PFOA (Surrogate Recovery)	%	101	92	94	90	NR70
PFNA (Surrogate Recovery)	%	88	73	90	77	NR70
PFDA (Surrogate Recovery)	%	91	89	99	95	NR70
PFUdA (Surrogate Recovery)	%	98	89	97	105	NR70
PFDoA (Surrogate Recovery)	%	88	80	86	91	NR70
PFTeDA (Surrogate Recovery)	%	95	81	86	107	NR70
PFHxDA (Surrogate Recovery)	%	103	96	94	124	NR70
FOUEA (Surrogate Recovery)	%	92	86	84	103	NR70
PFBS (Surrogate Recovery)	%	92	93	88	115	NR70
PFHxS (Surrogate Recovery)	%	99	82	85	87	NR70
PFOS (Surrogate Recovery)	%	103	99	94	92	NR70
PFOSA (Surrogate Recovery)	%	83	74	82	86	NR70
N-MeFOSA (Surrogate Recovery)	%	80	84	72	90	NR70
N-EtFOSA (Surrogate Recovery)	%	102	84	76	103	NR70
N-MeFOSAA (Surrogate Recovery)	%	89	74	80	83	NR70
N-EtFOSAA (Surrogate Recovery)	%	98	74	100	102	NR70
N-MeFOSE (Surrogate Recovery)	%	87	86	82	120	NR70
N-EtFOSE (Surrogate Recovery)	%	81	80	67	117	NR70
4:2 FTS (Surrogate Recovery)	%	76	73	66	89	NR70
6:2 FTS (Surrogate Recovery)	%	81	78	72	139	NR70
8:2 FTS (Surrogate Recovery)	%	83	76	74	80	NR70
8:2 diPAP (Surrogate Recovery)	%	105	104	86	114	NR70
Dates						
Date extracted		26-OCT-2021	26-OCT-2021	26-OCT-2021	26-OCT-2021	
Date analysed		26-OCT-2021	26-OCT-2021	26-OCT-2021	26-OCT-2021	

N21/023625
to
N21/023630

REPORT OF ANALYSIS

PFOS and PFHxS are quantified using a combined branched and linear standard, linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

[redacted]
[redacted]Analyst
Organics - NSW
Accreditation No. 198

28-OCT-2021

REPORT OF ANALYSIS

Report No. RN1332382

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/211021
	LEVEL 8	**Quote No.**	: QT-02018
	540 WICKHAM STREET	**Order No.**	: 60612563_2_1
		Date Received	: 21-OCT-2021
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: QLD_0207_PFASOMP		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N21/023629	0207_QC259_21012	WATER 12/10/21
N21/023630	0207_QC260_21013	WATER 13/10/21

Lab Reg No.		N21/023629	N21/023630			
Date Sampled		12-OCT-2021	13-OCT-2021			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	0.17	1.7			NR70
PFPeA (2706-90-3)	ug/L	0.25	2.2			NR70
PFHxA (307-24-4)	ug/L	1.3	9.0			NR70
PFHpA (375-85-9)	ug/L	0.12	0.87			NR70
PFOA (335-67-1)	ug/L	0.37	0.68			NR70
PFNA (375-95-1)	ug/L	<0.01	<0.01			NR70
PFDA (335-76-2)	ug/L	<0.01	<0.01			NR70
PFUdA (2058-94-8)	ug/L	<0.01	<0.01			NR70
PFDoA (307-55-1)	ug/L	<0.01	<0.01			NR70
PFTrDA (72629-94-8)	ug/L	<0.02	<0.02			NR70
PFTeDA (376-06-7)	ug/L	<0.02	<0.02			NR70
PFHxDA (67905-19-5)	ug/L	<0.02	<0.02			NR70
PFODA (16517-11-6)	ug/L	<0.05	<0.05			NR70
FOUEA (70887-84-2)	ug/L	<0.01	<0.01			NR70
PFDS (335-77-3)	ug/L	<0.01	<0.01			NR70
PFPeS (2706-91-4)	ug/L	0.64	4.4			NR70
PFHxS (355-46-4)	ug/L	5.5	15			NR70
PFHpS (375-92-8)	ug/L	0.29	0.26			NR70
PFOS (1763-23-1)	ug/L	19	3.2			NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01			NR70
PFBS (375-73-5)	ug/L	0.62	5.1			NR70
PFOSA (754-91-6)	ug/L	<0.01	<0.01			NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02	<0.02			NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02	<0.02			NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01	<0.01			NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01	<0.01			NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05	<0.05			NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05	<0.05			NR70
4:2 FTS (757124-72-4)	ug/L	<0.01	<0.01			NR70

REPORT OF ANALYSIS

Lab Reg No.		N21/023629	N21/023630			
Date Sampled		12-OCT-2021	13-OCT-2021			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
6:2 FTS (27619-97-2)	ug/L	<0.01	<0.01			NR70
8:2 FTS (39108-34-4)	ug/L	<0.01	<0.01			NR70
10:2 FTS (120226-60-0)	ug/L	<0.01	<0.01			NR70
8:2 diPAP (678-41-1)	ug/L	<0.02	<0.02			NR70
PFBA (Surrogate Recovery)	%	95	95			NR70
PFPeA (Surrogate Recovery)	%	86	76			NR70
PFHxA (Surrogate Recovery)	%	87	64			NR70
PFHpA (Surrogate Recovery)	%	85	85			NR70
PFOA (Surrogate Recovery)	%	92	91			NR70
PFNA (Surrogate Recovery)	%	74	93			NR70
PFDA (Surrogate Recovery)	%	98	97			NR70
PFUdA (Surrogate Recovery)	%	94	92			NR70
PFDoA (Surrogate Recovery)	%	88	95			NR70
PFTeDA (Surrogate Recovery)	%	86	92			NR70
PFHxDA (Surrogate Recovery)	%	90	99			NR70
FOUEA (Surrogate Recovery)	%	85	95			NR70
PFBS (Surrogate Recovery)	%	93	71			NR70
PFHxS (Surrogate Recovery)	%	78	63			NR70
PFOS (Surrogate Recovery)	%	92	96			NR70
PFOSA (Surrogate Recovery)	%	77	95			NR70
N-MeFOSA (Surrogate Recovery)	%	71	75			NR70
N-EtFOSA (Surrogate Recovery)	%	70	84			NR70
N-MeFOSAA (Surrogate Recovery)	%	76	85			NR70
N-EtFOSAA (Surrogate Recovery)	%	96	88			NR70
N-MeFOSE (Surrogate Recovery)	%	85	90			NR70
N-EtFOSE (Surrogate Recovery)	%	74	99			NR70
4:2 FTS (Surrogate Recovery)	%	77	57			NR70
6:2 FTS (Surrogate Recovery)	%	76	76			NR70
8:2 FTS (Surrogate Recovery)	%	79	77			NR70
8:2 diPAP (Surrogate Recovery)	%	88	93			NR70
Dates						
Date extracted		26-OCT-2021	26-OCT-2021			
Date analysed		26-OCT-2021	26-OCT-2021			

[redacted]
[redacted] Analyst
Organics - NSW
Accreditation No. 198

28-OCT-2021

REPORT OF ANALYSIS

This Report supersedes reports: *RN1332357*

Measurement Uncertainty is available upon request.
Chemical Accreditation 198: 105 Delhi Road, North Ryde, NSW, 2113

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/211021 **Sample Matrix:** Liquid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		ug/L	ug/L	ug/L	ug/L	%	%	%
PFBA (375-22-4)	NR70	0.05	<0.05	NA	NA	NA	109	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	97	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	96	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	104	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	101	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	106	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	98	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	98	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	102	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	87	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	98	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	98	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	99	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	104	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	102	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	97	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	97	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	98	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	94	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	94	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	93	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	99	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	91	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	90	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	96	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	105	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	109	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	98	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	109	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	96	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	102	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	95	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	98	NA

Results expressed in percentage (%) or ug/L wherever appropriate.
Acceptable Spike recovery is 50-150%.
Maximum acceptable RPDs on spikes and duplicates is 40%.
'NA ' = Not Applicable.
RPD= Relative Percentage Difference.

Signed: [redacted]

[redacted]
Organics Manager, NMI-North Ryde

Date: **28/10/2021**

Appendix F

Equipment Calibration Certificates

Appendix F Equipment Calibration Certificates

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 15F102399

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		372012	pH 6.99
2. pH 4.00		pH 4.00		372374	pH 3.99
3. ORP		233.6mV		371922/363903	233.5mV
4. EC		2760uS		369734	2644uS
6. D.O		0.00%		11171	0.00%
7. Temp		22.8oC		MultiTherm 09000528	22.8oC

Calibrated by: [redacted]

Calibration date: 5-Oct-21

Next calibration due: 3-Apr-22

Oil / Water Interface Meter

Instrument Interface Meter (100M)
Serial No. 312413

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
	above 7.9V	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
Connectors	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

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

Tested by: [redacted]

Test date: 17/08/2021

Next Test due: 13/02/2022

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	AACO OMP	**Project Number:**	60612563 2.0
Project Location:	AACO	**Client:**	DoD
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:	Airmet
Make and Model:	YSI PRO
Serial Number:	21140036

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	11/10 0730				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	7	4	2760	0.0	/
Calibration Reading:	7.01	3.99	2773	0.0	/
Calibration Temperature:	14.1	14.2	14.1	14.3	/

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:					
Bump Test Reading:					
Bump Test Temperature:					

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

11/10 — Date

Distribution: Project Central File

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	AACO OMP	**Project Number:**	60612563 2.0
Project Location:	AACO	**Client:**	DoD
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:	Airmet
Make and Model:	YSI Pro plus
Serial Number:	21400136

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	12/10				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	7	4	2760	0.0	
Calibration Reading:	7.02	4.03	2761	0.0	
Calibration Temperature:	17.2	17.2	17.3	17.4	

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:					
Bump Test Reading:					
Bump Test Temperature:					

COMMENTS

Detail any equipment faults, minor maintenance performed, change of batteries or technical support provided.

Approval and Distribution

☑ Each individual instrument has been serviced and calibrated daily and bump tested as required by fieldwork staff.

[redacted] — Fieldwork Staff Signature

12/10 — Date

Distribution: Project Central File

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	AACO OMP	**Project Number:**	60612563 2.0
Project Location:	AACO	**Client:**	DoD
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:	Aimer
Make and Model:	ysi pro plus
Serial Number:	R21140036

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	7.0	4.0	2760	0.0	
Calibration Reading:	7.01	4.0	2761	0.0	
Calibration Temperature:	23.5	23.7	24.0	23.7	

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:					
Bump Test Reading:					
Bump Test Temperature:					

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**

13/10 — **Date**

Distribution: Project Central File

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	AACO OMP	**Project Number:**	60612563 2.0
Project Location:	AACO	**Client:**	DoD
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:	Airmet
Make and Model:	TSI 9mo
Serial Number:	K21140036

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Date and Time:					
Calibration Standard Concentration:	7.0	4	2760	0.0	
Calibration Reading:	7.0	4.01	2761	0.0	
Calibration Temperature:	17.8	17.9	~~18.0~~ 18.0	17.9	

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Date and Time:					
Calibration Standard Concentration:					
Bump Test Reading:					
Bump Test Temperature:					

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**

14/10 — **Date**

Distribution: Project Central File

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	AACO OMP	**Project Number:**	60612563 2.0
Project Location:	AACO	**Client:**	DoD
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:	Aicmet
Make and Model:	YSI pro plus
Serial Number:	K21140036

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:	7.0	4.0	2760	0-0	
Calibration Reading:	7.00	4.01	2763	0-0	
Calibration Temperature:	17.3	17.5	17.3	17.4	

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	ppm	ppm
Calibration Standard Concentration:					
Bump Test Reading:					
Bump Test Temperature:					

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

15/10

Date

Distribution: Project Central File

Prepared for
Department of Defence
ABN: 68706814312

Sampling Event Factual Report, March/April 2022

PFAS OMP - Army Aviation Centre Oakey

12-Dec-2022
Doc No. 60612563_RP_052_2_221212

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Sampling Event Factual Report, March/April 2022

PFAS OMP - Army Aviation Centre Oakey

Client: Department of Defence

ABN: 68706814312

Prepared by

AECOM Australia Pty Ltd
Turrbal and Jagera Country, Level 8, 540 Wickham Street, PO Box 1307, Fortitude Valley QLD 4006, Australia
T +61 7 3056 4800 www.aecom.com
ABN 20 093 846 925

12-Dec-2022

Job No.: 60612563

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

Quality Information

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Ref	60612563
Date	12-Dec-2022
Prepared by	[redacted]
Reviewed by	[redacted]

Rev	Revision Date	Details	Authorised	
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0	02-Jun-2022	Draft	[redacted]	
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Abbreviations

Abbreviation	
AACO	Army Aviation Centre Oakey
AECOM	AECOM Australia Pty Ltd
ALS	Australian Laboratory Services
ASC NEPM	Assessment of Site Contamination National Environment Protection Measure 1999 (as amended 2013)
COC	Chain of Custody
DCMM	Defence Contamination Management Manual
Defence	Department of Defence
DO	Dissolved oxygen
EC	Electrical conductivity
HEPA	Heads of Environmental Protection Agencies
IP	Interface probe
LNAPL	Light non aqueous phase liquid
LOR	Limit of reporting
mAHD	metres Australian height datum
mbtoc	Metres below top of casing
NATA	National Association of Testing Authorities
NEMP	National Environmental Management Plan
NHMRC	National Health and Medical Research Council
NMI	National Measurement Institute
OMP	Ongoing management plan
ORP	Oxidation reduction potential
PFAS	Per- and poly-fluorinated alkyl substances
PFHxS	Perfluorohexane sulfonate
PFOA	Perflurooctanoic acid
PFOS	Perflurooctanesulfonic acid
PMAP	PFAS management area plan
QA/QC	Quality assurance / quality control
QLD	Queensland
RPD	Relative percent difference
SAQP	Sampling analysis and quality plan
SWL	Standing water level

PFAS Group	Compound	CAS No.
Perfluoroalkyl Sulfonic Acids	Perfluorobutane sulfonic acid (PFBS)	375-73-5
	Perfluoropentane sulfonic acid (PFPeS)	2706-91-4
	Perfluorohexane sulfonic acid (PFHxS)	355-46-4
	Perfluoroheptane sulfonic acid (PFHpS)	375-92-8
	Perfluorooctane sulfonic acid (PFOS)	1763-23-1
	Perfluorodecane sulfonic acid (PFDS)	335-77-3
Perfluoroalkyl Carboxylic Acids	Perfluorobutanoic acid (PFBA)	375-22-4
	Perfluoropentanoic acid (PFPeA)	2706-90-3
	Perfluorohexanoic acid (PFHxA)	307-24-4
	Perfluoroheptanoic acid (PFHpA)	375-85-9
	Perfluorooctanoic acid (PFOA)	335-67-1
	Perfluorononanoic acid (PFNA)	375-95-1
	Perfluorodecanoic acid (PFDA)	335-76-2
	Perfluoroundecanoic acid (PFUnDA)	2058-94-8
	Perfluorododecanoic acid (PFDoDA)	307-55-1
	Perfluorotridecanoic acid (PFTrDA)	72629-94-8
	Perfluorotetradecanoic acid (PFTeDA)	376-06-7
Perfluoroalkyl Sulfonamides	Perfluorooctane sulphonamide (FOSA)	754-91-6
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	2448-09-7
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2
	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6
(n:2) Fluorotelomer Sulfonic Acids	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0

Units of Measurement			
L	Litres	m	Metres
mg	Milligram	ha	Hectares
kg	Kilogram	µg	Microgram
mV	Millivolts		

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) (Defence, 2019) at the Army Aviation Centre Oakey (AACO) (the 'Site') and the AACO Management Area in the South Queensland Region. The OMP for AACO also includes groundwater sampling at the Brymaroo Satellite Site (Brymaroo), located approximately 25 km northwest of AACO. The locations of the Site, Brymaroo and the Management Area are shown in **Figure 1** and **Figure 2** in **Appendix A**. The OMP for AACO (Defence 2019) includes the following sampling events:

- Targeted groundwater sampling events in October 2019, October 2020 and October 2021
- Annual comprehensive sampling events in March/April 2020, March/April 2021 and March/April 2022 including groundwater, sediment and surface water sampling.

Following each comprehensive and targeted sampling event, sampling event factual reports 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 targeted sampling event completed in March and April 2022, specifically highlighting first time detections and/or first-time exceedances of human health screening criteria for perfluorohexane sulfonic acid (PFHxS) and perfluorooctane sulfonate (PFOS) and / or perfluorooctanoic acid (PFOA).

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

1.2 Objectives

The objectives of the OMP are to:

- Implement the OMP prepared as part of the PFAS Management Area Plan (PMAP); and
- Collect data that will enable Defence to maintain an up to date understanding of the distribution, concentration and transport 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 PMAP.

The objective of this phase of works is to implement the scope of works for the comprehensive March / April 2022 sampling event in accordance with the sampling and analysis quality plan (SAQP), Rev 4, (AECOM, 2022).

2.0 Scope of Work

The sampling event at AACO and Brymaroo was completed in general accordance with the SAQP (AECOM, 2022). In summary, the scope of works for this sampling event included:

- Obtaining access to private properties where some groundwater sampling locations are situated.
- Review of the SAQP prior to the monitoring event to ensure compliance with the following:
  - PFAS National Environmental Management Plan (NEMP) (Heads of Environmental Protection Agencies [HEPA], 2020)
  - National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, as amended in 2013 (ASC NEPM, 2013)
  - Defence Routine Environment Water Quality Monitoring Manual
  - AS/NZ 5667:1998 Water quality – Sampling
  - Australian and New Zealand Guidelines for Fresh and Marine Water Quality
  - Relevant State regulatory guidelines.
- Gauging of groundwater level in monitoring wells prior to collection of samples (refer to **Table 1** below, and **Figure 3**, **Figure 4** and **Figure 5** in **Appendix A** for specific locations).
- As per the SAQP (AECOM, 2022), collection of groundwater samples at 78 monitoring wells (34 at AACO, 11 at Brymaroo and 33 located off-Site) and 16 off-Site residential bores (refer to **Table 1** below, and **Figure 3**, **Figure 4** and **Figure 5** in **Appendix A**). It is noted that groundwater samples from two monitoring wells (MW296 and MW297) and one residential bore (MW038) could not be collected during this sampling event (refer to **Table 8** for details). Four additional groundwater samples not included in the SAQP were collected including two monitoring wells at Brymaroo that were previously considered lost (MW005 and MW012), one residential bore (MW022) where the stakeholder had previously declined sampling and an on-Site monitoring well (MW207), refer to **Table 8** in **Section 3.6** for details.
- Collection of co-located surface water and sediment samples at 22 locations including seven on-Site and 15 off-Site locations (refer to **Table 2** and **Table 3** below, and **Figure 6** in **Appendix A**). Surface water and sediment samples were collected from nine on-base drainage channel locations and two off-base creek locations on 18 March 2022 following a rain event to ensure these samples were collected. An additional sediment sample was collected at location SD018, refer to **Table 8** in **Section 3.6** for details.
- Collecting intra- and inter-laboratory duplicate samples at a rate of 1 in 10 primary samples and collecting one rinsate sample per fieldwork day when re-usable (i.e. decontaminated) equipment was in use.
- Analysis of all samples for a suite of 28 PFAS analytes at the standard limit of reporting (LOR).
- Data management of all OMP field and laboratory data in the Defence ESdat database.
- Preparation of this Sampling Event Factual Report.

Table 1 Groundwater Sampling Locations

Location		Monitoring Wells / Residential Bores	No. of Samples
Source Area Bores	Fire training area in the north of the Site	MW562, MW563	2
	Former fire station in B3	MW201, MW202, MW203, MW204, MW205	5
	Aqueous film forming foam (AFFF) Storage Area / D20 appliance testing area	MW221, MW222, MW230, MW232	4
	AFFF recovery tank in F1 / hot refuel area	MW235, MW236, MW241	3
	AFFF recovery tank in A2 / hot refuel area	MW172, MW173	2
	AFFF recovery tank in S1	MW299, MW300	2
	AFFF Settling tank in C1	MW193, MW198, MW206, MW207*, MW223, MW229	6
On-Site boundary bores (Oakey Creek Alluvium)		MW167, MW174, MW178, MW179, MW187, MW189, MW233, MW242, MW245, MW249, MW252	11
Off-Site background bores (to east/ southeast of the Site)		MW265, MW279	2
Off-Site south of the Site and down gradient of drainage channels and Oakey Creek		MW267, MW268, MW270, MW278, MW292, MW294, *MW032, MW132*	8
Off-Site up and down gradient of landfill		MW280, MW281, MW282	3
Off-Site west and southwest of the Site		MW255, MW257, MW262, MW264, MW266, MW272, MW274, MW276, MW283, MW285, MW296#, *MW003, MW019, MW021, MW022*, MW038#, MW056, MW113, MW114, MW118, MW122, MW134, MW147, MW149, MW151, MW157*	26
Off-Site underlying aquifers to south of the Site		MW271, MW275, MW288, MW269, MW273, MW289, MW290, MW291, MW293, MW295, MW297#	11
Brymaroo		MW001, MW002, MW003, MW004, MW005*, MW006, MW007, MW008, MW009, MW010, MW011, MW012*, MW013	13

***Notes**:*

Italics indicate residential bores.

** Wells/bores sampled that were not specified in the SAQP Rev 4 (AECOM, 2020), refer to **Table 8** in **Section 3.6**.*

*#Wells/bores that could not be sampled during this sampling event, refer to **Table 8** in **Section 3.6**.*

Table 2 Surface Water Sampling Locations

Area	Description	Surface Water Sampling Locations
Creek	Oakey Creek upstream of drainage channel 3 outfall	*SW032, SW040*
	Oakey Creek downstream of drainage channel outfalls	*SW010, SW011, SW012, SW013, SW056*
	Oakey Creek downstream of confluence with Westbrook Creek	*SW004, SW059*
	Doctor Creek	*SW043*
	Westbrook Creek	*SW028*
Drainage Channel	Drainage Channel 1 (On-Site)	SW065, SW066
	Drainage Channel 1 (Off-Site)	*SW026*
	Drainage Channel 2 (On-Site)	SW024, SW025
	Drainage Channel 2 (Off-Site)	*SW009, SW027*
	Drainage Channel 3 (On-Site)	SW019, SW021, SW063
	Drainage Channel 3 (Off-Site)	*SW057*

***Note**: Italics indicate off-site surface water location.*

Table 3 Sediment Sampling Locations

Area	Description	Sediment Sampling Locations
Creek	Oakey Creek upstream of drainage channel 3 outfall	*SD032, SD040*
	Oakey Creek downstream of drainage channel outfalls	*SD037, SD036, SD0105, SD102, SD018*
	Oakey Creek downstream of confluence with Westbrook Creek	*SD038, SD045*
	Doctor Creek	*SD007*
	Westbrook Creek	*SD070*
Drainage Channel	Drainage Channel 1 (On-Site)	SD106, SD022
	Drainage Channel 1 (Off-Site)	*SD015*
	Drainage Channel 2 (On-Site)	SD024, SD010
	Drainage Channel 2 (Off-Site)	*SD013, SD011*
	Drainage Channel 3 (On-Site)	SD016, SD025, SD107
	Drainage Channel 3 (Off-Site)	*SD017*

***Note**: Italics indicate off-site sediment location.*

3.0 Methodology

The methodology used for the annual targeted March / April 2022 sampling event was in accordance with the SAQP (AECOM, 2022) and is summarised below.

3.1 Groundwater Sampling Methodology

Table 4 Groundwater Sampling Methodology

Item	Details
Groundwater gauging	The depth to groundwater was measured in each monitoring well prior to the installation of HydraSleeves™ and immediately prior to collection of groundwater samples using an interface probe (IP).
Quality parameter field measurements	Temperature, electrical conductivity, dissolved oxygen, oxidation-reduction potential, pH and observations of water quality were recorded for all groundwater samples. Equipment calibration certificates are provided in **Appendix F**.
Sampling methodology	Groundwater samples were collected from all monitoring wells using no-purge methodology HydraSleeves™, which were installed within the screened interval of each well (based on a review of the well construction log) for a minimum of 24 hours prior to the sampling round. Once sampling was completed, new HydraSleeves™ were deployed at the screened interval depth in preparation for the next sampling round. Monitoring well, MW242, was damaged (missing monument) and consequently this was sampled by bailer. Bore water samples were collected by placing the laboratory sample bottle beneath the tap and the tap slowly opened to collect the “first flush” of water.
QA/QC samples	Field quality assurance / quality control (QA/QC) samples collected included intra-laboratory duplicate and inter-laboratory duplicate samples (i.e. splits) and rinsate samples. Refer to **Appendix C** for assessment of QA/QC sample data. Rinsate samples were collected at the rate of one sample per fieldwork day by pouring laboratory supplied PFAS-free deionised water over the decontaminated sampling equipment. The only reusable equipment that was decontaminated during the sampling event was the IP.
Sample analysis	All primary samples were submitted for analysis for the PFAS suite using the standard levels of detection. ALS Environmental (ALS) Brisbane, Queensland was used as the primary laboratory. The National Measurement Institute (NMI) of Sydney, NSW was used as the secondary laboratory. ALS and NMI methods for groundwater analyses were certified by the National Association of Testing Authorities (NATA). Chain of custody (COC) forms and laboratory certificates are presented in **Appendix D** and **Appendix E** respectively.

3.2 Surface Water Sampling Methodology

Table 5 Surface Water Sampling Methodology

Item	Details
Quality parameter field measurements	Temperature, electrical conductivity, dissolved oxygen, oxidation-reduction potential, pH and observations of water quality were recorded for all surface water samples. Equipment calibration certificates are provided in **Appendix F**.
Sampling methodology	Samples were 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 was lowered into the water with the cap immediately applied once the container was full.
QA/QC samples	Field QA/QC samples collected included intra-laboratory duplicate and inter-laboratory duplicate samples (i.e. splits). Equipment rinsate blanks were not collected as no reusable equipment was used during surface water sampling. Refer to **Appendix C** for assessment of QA/QC sample data.
Sample analysis	All primary samples were submitted for PFAS suite using the standard levels of detection. ALS Brisbane, Queensland was used as the primary laboratory. NMI of Sydney, NSW was used as the secondary laboratory. ALS and NMI methods for groundwater analyses were certified by the NATA. COC forms and laboratory certificates are presented in **Appendix D** and **Appendix E** respectively.

3.3 Sediment Sampling Methodology

Table 6 Sediment Sampling Methodology

Item	Details
Sampling methodology	Samples representative of potentially deposited sediments were collected from within the water body if possible. Sediment samples were collected using a trenching shovel from the base of the drain (where possible). At each location, a new laboratory supplied container was used for each sample.
Logging	Sediment characteristics were recorded for each sample.
QA/QC Samples	Field QA/QC samples collected included intra-laboratory duplicate and inter-laboratory duplicate samples (i.e. splits). Equipment rinsate blanks were not collected as no reusable equipment was used during sediment sampling. Refer to **Appendix C** for assessment of QA/QC sample data.
Sample analysis	All primary samples were submitted for PFAS suite using the standard levels of detection. ALS Brisbane, Queensland was used as the primary laboratory. The NMI of Sydney, NSW was used as the secondary laboratory. ALS and NMI methods for groundwater analyses were certified by the NATA. COC forms and laboratory certificates are presented in **Appendix D** and **Appendix E** respectively.

3.4 Adopted Screening Criteria

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

- PFAS NEMP, (HEPA, 2020)
- Department of Health, 2019. *Health Based Guidance Values for PFAS for use in site investigations in Australia.* April 2017 [updated September 2019]
- 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

The adopted PFAS screening criteria to assess the data generated as part of the OMP are presented in **Table 7** below.

Table 7 Summary of Adopted Screening Criteria

Pathway	Compound	Criteria	Comment / Reference
Human Health Receptors			
Drinking water - groundwater	PFOS + PFHxS	0.07 µg/L	The values are from the PFAS NEMP (HEPA, 2020). *All groundwater results will be compared to these criteria.*
	PFOA	0.56 µg/L	
Recreational use – surface water	PFOS + PFHxS	2 µg/L	The values are from NHMRC (2019). *All surface water results will be compared to these criteria.*
	PFOA	10 µg/L	
Ecological Receptors			
Freshwater (99% species protection values)	PFOS	0.00023 µg/L	The values are from the PFAS NEMP (HEPA, 2020). The 99% level of protection has been applied for slightly to moderately disturbed ecosystems. This approach is generally adopted for chemicals that bioaccumulate and biomagnify in wildlife. For the purposes of preliminary screening of analytical water results, the laboratory LOR will be adopted rather than sole use of the criteria value. *All surface water and groundwater results will be compared to these criteria.*
	PFOA	19 µg/L	

There are no human health or ecological guideline values available for sediment.

3.5 Data Quality Objectives and Data Validation

The data quality objectives and data quality indicators adopted for these works are presented in the SAQP (AECOM, 2022).

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

The 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 Defence Contamination Management Manual (DCMM) (Defence, 2018, amended 2021) requirements.

3.6 Deviations from the SAQP

Table 8 lists the deviations from the SAQP (AECOM, 2022) during this sampling event.

Table 8 Deviations from the SAQP during sampling event for March/April 2022

SAQP	March/April 2022 Sampling Event
Collection of groundwater samples at 94 locations	• A total of 91 out of the 94 groundwater samples specified in the SAQP were collected. Four additional groundwater samples were collected as described below. • The groundwater samples from off-base monitoring wells MW038, MW296 and MW297 were unable to be collected as the stakeholders declined access permission. The loss of MW038 reduced the spatial coverage in the southern portion of the Management Area. The loss of MW296 and MW297 is considered of lower significance as there are monitoring wells located further down gradient (to the west) that provide groundwater quality data for the western portion of the Management Area. • Monitoring wells MW005 and MW012 at Brymaroo were not located during sampling events in 2021 and were removed from the SAQP. A further search during the sampling event managed to locate these wells and they were subsequently sampled. • Off-base residential bore MW022 was not sampled in 2021 as the stakeholder did not respond to the access request and the bore was removed from the SAQP. During this sampling event, the stakeholder provided access permission and the bore was sampled. • An additional on-Base monitoring well, MW207, which is not specified in the SAQP was inadvertently sampled. The results are presented in this report. • The additional monitoring data provides a greater understanding of the extent of PFAS in groundwater in the Management Area and at Brymaroo.
Collection of gauging data and field parameter measurements	• Due to an error on the EDCA system, some gauging data and field quality field parameter measurements were lost. This included data from groundwater monitoring wells MW223, MW229, MW267-MW271, MW295, SW057 and SW063. The loss of gauging data means there are a reduced number of groundwater elevation measurements to infer groundwater flow direction. The loss of physicochemical parameter data means there are reduced measurements to evaluate the local conditions at these sampling locations.
Collection of groundwater samples from monitoring wells using no-purge HydraSleeves™	• The groundwater sample from monitoring wells MW242, was collected via a grab sample using a bailer due to the damage to the monitoring well (missing monument). This will need to be considered during the evaluation of PFAS concentrations at this location in the interpretive report.
Collection of sediment samples from 22 sampling locations.	• Two sediment samples were collected from location SD018 due to uncertainty regarding the exact sampling location. SD018_B was collected from the discharge point of the drain (the correct location), whereas SD018_A was collected from drainage channel 3 upstream of the discharge point. Subsequently, both samples were analysed. The additional sediment sample provides additional data regarding the presence of PFAS in sediment prior to the discharge point of the drainage channel.

4.0 Field Observations and Results

The annual comprehensive March / April 2022 sampling event was completed on 18 March 2022 and between 11 and 21 April 2022. The results are summarised in following sections.

4.1 Groundwater

4.1.1 Groundwater Observations and Quality Parameter Field Measurements

Table 9 Groundwater Observations and Quality Parameter Field Measurements

Feature	Details
Access	All monitoring wells and bores were accessible except for the following: • The groundwater sample from residential bores MW038 was not collected as the stakeholder declined the access request. • The groundwater samples from monitoring wells MW296 and MW297 were not collected as the stakeholder could not provide access permission.
Monitoring Well Network	All well covers were noted to be in good condition with the exception of the following: • MW242 – monument is no longer present and requires replacement. The well was able to be sampled. • MW255 – J cap not sealing well and requires repair. • MW257 – J cap not sealing well and requires repair. • MW276 – concrete collar and gatic collar damaged and requires repair. • MW278 – concrete collar damaged and requires repair. • MW288 – monument lid broken and requires repair. • MW289 – monument lid broken and requires repair. • MW001 (Brymaroo) – concrete collar damaged and requires repair. • MW002 (Brymaroo) – concrete collar damaged and requires repair. • MW003 (Brymaroo) – Gatic lid, collar and casing damaged and requires repair. All wells were able to be sampled.
Field Observations	A hydrocarbon odour and heavy sheen were noted during gauging of MW193 which is located east of Hangar C2 and close to Tank C59. The hydrocarbon contamination is associated with a known historical leak of petroleum hydrocarbons from Tank C60 in 2009 (AECOM, 2018) and is consistent with historical observations at this location. No visible or olfactory indications of contamination were observed during the sampling of the other monitoring wells. Field observations are presented **Table T1** in **Appendix B**.
Depth to LNAPL	LNAPL was present in MW193 with a thickness of 0.097 m recorded. Measurable LNAPL was not gauged in any of the monitoring wells during March/April 2022. Groundwater gauging data are presented in **Table T1** in **Appendix B**.

Feature	Details
Depth to Groundwater	Depth to groundwater in the Oakey Creek Alluvium aquifer at AACO ranged between 4.202 (MW282) and 15.429 mbtoc (MW265). Groundwater elevations in the Oakey Creek Alluvium aquifer ranged between 385.269 (MW264) and 403.806 mAHD (MW198). Depth to groundwater in the Walloon Coal Measures (MW269) at AACO ranged between 16.120 mbtoc (MW291) and 61.785 mbtoc (MW289). Groundwater elevations in the Walloon Coal Measures aquifer ranged between 340.287 mAHD (MW289) and 387.589 mAHD (MW291). Depth to groundwater in the Main Range Volcanics at Brymaroo ranged between 6.837 (MW002) and 14.033 (MW011) mbtoc. Groundwater elevations ranged between 404.235 (MW010) and 411.382 mAHD (MW002). Groundwater gauging data are presented in **Table T1** in **Appendix B**.
Groundwater Flow Direction	Inferred groundwater contours and groundwater flow directions in the Oakey Creek Alluvium aquifer at AACO in March/April 2022 are shown on **Figure 7** in **Appendix A**. The inferred local groundwater flow direction is generally from east to west across the base and from southeast to northwest across the town. Inferred groundwater contours and groundwater flow directions in the Main Range Volcanics aquifer at Brymaroo in March/April 2022 are shown on **Figure 8** in **Appendix A**. The inferred local groundwater flow direction is generally from southwest to northeast.
Quality Parameter Field Measurements	Groundwater quality parameters were measured prior to collecting groundwater samples. The readings are presented in **Table T1** in **Appendix B** and are summarised below: AACO Management Area • Electrical conductivity ranged from 227.6 µS/cm (MW273) to 5,518 µS/cm (MW299) indicating fresh to brackish conditions. • pH ranged from 6.68 (MW299) to 11.89 (MW293). pH results indicated near neutral to alkaline conditions. • Corrected redox ranged from 196.8 mV (MW293) to 380.0 mV (MW245) indicating mildly to moderately reducing conditions. • Temperature ranged from 17.5°C (MW291) to 24.9°C (MW280). • The dissolved oxygen results ranged between 0.23 (MW257) and 3.40 mg/L (MW233) indicating poorly to moderately oxygenated conditions). Brymaroo Satellite Site • Electrical conductivity ranged from 959 µS/cm (MW001) to 2095 µS/cm (MW008) indicating fresh to brackish conditions. • pH ranged from 6.74 (MW009) to 10.93 (MW001). pH results generally indicated near neutral to alkaline conditions. • Redox ranged from 252.5 mV (MW001) to 376.7 mV (MW013) indicating mildly to moderately reducing conditions. • Temperature ranged from 21.2°C (MW008) to 23.4°C (MW002). • Dissolved oxygen results ranged between 0.16 (MW011) and 3.36 mg/L (MW004) indicating poorly to mildly oxygenated conditions.
Weather Conditions	Weather conditions during sampling between 11 and 21 April 2022 were generally dry and sunny. There was rainfall on two days; 7 mm on 14 April 2022 and 0.2 mm on 19 April 2022 as recorded at the Bureau of Meteorology (BOM) station 041359 – 'Oakey Aero'.

Feature	Details
Estate Management Works or Training Activities	During the sampling event no notable estate works or training activities were observed in the vicinity of sampling locations. In the period since the last sampling event, one of the PFAS source areas at AACO (former fire training area) was remediated with soil excavated and treated.

4.1.2 Groundwater Analytical Results

The PFAS groundwater analytical results from this sampling event are presented in **Table T2** in **Appendix B**. There was a first-time detection of PFOA in the groundwater sample from off-site monitoring well MW267[1], however, sum of PFHxS and PFOS have been consistently detected in this monitoring well. In addition, PFHxS, PFOS and PFOA have been consistently detected in groundwater from MW268, which is screened in a deeper portion of the alluvium aquifer at the same location as MW267. **Table 10** presents the details of the first-time detection.

There were first time detections of sum of PFHxS and PFOS and PFOA in MW562, which was sampled for the first time in April 2022. This monitoring well is located adjacent to the former fire training area at AACO. This monitoring well was installed in February 2022 to replace a destroyed well and was sampled for the first time as part this sampling event. Sum of PFHxS and PFOS exceeded the drinking water guideline (HEPA, 2020) value in the groundwater sample from this well. As there are no historical data for this well, the detections are not considered a deviation from the historical dataset, however, for completeness, results are presented in **Table 10**. The first-time exceedance location is shown on **Figure 9** in **Appendix A**.

Sixty-two of the 95 groundwater samples exceeded the human health drinking water guideline value (HEPA, 2020) for sum of PFHxS and PFOS with 16 samples exceeding the PFOA guideline value. Sixty-three groundwater samples exceeded the limit of reporting for PFOS and therefore exceeded the ecological guideline for PFOS for 99% protection of freshwater ecosystems (HEPA, 2020). One groundwater sample exceeded the PFOA ecological guideline value.

Table 10 Deviation from Historical Groundwater Dataset

Deviation Type	Monitoring wells/bores	Sum of PFHxS+PFOS concentration (µg/L)		PFOA concentration (µg/L)	
		April 2022	Historical maximum	April 2022	Historical maximum
First time detections of Sum of PFHxS+PFOS or PFOA in groundwater	MW267	0.47	0.15	0.02	<0.01
First-time exceedance of human health guideline value	MW562	9.62	None- first time sampled	0.55	None- first time sampled

Note: Blue shading indicates a sampling detection with a first-time detection of PFOS + PFHxS or PFOA. Yellow shading indicates first-time exceedance of the human health guideline value.

[1] Due to privacy reasons, the location of MW267, which recorded a first-time detection of PFOA, cannot be shown on a figure.

4.2 Surface Water

4.2.1 Surface Water Observations and Quality Parameter Field Measurements

Table 11 Surface Water Observations and Quality Parameter Field Measurements

Compound	Criteria
Access	All 22 surface water sampling locations were accessible during the March/April 2022 sampling.
Field Observations	Field observations were recorded for 20 of the 22 samples collected. Field observations for two of the locations were not recorded due to data loss on the EDCA device (refer **Section 3.6** above). A biosheen appearance was noted at SW011. No visual or olfactory indications of contamination were observed during the sampling of the other surface water sampling locations. Field observations are presented in **Table T3** in **Appendix B**.
Quality Parameter Field Measurements	Surface water quality parameters were measured prior to collecting surface water samples. The readings are presented in **Table T3** in **Appendix B** and are summarised below: • Dissolved oxygen ranged from 0.68 mg/L (SW021) to 14.78 mg/L (SW025) indicating a range between poorly and well oxygenated conditions. • Electrical conductivity ranged from 94.8 µS/cm (SW009) to 1,055 µS/cm (SW059) indicating fresh conditions. • pH ranged from 7.28 (SW066) to 8.92 (SW009). pH results generally indicated near neutral conditions. • Corrected redox potential ranged from 106.4 mV (SW065) to 337.3 mV (SW011) indicating mildly to moderately reducing conditions. • Temperature ranged from 18.1°C (SW009) and 29.0°C (SW043).
Weather Conditions	Weather conditions during surface water sampling on 18 March 2022 were dry and sunny. Weather conditions during sampling between 11 and 21 April 2022 were generally dry and sunny. There was rainfall on two days; 7 mm on 14 April 2022 and 0.2 mm on 19 April 2022 as recorded at the Bureau of Meteorology (BOM) station 041359 – 'Oakey Aero'.
Estate Management Works or Training Activities	During the sampling event no notable estate works or training activities were observed in the vicinity of sampling locations. In the period since the last sampling event, one of the PFAS source areas at AACO (former fire training area) was remediated with soil excavated and treated.

4.2.2 Surface Water Analytical Results

The PFAS surface water analytical results from this sampling event are presented in **Table T4** in **Appendix B**. No deviations from the historical dataset were noted in the data collected in March/April 2022 with no first-time detections of sum of PFHxS and PFOS and PFOA above the limit of reporting or first-time exceedances of the human health or ecological guidelines.

There were no exceedances of the recreational water (HEPA, 2020) guideline values for sum of PFHxS and PFOS and PFOA. Fifteen of the 22 surface water samples reported PFOS concentrations above the limit of reporting and all these samples exceeded the ecological guideline for protection of freshwater species (99% protection level). There were no exceedances of the ecological guideline for PFOA in the samples.

4.3 Sediment

4.3.1 Sediment Observations and Field Measurements

Table 12 Sediment Observations and Field Measurements

Compound	Criteria
Access	All sediment sampling locations were accessible.
Field Observations	No visible or olfactory indications of contamination were observed during the sampling of the sediment locations. Field observations are presented in **Table T5** in **Appendix B**.
Weather Conditions	Weather conditions during surface water sampling on 18 March 2022 were dry and sunny. Weather conditions during sampling between 11 and 21 April 2022 were generally dry and sunny. There was rainfall on two days; 7 mm on 14 April 2022 and 0.2 mm on 19 April 2022 as recorded at the Bureau of Meteorology (BOM) station 041359 – 'Oakey Aero'.
Estate Management Works or Training Activities	During the sampling event no notable estate works or training activities were observed in the vicinity of sampling locations. In the period since the last sampling event in April 2021, one of the PFAS source areas at AACO (former fire training area) was remediated with soil excavated and treated.

4.3.2 Sediment Analytical Results

The PFAS sediment analytical results from this sampling event are presented in **Table T6** in **Appendix B**. No deviations from the historical dataset are noted in the data collected in March/April 2022 with no first-time detections recorded above the limit of reporting.

5.0 Summary and Next Sampling Event

5.1 Summary of Monitoring Event

A comprehensive groundwater, surface water and sediment monitoring event was completed within and outside of the AACO Management Area, including at Brymaroo, between 18 March and 21 April 2022. The event included sampling of groundwater from 78 monitoring wells, 16 off-Site residential bores, and 22 co-located surface water and sediment sampling locations.

Table 13 summarises the findings of the annual comprehensive March/April 2022 sampling event and the recommended actions.

Table 13 Summary of Sampling Event

Item	Comment	Recommended Actions
Access to sampling locations	91 out of the 94 monitoring well/bore locations were accessible and able to be sampled. Access to MW038, MW296, MW297 was declined. Four additional monitoring wells/bores were sampled including MW207 (on-site), MW022 (off-site) and MW005 and MW012 at Brymaroo. The changes resulted in a total of 95 groundwater samples being collected. All 22 surface water and sediment sampling locations were accessible and able to be sampled. The loss of the groundwater sampling locations MW038, MW296 and MW297 have the potential to impact on the understanding of the distribution of PFAS in groundwater.	The loss of MW038, MW296 and MW297 will be considered in the next Annual Interpretive Report.
Monitoring well network condition	No issues were identified in 68 out of the 78 monitoring wells sampled. Damage to ten monitoring wells was identified: - The monument for MW242 on Defence-leased land has been destroyed. - The concrete collars are damaged at MW001, MW002 and MW003 (all at Brymaroo) and MW276 and MW278. The gatic of MW003 at Brymaroo is also broken. - The J caps at MW255 and MW257 are not sealing properly. - At MW288 and MW289, the monuments are damaged and lids are broken.	Defence to contact leaseholder to request repair of MW242 cover. Replacement gatics / monuments are required at MW003 (at Brymaroo), MW288 and MW289.
Analytical Results	PFAS concentrations were consistent with historical results for 92 groundwater samples analysed. PFAS concentrations in the 22 surface water and 22 sediment sample were consistent with historical results.	Ongoing monitoring in accordance with the OMP.
First-time detections of Sum of PFHxS+PFOS or PFOA	The groundwater sample from MW267 recorded a first-time detection of PFOA (0.02 µg/L), slightly above the laboratory reporting limit (0.01 µg/L). However, sum of PFHxS and PFOS has been consistently detected in this well.	Ongoing monitoring in accordance with the OMP

Item	Comment	Recommended Actions
	First time detections of PFHxS and PFOS and PFOA were recorded in the sample from MW562. This well was newly installed in February 2022 and was sampled for the first time in April 2022 so there are no comparative historical data available in this well. No first-time detections of PFAS above the laboratory limit of reporting were recorded in any of the 22 surface water samples or 22 sediment samples collected.	
First time exceedance of HEPA (2020) drinking water guideline values or NHMRC (2019) recreational use guidelines	There was one first-time exceedances of the NEMP (HEPA, 2020) drinking water guidelines or NHMRC (2019) recreational use guidelines. This was for sum of PFHxS and PFOS in the sample from MW562, which was sampled for the first time in April 2022.	NIL

5.2 Upcoming Sampling Events

An annual comprehensive sampling event is scheduled for October 2022.

5.3 Upcoming Annual Interpretive Report

The next annual interpretive report is scheduled for September 2022.

6.0 References

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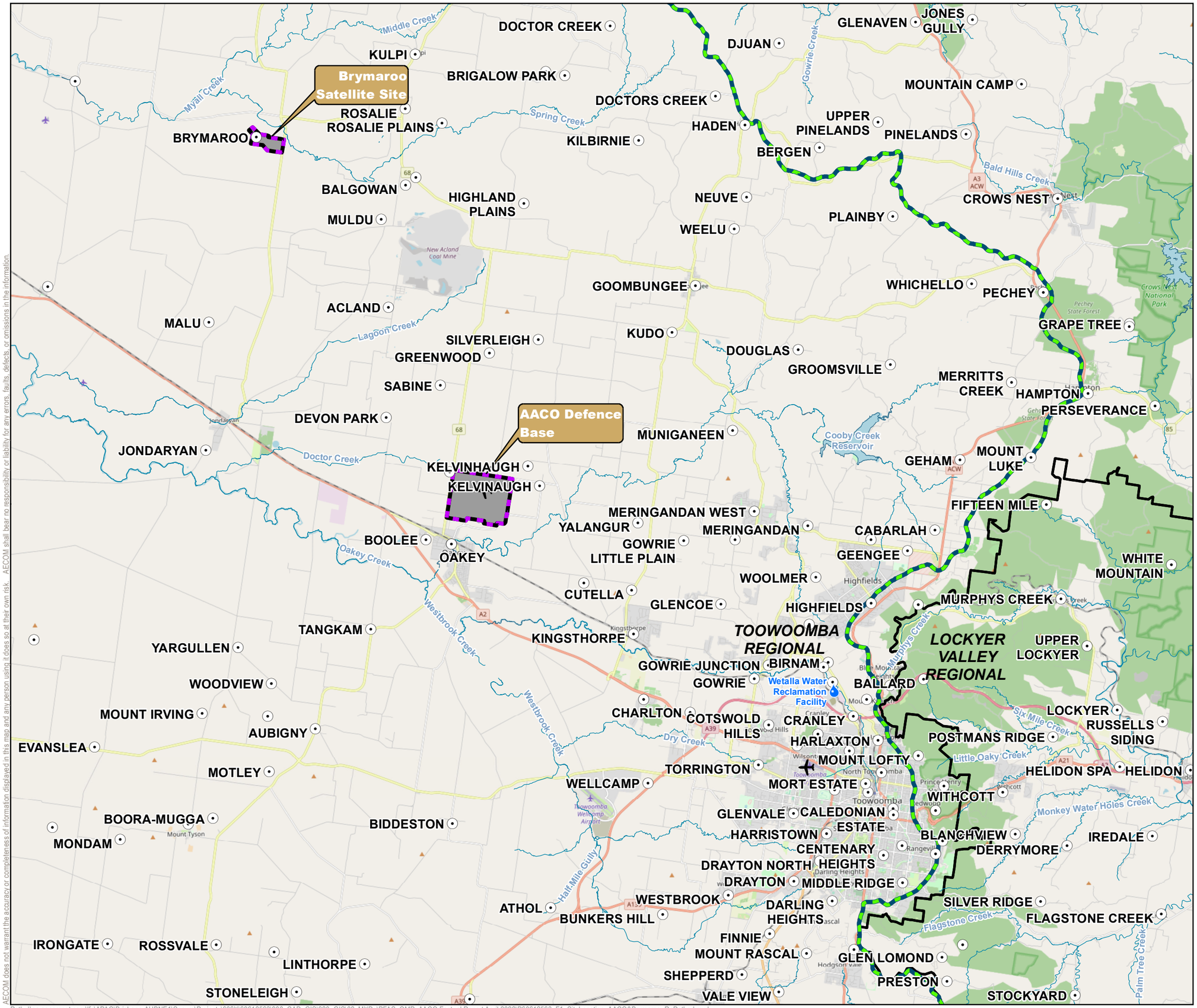
Appendix A

Figures

Appendix A Figures



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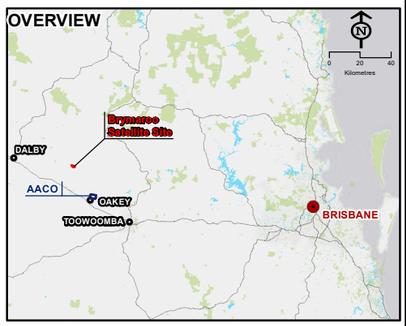
DATUM GDA 1994. PROJECTION MGA ZONE 56

0 2.5 5
Kilometres

1:200,000 (when printed at A3)

LEGEND

- Airport
- Watercourse/waterbody
- Great Dividing Range
- Investigation Area
- Local Governmental Area
- AACO & Brymaroo Base Boundaries
- National Park



Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: MARCH/APRIL 2022

SITE LOCATION

PROJECT ID	60612563
CREATED BY	WW
LAST MODIFIED	james.peachey; 18/05/2022
VERSION:	1

FIGURE 1

A3 size

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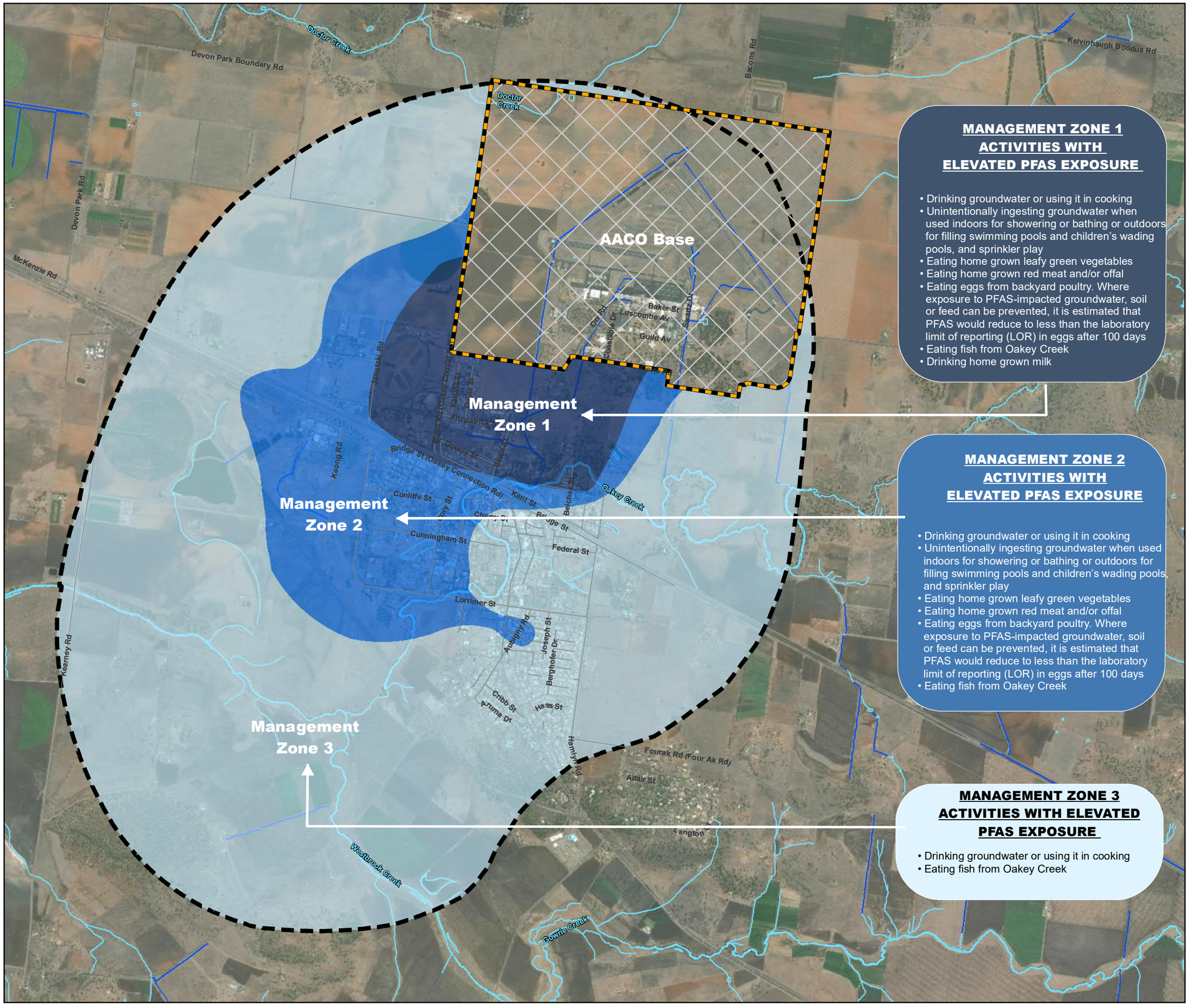

MANAGEMENT ZONE 1 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Unintentionally ingesting groundwater when used indoors for showering or bathing or outdoors for filling swimming pools and children's wading pools, and sprinkler play
- Eating home grown leafy green vegetables
- Eating home grown red meat and/or offal
- Eating eggs from backyard poultry. Where exposure to PFAS-impacted groundwater, soil or feed can be prevented, it is estimated that PFAS would reduce to less than the laboratory limit of reporting (LOR) in eggs after 100 days
- Eating fish from Oakey Creek
- Drinking home grown milk

MANAGEMENT ZONE 2 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Unintentionally ingesting groundwater when used indoors for showering or bathing or outdoors for filling swimming pools and children's wading pools, and sprinkler play
- Eating home grown leafy green vegetables
- Eating home grown red meat and/or offal
- Eating eggs from backyard poultry. Where exposure to PFAS-impacted groundwater, soil or feed can be prevented, it is estimated that PFAS would reduce to less than the laboratory limit of reporting (LOR) in eggs after 100 days
- Eating fish from Oakey Creek

MANAGEMENT ZONE 3 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Eating fish from Oakey Creek

LEGEND

- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- AACO Base

0 0.25 0.5 1 km

SCALE 1:35,000

SIZE A3

SHEET 1 of 1

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 2: Management Zones - Activities with Elevated PFAS Exposure

PROJECT

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: MARCH / APRIL 2022

CLIENT

DEPARTMENT OF DEFENCE

LEGEND

On-Site Groundwater Monitoring Locations

Site Boundary

0 75 150 300 m

AECOM

SCALE 1:9,000

SIZE A3

SHEET **1 of 1**

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 3: On-Site Groundwater Monitoring Locations

PROJECT

PFAS OMP AACO SAMPLING EVENT FACTUAL REPORT: MARCH / APRIL 2022

CLIENT

DEPARTMENT OF DEFENCE

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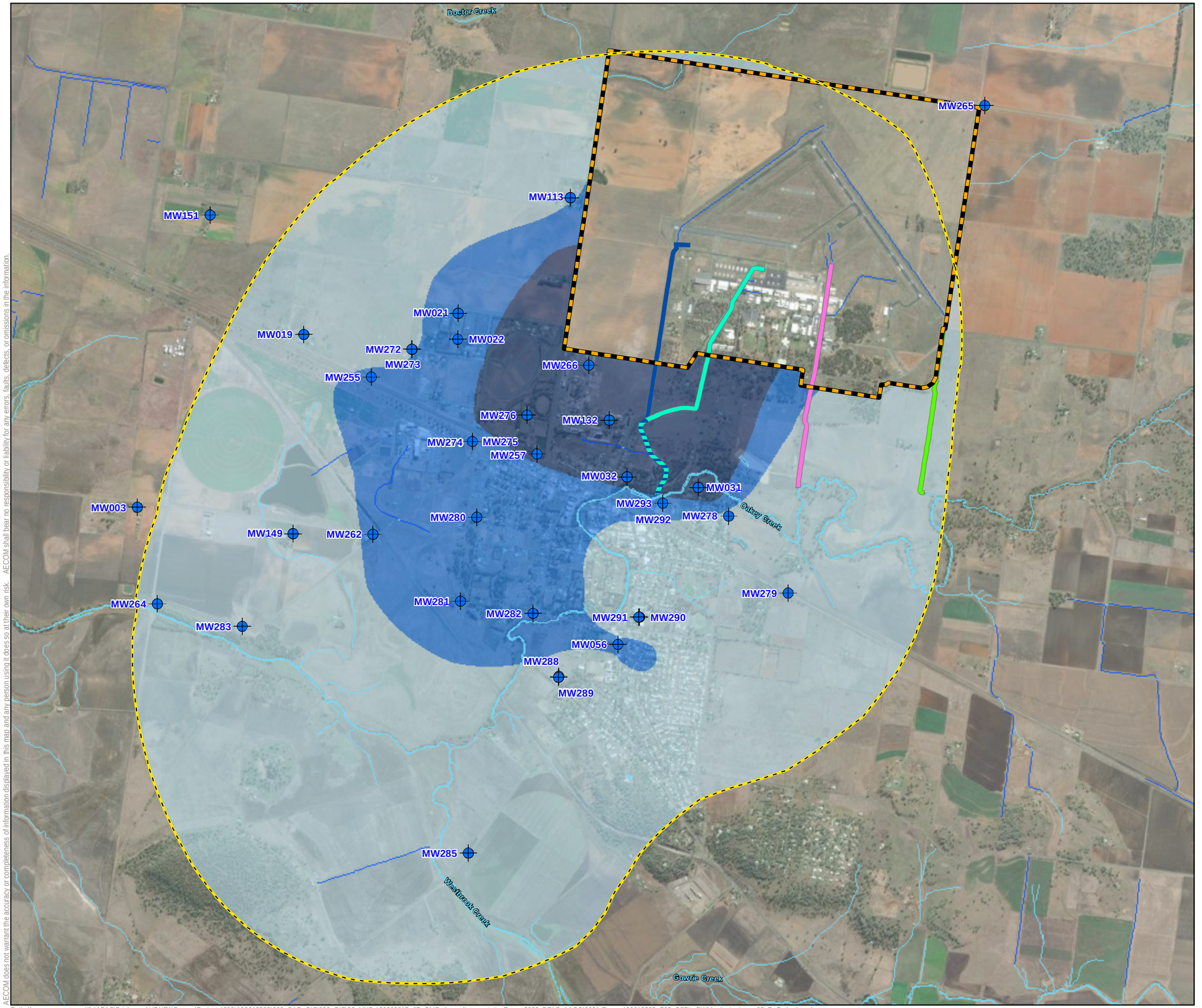

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- Off-Site Groundwater Monitoring Well
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Management Area
- Site Boundary

Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

SIZE

0 0.25 0.5 1 km

AECOM

1:32,000

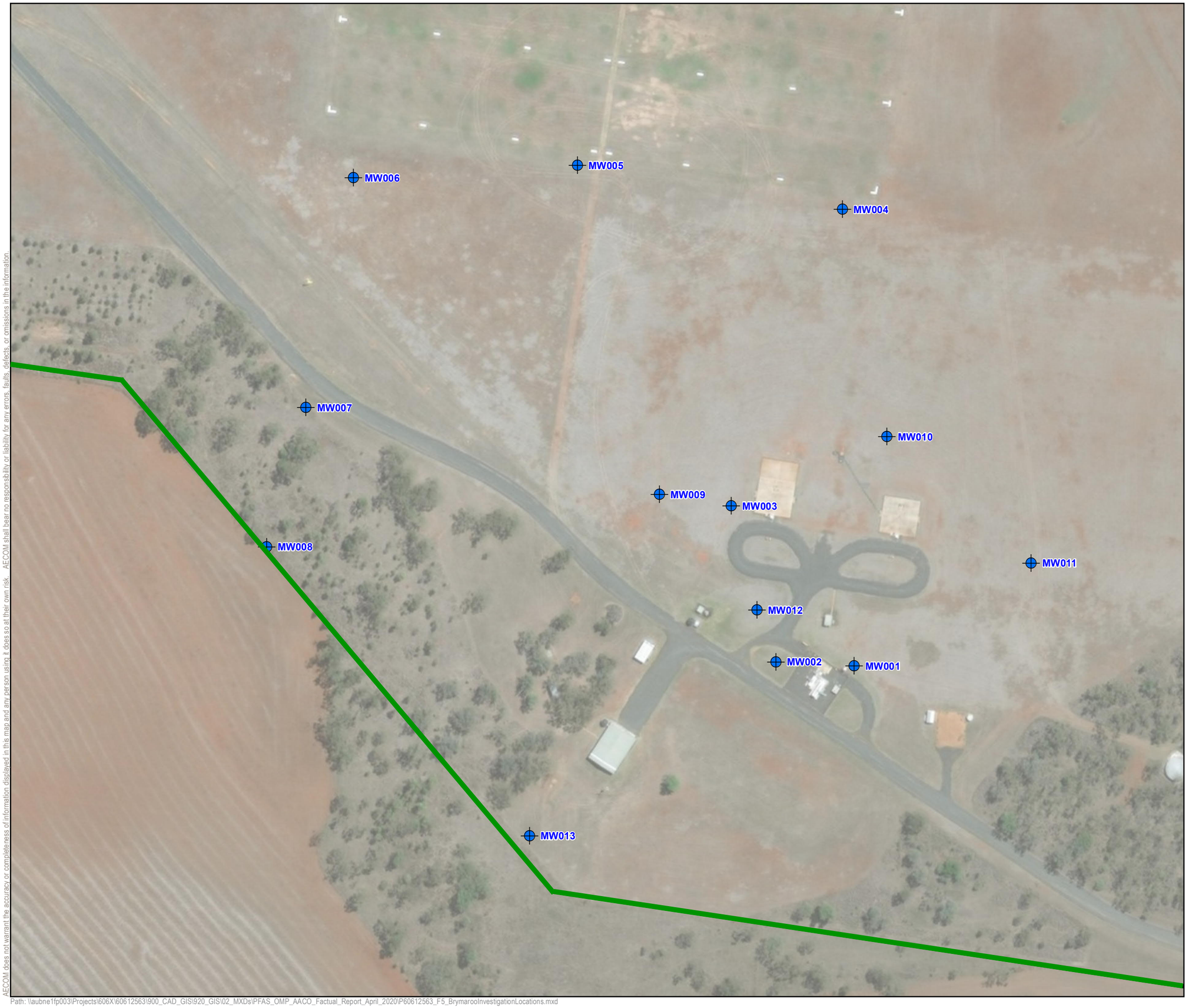
SIZE A3

TITLE

Figure 4: Off-Site Groundwater Monitoring Locations

PFAS OMP Sampling Event Factual Report: March/April 2022

CLIENT
DEPARTMENT OF DEFENCE



LEGEND

- Groundwater Monitoring Locations
- Brymaroo Satellite Site Boundary

N

0 10 20 40 m

AECOM

SCALE 1:2,000	SIZE A3
SHEET 1 of 1	COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 5: Brymaroo Groundwater Monitoring Locations

PROJECT

PFAS OMP AACO SAMPLING EVENT FACTUAL REPORT: MARCH / APRIL 2022

CLIENT

DEPARTMENT OF DEFENCE

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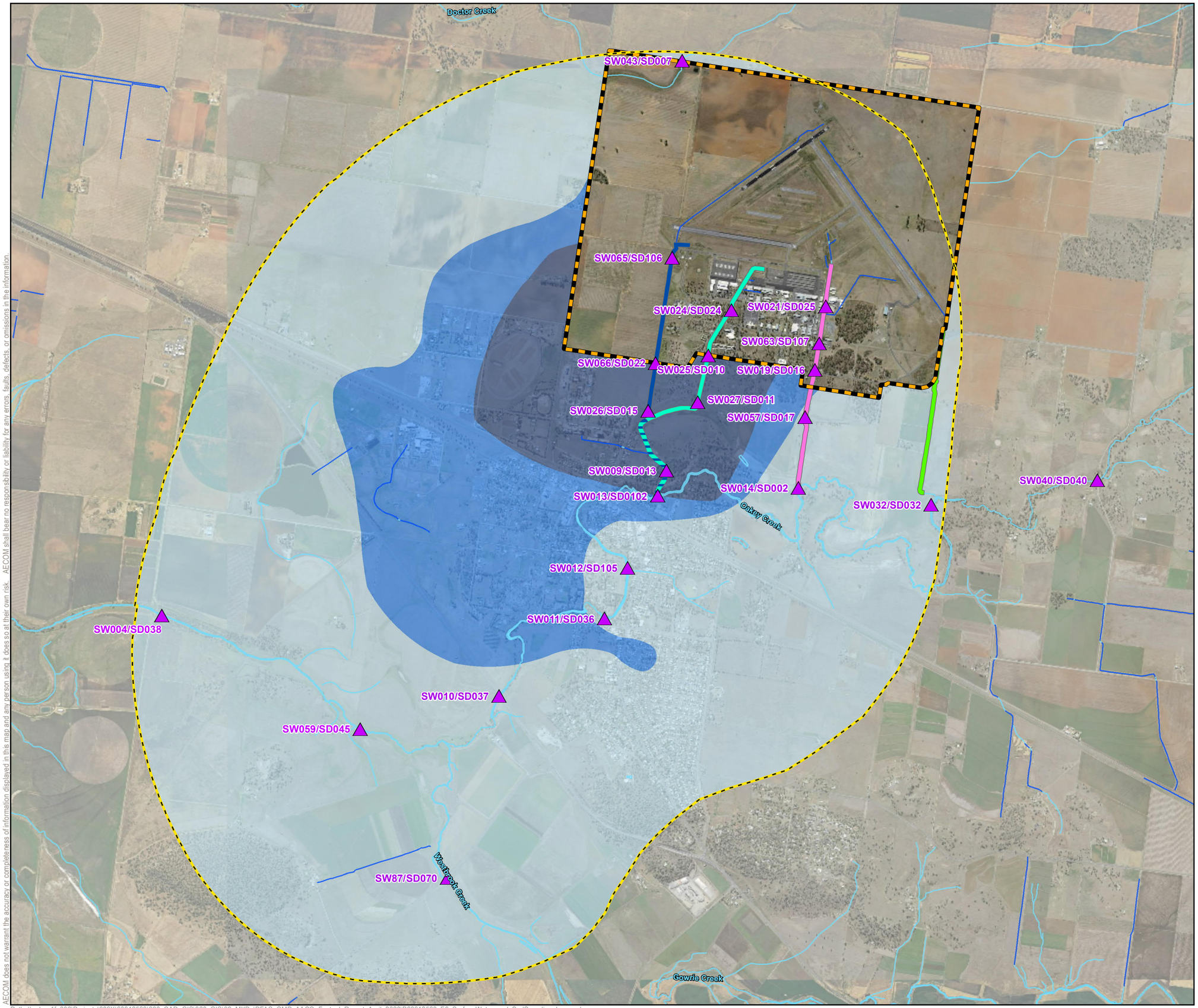

LEGEND

- Surface Water and Sediment Sampling Locations
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Management Area
- Site Boundary

N

0 0.25 0.5 1 km

AECOM

SCALE 1:32,000

SIZE A3

SHEET **1 of 1**

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 6: Surface Water and Sediment Sampling Locations

PROJECT

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: MARCH / APRIL 2022

CLIENT

DEPARTMENT OF DEFENCE

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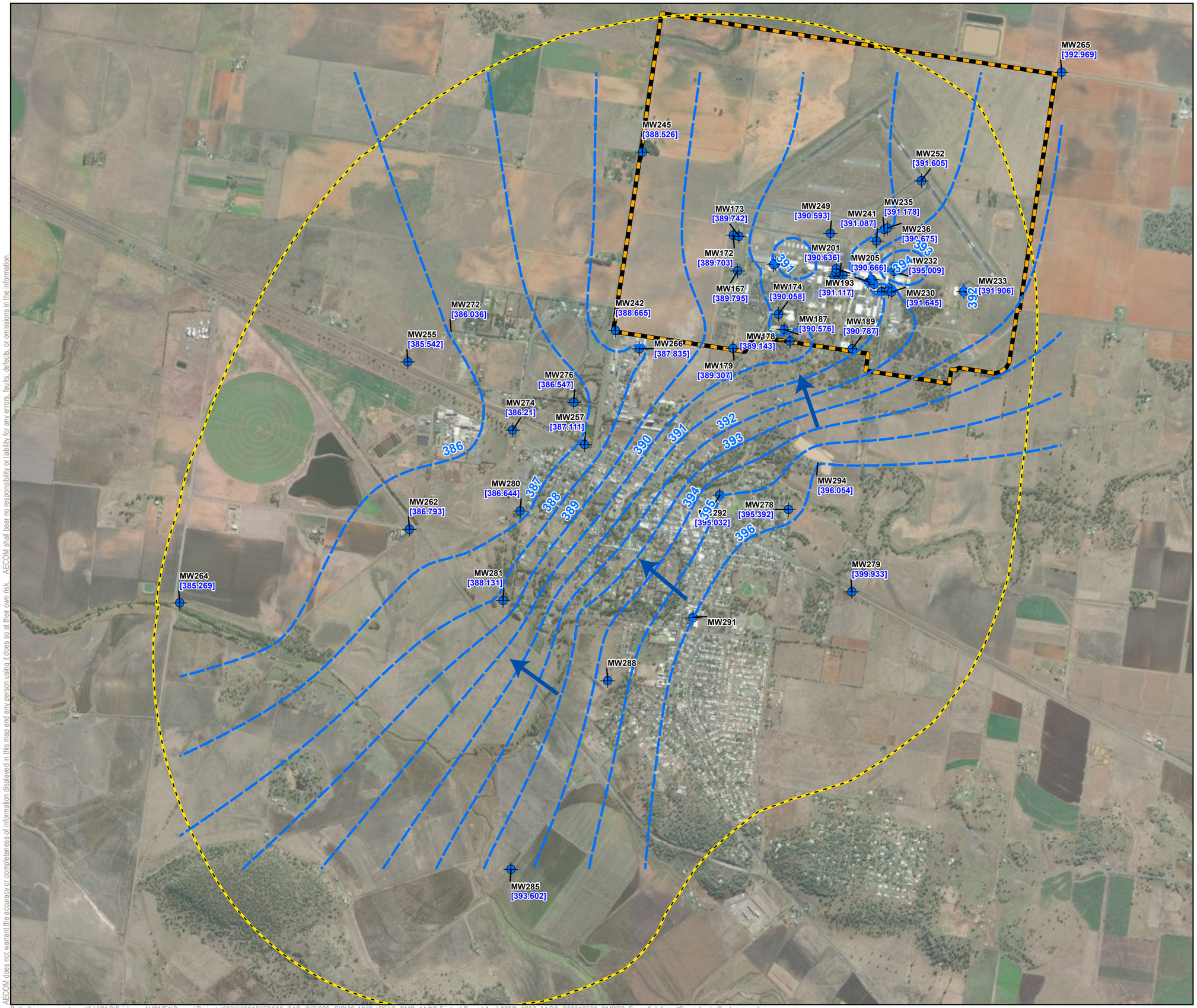

LEGEND

- Management Area
- Site Boundary
- Groundwater Monitoring Wells (mAHD)
- Groundwater Elevation Contour (mAHD)
- Groundwater Flow Direction

km
0 0.25 0.5

AECOM

SCALE	SIZE
1:30,000	A3
SHEET	COORDINATE SYSTEM
1 of 1	GDA 1994 MGA Zone 56

TITLE

Figure 7: Inferred Groundwater Contours: Oakey Creek Alluvium: April 2022

PROJECT

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: MARCH/APRIL 2022

CLIENT

DEPARTMENT OF DEFENCE

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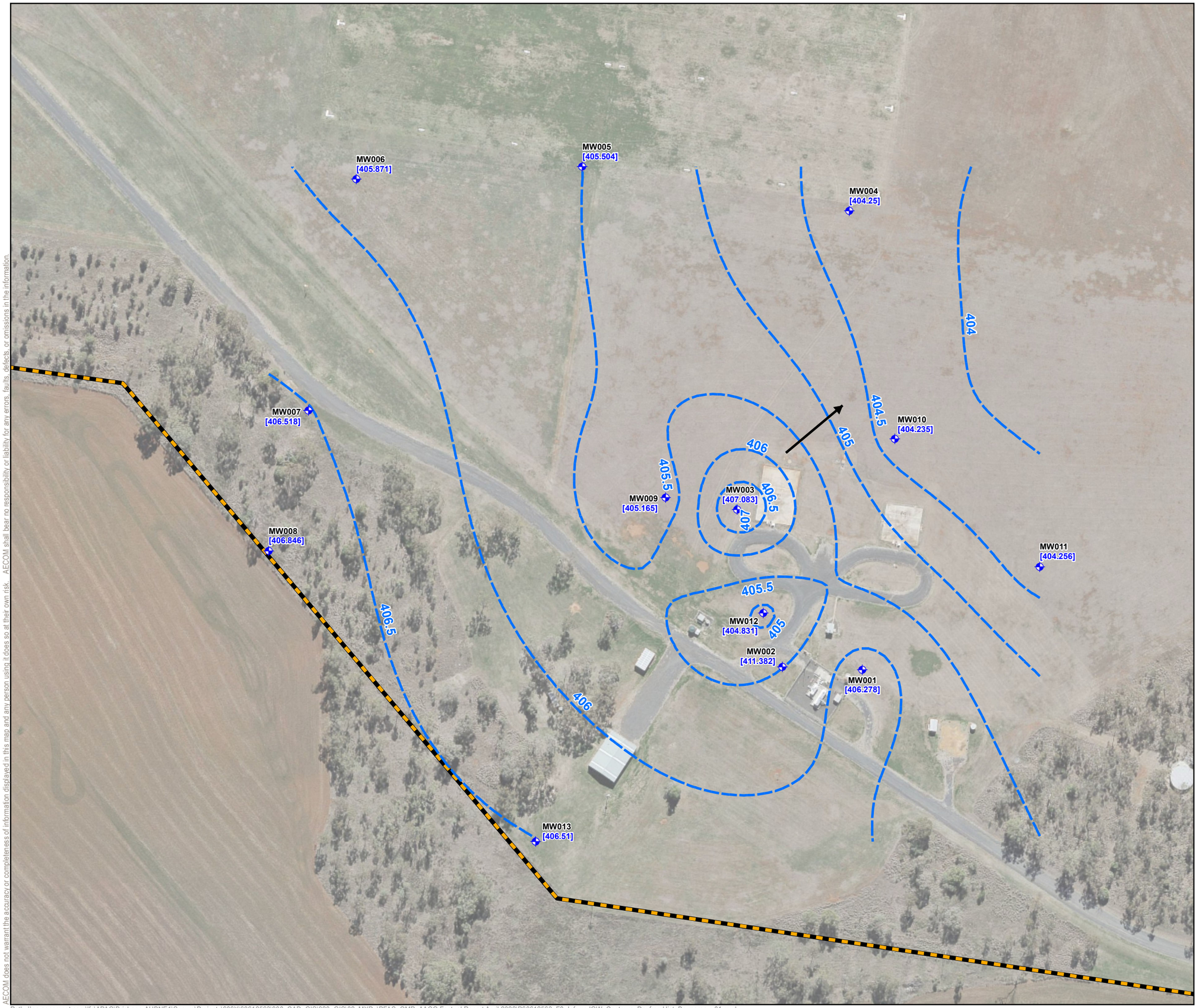

LEGEND

- Brymaroo Satellite Site
- Groundwater Monitoring Well (mAHD)
- Groundwater Elevation Contour (mAHD)
- Groundwater Flow Direction

0 10 20 40 m

AECOM

SCALE 1:2,000

SIZE A3

SHEET **1 of 1**

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 8: Inferred Groundwater Contours in the Main Range Volcanics at Brymaroo: April 2022

PROJECT

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: MARCH/APRIL 2022

CLIENT

DEPARTMENT OF DEFENCE

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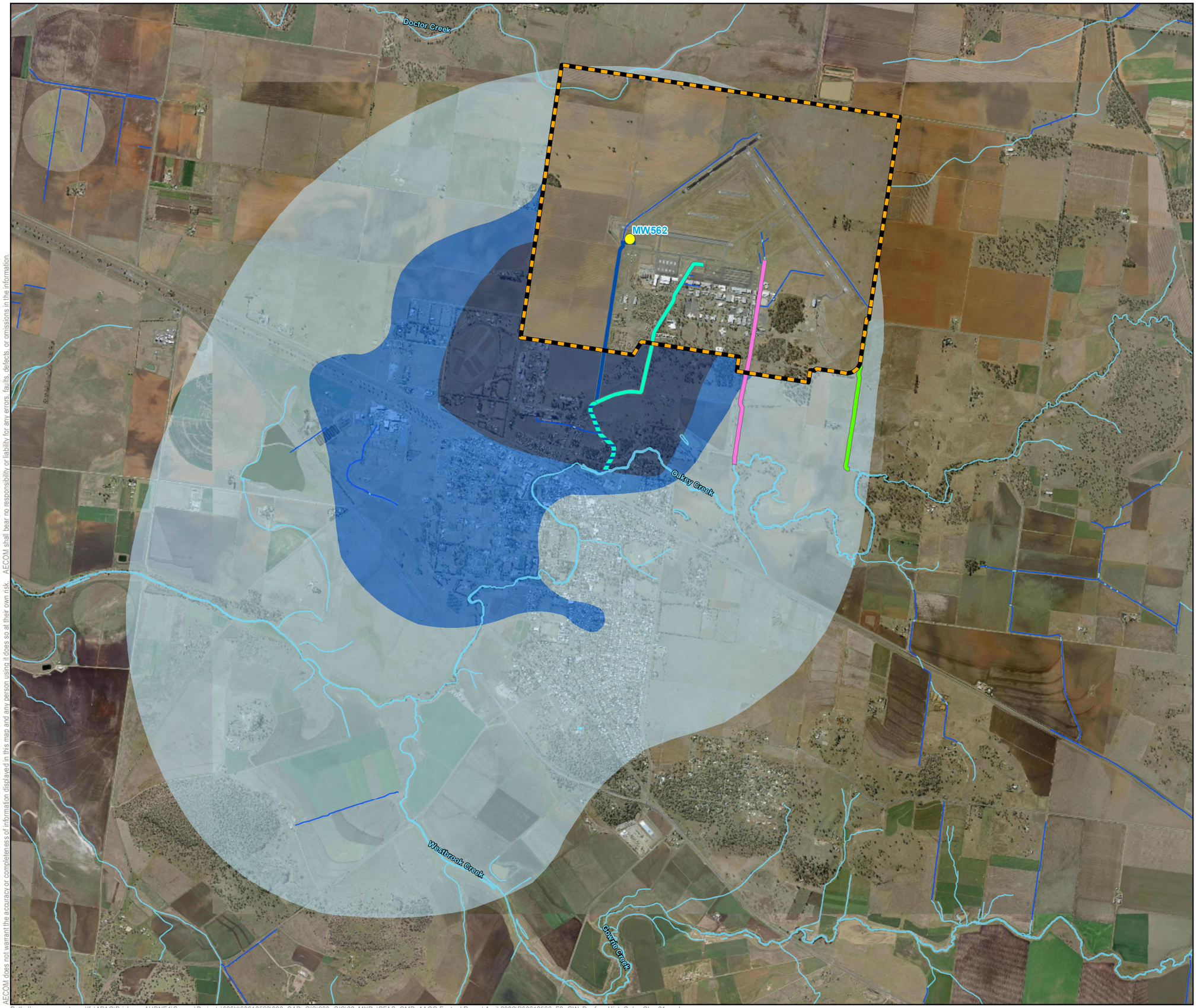

Legend

Groundwater Results

- First time detection
- First time exceedance
- Site Boundary
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3

First time detection of PFHxS+PFOS or PFOA

First time exceedances of human health screening criteria for PFHxS+PFOS or PFOA

Note that due to privacy reasons, not all results are shown.

N

0 0.5 1 km

AECOM

SCALE 1:35,000

SIZE A3

SHEET **1 of 1**

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 9: Groundwater Results: Deviations from Historical Data - AACO

PROJECT

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: MARCH/APRIL 2022

CLIENT

DEPARTMENT OF DEFENCE

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Appendix B

Tables

Appendix B Tables

Table T1 Groundwater Gauging and Quality Parameter Field Measurement Results

Property ID	Well ID	Date Hydrasleeve Installed	Date Hydrasleeve Sampled	Gauging Date	Well Depth (mbtoc)	Depth to LNAPL (mbtoc)	Depth to Water (mbtoc)	TOC Elevation (mAHD)	Groundwater Elevation (mAHD)	Corrected Groundwater Elevation (mAHD)*	Condition of Gatic	DO (mg/L) *Field measurement*	EC (µS/cm) *Field measurement*	pH *Field measurement*	E_r (mV) *Field measurement*	E_h (mV)	Temp (°C) *Field measurement*	Turbidity	Water Colour	Odour	Sheen	Sample Method / Comments
1435	MW001	19/04/2022	20/04/2022	19/04/2022	21.275	-	12.256	418.534	406.278	406.278	Damaged	0.24	959	10.93	47.5	252.5	22.6	Clear	Clear	No odour	No sheen	Hydrasleeve. Slight damage to concrete collar
1435	MW002	16/04/2021	19/04/2022	19/04/2022	20.53	-	6.837	418.219	411.382	411.382	Damaged	1.91	1938	7.52	161	366	23.4	Clear	Clear	No odour	No sheen	Hydrasleeve. Slight damage to concrete collar
1435	MW003	16/04/2021	19/04/2022	19/04/2022	20.3	-	10.971	418.054	407.083	407.083	Damaged	0.47	1476	6.92	146	351	22.8	Clear	Clear	No odour	No sheen	Hydrasleeve. Gatic collar is damaged
1435	MW004	16/04/2021	19/04/2022	19/04/2022	24.69	-	13.128	417.378	404.250	404.250	Good	3.36	1390	6.99	154.6	359.6	22.3	Clear	Clear	No odour	No sheen	Hydrasleeve
1435	MW005	19/04/2022	20/04/2022	19/04/2022	26.925	-	12.346	417.850	405.504	405.504	Good	0.5	1111	8.03	109.5	314.5	22.5	Clear	Clear	No odour	No sheen	Hydrasleeve
1435	MW006	16/04/2021	20/04/2022	20/04/2022	27.155	-	10.588	416.459	405.871	405.871	Good	0.36	1128	7.26	169.5	374.5	22	Clear	Clear	No odour	No sheen	Hydrasleeve
1435	MW007	16/04/2021	19/04/2022	19/04/2022	24.995	-	9.895	416.413	406.518	406.518	Good	0.53	1415	7.01	139.7	344.7	22.5	Clear	Clear	No odour	No sheen	Hydrasleeve
1435	MW008	16/04/2021	19/04/2022	19/04/2022	22.095	-	8.346	415.192	406.846	406.846	Good	0.54	2095	6.77	155.7	360.7	21.2	Clear	Clear	No odour	No sheen	Hydrasleeve
1435	MW009	16/04/2021	19/04/2022	19/04/2022	25.91	-	12.824	417.989	405.165	405.165	Good	1.15	1844	6.74	151.8	356.8	23.2	Clear	Clear	No odour	No sheen	Hydrasleeve
1435	MW010	16/04/2021	19/04/2022	19/04/2022	26.91	-	13.789	418.024	404.235	404.235	Good	0.29	1049	7.72	125.6	330.6	22.4	Clear	Clear	No odour	No sheen	Hydrasleeve
1435	MW011	16/04/2021	19/04/2022	19/04/2022	27.49	-	14.033	418.289	404.256	404.256	Good	0.16	1138	7.49	148.4	353.4	22.7	Clear	Clear	No odour	No sheen	Hydrasleeve
1435	MW012	19/04/2022	20/04/2022	19/04/2022	26.715	-	13.509	418.340	404.831	404.831	Good	0.42	1709	8.28	102.8	307.8	23.2	Clear	Clear	No odour	No sheen	Hydrasleeve
1435	MW013	16/04/2021	19/04/2022	19/04/2022	23.89	-	9.417	415.927	406.510	406.510	Good	0.67	2005	7.03	171.7	376.7	21.7	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW003	None-tap	None-tap	13/04/2022	-	-	-	-	-	-	-	1.55	1884	7.42	134.8	339.8	25.2	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW019	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	2.85	2135	7.3	127.6	332.6	24.1	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW021	None-tap	None-tap	12/04/0222	-	-	-	-	-	-	-	2.45	1566	7.3	128.4	333.4	25.4	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW022	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	1.7	1605	7.57	115.4	320.4	25.8	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW032	None-tap	None-tap	21/04/2022	-	-	-	-	-	-	-	2.86	878	7.56	134.1	339.1	23	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW038	None-tap	None-tap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not sampled- stakeholder declined
0207	MW056	13/04/2021	12/04/2022	12/04/2022	20.46		7.271	-	-	-	-	2.18	2972	7.01	148.2	353.2	21.7	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW113	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	2.72	1541	7.07	112.1	317.1	24.6	Low	Light brown	No odour	No sheen	Tap Sample
0207	MW114	None-tap	None-tap	20/04/2022	-	-	-	-	-	-	-	3.49	1448	7.26	161	366	22.1	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW118	None-tap	None-tap	20/04/2022	-	-	-	-	-	-	-	2.77	1492	7.3	160.7	365.7	22.2	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW122	None-tap	None-tap	20/04/2022	-	-	-	-	-	-	-	4.41	1459	7.44	161.4	366.4	21.5	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW132	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	2.37	567	7.81	117	322	25	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW134	None-tap	None-tap	14/04/2022	-	-	-	-	-	-	-	2.01	1600	7.49	148.3	353.3	20.3	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW147	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	2.25	3368	7.16	120.9	325.9	23.3	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW149	None-tap	None-tap	12/04/2022	-	-	-	-	-	-	-	3.7	1840	7.85	130.1	335.1	22.6	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW151	None-tap	None-tap	14/04/2022	-	-	-	-	-	-	-	3.58	1636	7.52	125.9	142.7	21.5	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW157	None-tap	None-tap	20/04/2022	-	-	-	-	-	-	-	3.11	1810	7.29	162.6	367.6	22.1	Clear	Clear	No odour	No sheen	Tap Sample
0207	MW167	17/04/2021	17/04/2022	17/04/2022	-	-	12.633	402.428	389.795	389.795	Good	0.73	1749	7.24	127.7	332.7	22.5	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW172	14/04/2021	17/04/2022	17/04/2022	17.16	-	13.115	402.818	389.703	389.703	Good	2.33	746	7.43	130.8	335.8	21.7	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW173	14/04/2021	17/04/2022	17/04/2022	17.65	-	13.52	403.262	389.742	389.742	Good	2.53	1502	7.23	144.2	349.2	21.8	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW174	14/04/2021	17/04/2022	17/04/2022	29.99	-	14.014	404.072	390.058	390.058	Good	0.79	2158	7.47	138.6	343.6	20.2	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW178	17/04/2021	17/04/2022	17/04/2022	17.4	-	14.37	403.513	389.143	389.143	Good	0.61	2149	7.38	141.5	346.5	21.3	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW179	16/04/2021	18/04/2022	18/04/2022	20.98	-	13.699	403.006	389.307	389.307	Good	0.26	3529	7.93	120.3	325.3	22.3	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW187	17/04/2021	11/04/2022	11/04/2022	18.355	-	14	404.576	390.576	390.576	Good	1.38	2173	6.71	152.7	357.7	23.6	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW189	17/04/2021	11/04/2022	11/04/2022	21.07	-	13.865	404.652	390.787	390.787	Good	0.71	3432	6.93	132.9	337.9	22.9	Low	Yellow-brown	No odour	No sheen	Hydrasleeve
0207	MW193	14/04/2021	17/04/2022	17/04/2022	19.74	14.488	14.585	405.630	391.045	391.117	Good	0.25	4934	6.85	91.9	296.9	23.1	Clear	Clear	HC odour	Heavy sheen	Hydrasleeve. 97 mm LNAPL
0207	MW198	14/04/2021	17/04/2022	17/04/2022	13.48		6.536	405.505	398.969	403.806	Good	2.58	622	7.03	114.2	319.2	23.2	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW201	15/04/2021	17/04/2022	17/04/2022	19.83	-	14.164	404.800	390.636	390.636	Good	0.56	3642	6.74	136.5	341.5	23.1	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW202	17/04/2021	17/04/2022	17/04/2022	19.12	-	14.028	405.000	390.972	390.972	Good	0.69	2768	6.99	106.6	311.6	23.7	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW203	15/04/2021	17/04/2022	17/04/2022	20.11	-	14.064	405.100	391.036	391.036	Good	2.33	2611	6.87	147.1	352.1	23.5	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW204	17/04/2021	20/04/2022	20/04/2022	19.97	-	14.464	405.200	390.736	390.736	Good	2.19	3831	7.05	172.9	377.9	21.5	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW205	17/04/2021	20/04/2022	20/04/2022	20.02	-	15.034	405.700	390.666	390.666	Good	1.9	1880	7.26	164.4	369.4	22.9	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW206	14/04/2021	21/04/2022	21/04/2022	19.115	-	13.046	405.720	392.674	392.674	Good	0.68	3957	7.19	143.4	348.4	24.4	Clear	Clear	No odour	No sheen	Hydrasleeve
207	MW207	Unknown	17/04/2022	17/04/2022	20.435	-	14.537	405.416	390.879	390.879	Good	0.33	2728	7.03	92.7	297.7	24.5	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW221	14/04/2021	17/04/2022	17/04/2022	19.31	-	14.493	405.496	391.003	391.003	Good	0.91	1587	7.11	159.3	364.3	22.4	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW222	14/04/2021	17/04/2022	17/04/2022	18.93	-	14.663	405.716	391.053	391.053	Good	1.82	2052	7.24	148.1	353.1	22.6	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW223	14/04/2021	13/04/2022	13/04/2022	20.18	-	-	405.845	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault
0207	MW229	14/04/2021	13/04/2022	13/04/2022	15.66	-	-	405.533	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault
0207	MW230	14/04/2021	17/04/2022	17/04/2022	18.85	-	13.771	405.416	391.645	391.645	Good	2.84	1346	7.25	144.3	349.3	22.8	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW232	14/04/2021	17/04/2022	17/04/2022	12.055	-	10.889	405.898	395.009	395.009	Good	2.25	278.3	7.19	142.3	347.3	21.8	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW233	17/04/2021	20/04/2022	20/04/2022	17.78	-	14.564	406.470	391.906	391.906	Good	3.4	850	7.56	142	347	22.1	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW235	14/04/2021	20/04/2022	20/04/2022	22.54	-	15.13	406.308	391.178	391.178	Good	0.78	1089	7.09	165.3	370.3	23.1	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW236	14/04/2021	20/04/2022	20/04/2022	16.67	-	14.978	405.653	390.675	390.675	Good	0.84	565	6.68	172.2	377.2	22.8	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW241	14/04/2021	19/04/2022	19/04/2022	18.07	-	14.796	405.883	391.087	391.087	Good	3.21	726	7.3	153.1	358.1	22.6	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW242	20/04/2021	18/04/2022	18/04/2022	20	-	13.365	402.030	388.665	388.665	Damaged	2.74	672	11.24	36.7	241.7	23.4	Clear	Clear	No odour	No sheen	Bailed due to damaged well moument. Moument no longer present
0207	MW245	20/04/2021	18/04/2022	18/04/2022	21.925	-	14.455	402.981	388.526	388.526	Good	2.72	1326	7.26	175	380	20.1	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW249	14/04/2021	19/04/2022	19/04/2022	18.7	-	14.176	404.769	390.593	390.593	Good	1.81	1268	7.64	156.4	361.4	20.9	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW252	14/04/2021	20/04/2022	20/04/2022	16.545	-	14.557	406.162	391.605	391.605	Good	0.67	318.2	6.73	170.7	375.7	22.6	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW255	13/04/2021	15/04/2022	15/04/2022	23.85	-	12.242	397.784	385.542	385.542	Damaged	1.56	995	7.93	94.9	299.9	21.4	Clear	Clear	No odour	No sheen	Hydrasleeve. J cap not sealing well and needs replacing
0207	MW257	17/04/2021	15/04/2022	15/04/2022	23.945	-	13.722	400.833	387.111	387.111	Damaged	0.23	452.9	7.04	60.9	265.9	21.9	Clear	Clear	No odour	No sheen	Hydrasleeve. J cap not sealing well and needs replacing
0207	MW262	19/04/2021	16/04/2022	16/04/2022	17.81	-	11.536	398.329	386.793	386.793	Good	1.8	1909	7.01	116.2	321.2	23.2	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW264	13/04/2021	14/04/2022	14/04/2022	11.06	-	7.486	392.755	385.269	385.269	Good	0.51	2347	6.89	152.4	357.4	21.5	Turbid	Clear	No odour	No sheen	Hydrasleeve
0207	MW265	12/04/2021	16/04/2022	16/04/2022	19.11	-	15.429	408.398	392.969	392.969	Good	0.5	817	7.25	109.8	314.8	22.9	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW266	20/04/2021	16/04/2022	16/04/2022	21.46	-	13.481	401.316	387.835	387.835	Good	0.78	3615	7.11	140.1	345.1	23.6	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW267	15/04/2021	13/04/2022	13/04/2022	-	-	-	401.392	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault
0207	MW268	15/04/2021	13/04/2022	13/04/2022	-	-	-	401.323	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault
0207	MW269	15/04/2021	13/04/2022	13/04/2022	-	-	-	401.958	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault
0207	MW270	15/04/2021	13/04/2022	13/04/2022	-	-	-	404.078	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault
0207	MW271	15/04/2021	13/04/2022	13/04/2022	-	-	-	403.855	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault
0207	MW272	19/04/2021	16/04/2022	16/04/2022	20.04	-	11.936	397.972	386.036	386.036	Good	2.36	1936	7.78	131.7	336.7	20.7	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW273	19/04/2021	16/04/2022	16/04/2022	67.09	-	18.564	398.044	379.480	379.480	Good	0.27	227.6	9.04	97.9	302.9	19.2	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW274	17/04/2021	15/04/2022	15/04/2022	32	-	13.737	399.947	386.210	386.210	Good	0.26	1225	7.65	39.6	244.6	22.5	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW275	17/04/2021	15/04/2022	15/04/2022	56.16	-	13.69	399.911	386.221	386.221	Good	0.82	1536	7.74	61.7	266.7	23.3	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW276	19/04/2021	15/04/2022	15/04/2022	19.9	-	13.927	400.474	386.547	386.547	Damaged	0.45	2123	7.01	105.4	310.4	22.8	Clear	Clear	No odour	No sheen	Hydrasleeve. Concrete collar and gatic slightly damaged
0207	MW278	16/04/2021	16/04/2022	16/04/2022	22.06	-	8.763	404.155	395.392	395.392	Good	0.51	1217	7.12	113.2	318.2	23.4	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW279	16/04/2021	15/04/2022	15/04/2022	18.055	-	6.408	406.341	399.933	399.933	Damaged	0.99	1374	7.16	120.5	325.5	22.2	Clear	Clear	No odour	No sheen	Hydrasleeve. Concrete collar slightly damaged
0207	MW280	17/04/2021	14/04/2022	14/04/2022	30.175	-	11.842	398.486	386.644	386.644	Good	0.27	2251	7.34	96.4	301.4	24.9	Clear	Clear	No odour	No sheen	Hydrasleeve

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0207	MW281	20/04/2021	14/04/2022	14/04/2022	18.485	-	8.725	396.856	388.131	388.131	Good	1.11	2345	7.06	126.1	331.1	23	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW282	15/04/2021	15/04/2022	15/04/2022	16	-	4.202	397.327	393.125	393.125	Good	2.03	923	7.05	126.9	331.9	22.7	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW283	20/04/2021	13/04/2022	13/04/2022	15	-	9.675	395.371	385.696	385.696	Good	0.33	1265	7.26	132.8	337.8	22	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW285	15/04/2021	16/04/2022	16/04/2022	10.71	-	4.729	398.331	393.602	393.602	Good	2.05	2045	7.2	131.9	336.9	21.4	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW288	21/04/2021	21/04/2022	21/04/2022	21.83	-	16.258	402.161	385.903	385.903	Damaged	0.33	1020	7.87	76.8	281.8	19.7	Clear	Clear	No odour	No sheen	Hydrasleeve. Monument is damaged and lid is broken
0207	MW289	21/04/2021	21/04/2022	21/04/2022	65.18	-	61.785	402.072	340.287	340.287	Damaged	0.99	863	7.91	47.5	252.5	20.4	Clear	Clear	No odour	No sheen	Hydrasleeve. Monument is damaged and lid is broken
0207	MW290	21/04/2021	21/04/2022	21/04/2022	19.71	-	5.765	403.688	397.923	397.923	Good	0.26	3774	6.95	77.2	282.2	19.6	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW291	21/04/2021	21/04/2022	21/04/2022	56.72	-	16.12	403.709	387.589	387.589	Good	0.57	982	7.57	73.6	278.6	17.5	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW292	19/04/2021	14/04/2022	14/04/2022	19.14	-	6.786	401.818	395.032	395.032	Good	0.54	4407	8.67	51.5	256.5	21	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW293	19/04/2021	14/04/2022	14/04/2022	60.18	-	36.203	402.021	365.818	365.818	Good	2.03	3270	11.89	-8.2	196.8	22.3	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW294	15/04/2021	15/04/2022	15/04/2022	18.415	-	7.726	403.780	396.054	396.054	Good	1.77	2221	7.79	147.2	352.2	19.7	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW295	15/04/2021	13/04/2022	13/04/2022	-	-	-	402.837	-	-	-	-	-	-	-	-	-	-	-	-	-	Hydrasleeve. Gauging and field parameter data lost due to EDCA fault
0207	MW296	15/04/2021	-	-	-	-	-	399.155	-	-	-	-	-	-	-	-	-	-	-	-	-	Not sampled- stakeholder declined
0207	MW297	15/04/2021	-	-	-	-	-	399.230	-	-	-	-	-	-	-	-	-	-	-	-	-	Not sampled- stakeholder declined
0207	MW299	17/04/2021	17/04/2022	17/04/2022	15.45	-	12.106	403.970	391.864	391.864	Good	0.35	5518	6.68	143.6	348.6	23.8	Clear	Clear	No odour	No sheen	Hydrasleeve
0207	MW300	17/04/2021	17/04/2022	17/04/2022	16.46	-	13.534	403.715	390.181	390.181	Good	0.53	5337	6.8	139.5	344.5	23.4	Clear	Clear	No odour	No sheen	Hydrasleeve
207	MW562	19/04/2022	20/04/2022	19/04/2022	16.5	-	13.111	402.720	389.609	389.609	Good	0.46	1871	7.21	174.2	379.2	22.8	Clear	Clear	No odour	No sheen	Hydrasleeve
207	MW563	19/04/2022	20/04/2022	19/04/2022	19.49	-	13.181	402.900	389.719	389.719	Good	0.42	1481	7.46	168.3	373.3	22.2	Clear	Clear	No odour	No sheen	Hydrasleeve

* = Corrected Groundwater Elevation, $h_c = h_{measured} + (H_{PSH} * (r_{PSH}/r_{water}))$

mbtoc is metres below top of casing
mAHD is metres above Australian height datum
LNAPL is light non-aqueous phase liquid
DO is dissolved oxygen
EC is electrical conductivity
E_h is oxidation reduction potential
Oxidation reducation potential (E_r) measured with a platinum electrode and a silver/silver chloride reference electrode (E_r) and converted to E_h by $E_h = E_r + 205$ mV (based on a groundwater temperature of 21°C)
Temp is Temperature
µS/cm is microsiemens per centrimetre
ºC is degrees Celcius
mV is millivolts

Table T2 Groundwater PFAS Analytical Results

					Sum of PFHxS and PFOS	Perfluoroalkyl Sulfonic Acids						Perfluoroalkyl Carboxylic Acids											Fluorotelomer Sulfonic Acids				Perfluoroalkyl Sulfonamides							Sum of PFAS
						PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	4:2 FTS	6:2 FtS	8:2 FTS	10:2 FTS	FOSA	MeFOSE	EtFOSE	MeFOSA	EtFOSA	MFOSAA	EtFOSAA	
			Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.02	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	0.05	0.05	0.05	0.02	0.02	0.01
NEMP (HEPA, 2020) Human Health Drinking Water					**0.07**											**0.56**																		
NEMP (HEPA, 2020) Ecological Freshwater 99% Species Protection										*0.00023*						*19*																		
Location ID	**Sample ID**	**Sample Date**	**Sample Type**	**Lab Sample Code**																														
MW001	1435_MW001_220420	20/04/2022	Normal	EB2211260003	**0.41**	0.09	0.08	0.31	<0.02	*0.1*	<0.02	<0.1	0.28	0.25	0.07	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.06	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	1.27
MW002	1435_MW002_220419	19/04/2022	Normal	EB2211260002	**1.6**	0.75	0.52	1.6	<0.02	<0.04	<0.02	2.3	24	18.7	6.61	0.3	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	54.8
MW003	1435_MW003_220419	19/04/2022	Normal	EB2211260011	**38.5**	4	4.37	20.5	1.19	*18*	<0.02	0.7	1.81	6.11	1.47	**2.71**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	0.21	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	61.1
MW004	1435_MW004_220419	19/04/2022	Normal	EB2211260012	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW005	1435_MW005_220420	20/04/2022	Normal	EB2211260007	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW006	1435_MW006_220420	20/04/2022	Normal	EB2211260013	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW007	1435_MW007_220419	19/04/2022	Normal	EB2211260008	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW008	1435_MW008_220419	19/04/2022	Normal	EB2211260009	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW009	1435_MW009_220419	19/04/2022	Normal	EB2211260010	**14.7**	1.61	1.75	8.01	0.48	*6.68*	<0.02	0.2	0.72	2.34	0.57	**1.01**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.09	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	23.5
MW010	1435_MW010_220419	19/04/2022	Normal	EB2211260006	**0.91**	0.29	0.25	0.81	0.02	*0.1*	<0.02	<0.1	0.19	0.44	0.11	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	<0.05	<0.05	<0.05	<0.02	<0.02	2.31
MW010	1435_QC101_220419	19/04/2022	Field_D	EB2211260015	**0.9**	0.3	0.24	0.8	<0.02	*0.1*	<0.02	<0.1	0.2	0.44	0.11	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	<0.05	<0.05	<0.05	<0.02	<0.02	2.29
MW010	1435_QC201_220419	19/04/2022	Interlab_D	N22/007585	**0.76**	0.23	0.2	0.71	<0.01	*0.054*	<0.01	0.071	0.18	0.41	0.083	0.069	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	2.027
MW011	1435_MW011_220419	19/04/2022	Normal	EB2211260005	**0.1**	0.02	0.02	0.1	<0.02	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.18
MW012	1435_MW012_220420	20/04/2022	Normal	EB2211260004	**3.76**	0.8	0.74	2.68	0.12	*1.08*	<0.02	0.1	0.58	1.08	0.26	0.24	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	7.68
MW013	1435_MW013_220419	19/04/2022	Normal	EB2211260001	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW013	1435_QC100_220419	19/04/2022	Field_D	EB2211260014	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW013	1435_QC200_220419	19/04/2022	Interlab_D	N22/007584	<0.01	<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	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01
MW003	0207_MW003_220413	13/04/2022	Normal	EB2211323001	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW018	0207_MW018_220421	21/04/2022	Normal	EB2211317001	**24.1**	0.83	0.98	6.19	0.67	*17.9*	<0.02	0.2	0.28	1.46	0.24	**0.73**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	29.5
MW019	0207_MW019_220412	12/04/2022	Normal	EB2211288001	**0.08**	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.08
MW021	0207_MW021_220412	12/04/2022	Normal	EB2211290001	**6.33**	0.23	0.24	1.91	0.27	*4.42*	<0.02	<0.1	0.05	0.29	0.05	0.13	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	7.59
MW022	0207_MW022_220412	12/04/2022	Normal	EB2211303001	**0.82**	0.02	0.03	0.29	0.03	*0.53*	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.95
MW032	0207_MW032_220421	21/04/2022	Normal	EB2211324001	**6.18**	0.25	0.34	2.19	0.12	*3.99*	<0.03	<0.1	0.06	0.23	0.05	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	<0.05	<0.05	<0.05	<0.02	<0.02	7.38
MW056	0207_MW056_220412	12/04/2022	Normal	EB2211274001	**0.27**	0.07	0.04	0.2	<0.02	*0.07*	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.41
MW113	0207_MW113_220412	12/04/2022	Normal	EB2211301001	**0.41**	0.04	0.05	0.28	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.55
MW114	0207_MW114_220420	20/04/2022	Normal	EB2211294003	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW118	0207_MW118_220420	20/04/2022	Normal	EB2211294004	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW122	0207_MW122_220420	20/04/2022	Normal	EB2211294001	**1.96**	0.17	0.18	0.99	0.05	*0.97*	<0.02	<0.1	0.07	0.27	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	<0.05	<0.05	<0.05	<0.02	<0.02	2.81
MW132	0207_MW132_220412	12/04/2022	Normal	EB2211261094	**0.2**	<0.02	<0.02	0.09	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.22
MW134	0207_MW134_220414	14/04/2022	Normal	EB2211314001	**0.22**	0.02	<0.02	0.12	<0.02	*0.1*	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.24
MW147	0207_MW147_220412	12/04/2022	Normal	EB2211320001	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW149	0207_MW149_220412	12/04/2022	Normal	EB2211278001	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW151	0207_MW151_220414	14/04/2022	Normal	EB2211304001	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW157	0207_MW157_220420	20/04/2022	Normal	EB2211294002	**10.4**	0.58	0.67	3.82	0.46	*6.54*	<0.02	0.1	0.18	0.85	0.13	0.3	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	13.6
MW167	0207_MW167_220417	17/04/2022	Normal	EB2211261019	**6.82**	0.55	0.46	2.48	0.22	*4.34*	<0.02	0.1	0.26	1.18	0.17	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	10.1
MW172	0207_MW172_220417	17/04/2022	Normal	EB2211261020	**26.7**	1.03	0.91	4.61	0.56	*22.1*	<0.05	0.9	2.34	3.99	1.7	**1.88**	0.13	0.08	<0.05	<0.05	<0.05	<0.12	<0.05	7.07	1.94	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	49.2
MW173	0207_MW173_220417	17/04/2022	Normal	EB2211261021	**5.27**	0.24	0.25	2.37	0.15	*2.9*	<0.02	0.3	0.93	1.05	0.47	**0.56**	0.14	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	0.66	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	10
MW174	0207_MW174_220417	17/04/2022	Normal	EB2211261005	0.06	<0.04	<0.02	0.03	<0.02	*0.03*	<0.02	<0.1	0.03	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.09
MW178	0207_MW178_220417	17/04/2022	Normal	EB2211261006	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW179	0207_MW179_220418	18/04/2022	Normal	EB2211261024	**4.72**	0.54	0.46	2.39	0.2	*2.33*	<0.02	0.2	0.27	1.37	0.23	0.41	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	8.4
MW187	0207_MW187_220411	11/04/2022	Normal	EB2211261001	**0.61**	0.03	0.02	0.16	<0.02	*0.45*	<0.02	0.1	0.13	0.24	<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	<0.05	<0.05	<0.05	<0.02	<0.02	1.13
MW189	0207_MW189_220411	11/04/2022	Normal	EB2211261002	**0.15**	<0.02	<0.02	0.07	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.15
MW193	0207_MW193_220417	17/04/2022	Normal	EB2211261011	**31.5**	2.94	2.77	14.8	1.35	*16.7*	<0.02	6	1.92	8.13	1.87	**2.91**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	0.07	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	59.5
MW198	0207_MW198_220417	17/04/2022	Normal	EB2211261012	**7.55**	0.23	0.21	1.56	0.24	*5.99*	<0.02	0.1	0.26	0.62	0.16	0.29	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	9.66
MW201	0207_MW201_220417	17/04/2022	Normal	EB2211261015	**162**	16.8	17.8	104	6.35	*58.5*	<0.05	3.2	5.33	25.7	3.34	**7.46**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.46	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	249
MW201	0207_QC107_220417	17/04/2022	Field_D	EB2211261075	**136**	12.9	13	85.7	4.53	*50.8*	<0.02	3.4	4.8	18.3	2.62	**5.32**	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.61	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	202
MW201	0207_QC207_220417	17/04/2022	Interlab_D	N22/007591	**119**	13	12	79	4.4	*40*	<0.01	2.5	3.8	18	4	**4.3**	0.041	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	0.5	<0.01	<0.01	<0.01	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	181.5
MW202	0207_MW202_220417	17/04/2022	Normal	EB2211261014	**575**	10.8	10.2	100	9.25	*475*	<2.5	<12.5	4	21.2	<2.5	**7.75**	<2.5	<2.5	<2.5	<2.5	<2.5	<6.25	<2.5	<2.5	<2.5	<2.5	<2.5	<6.25	<6.25	<6.25	<6.25	<2.5	<2.5	638
MW203	0207_MW203_220417	17/04/2022	Normal	EB2211261016	**7.28**	0.72	0.79	6.49	0.07	*0.79*	<0.02	0.3	0.51	1.29	0.25	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	11.4
MW204	0207_MW204_220420	20/04/2022	Normal	EB2211261027	**200**	22	25.6	175	6.15	*25.2*	<0.5	<2.5	6.85	30.6	5.35	**10.6**	<0.5	<0.5	<0.5	<0.5	<0.5	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<1.25	<1.25	<1.25	<1.25	<0.5	<0.5	307
MW205	0207_MW205_220420	14/04/2022	Normal	EB2211261028	**12.8**	1	1.11	6.85	0.4	*5.96*	<0.02	0.2	0.41	1.78	0.31	**0.56**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	18.6
MW206	0207_MW206_220421	21/04/2022	Normal	EB2211261065	**9.19**	0.54	0.57	4.11	0.38	*5.08*	<0.02	0.1	0.24	0.97	0.28	0.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	12.8
MW207	0207_MW207_220417	17/04/2022	Normal	EB2211261013	**0.24**	<0.04	<0.02	0.14	<0.02	*0.1*	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.27
MW221	0207_MW221_220417	17/04/2022	Normal	EB2211261010	**4.04**	0.33	0.29	1.7	0.16	*2.34*	<0.02	0.1	0.24	0.88	0.21	0.37	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	6.62
MW222	0207_MW222_220417	17/04/2022	Normal	EB2211261008	**21.2**	0.74	0.7	5.34	0.6	*15.9*	<0.05	1	2.49	3.8	1.76	**3.14**	0.75	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	1.35	0.14	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	37.7
MW222	0207_QC106_220417	17/04/2022	Field_D	EB2211261074	**23.2**	0.7	0.85	5.49	0.93	*17.7*	<0.02	1.1	2.14	3.67	2.02	**3.1**	0.76	0.03	<0.02	<0.02	<0.02	<0.05	<0.05	1.68	0.21	<0.05	0.03	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	40.4
MW222	0207_QC206_220417	17/04/2022	Interlab_D	N22/007590	**16.6**	0.73	0.71	4.6	0.7	*12*	<0.01	1.2	1.6	3.7	1.6	**3**	1.2	0.039	<0.01	<0.01	<0.02	<0.02	<0.01	1.8	0.27	<0.01	0.013	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	33.16
MW223	0207_MW223_220413	13/04/2022	Normal	EB2211261004	**21.2**	0.77	0.78	6.4	0.62	*14.8*	<0.05	6.1	30.9	14.2	16.4	**10.2**	3.04	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	6.56	0.22	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	111
MW223	0207_QC100_220413	13/04/2022	Field_D	EB2211261073	**25.3**	0.68	1.02	7.26	1.01	*18*	<0.02	6.2	23.3	12.7	14.3	**10**	2.97	0.03	<0.02	<0.02	<0.02	<0.05	<0.05	6.47	0.4	<0.05	0.04	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	104
MW223	0207_QC200_220413	13/04/2022	Interlab_D	N22/007586	**20.4**	0.71	0.78	5.4	0.82	*15*	<0.01	4.7	22	14	15	**5.1**	3.2	0.013	<0.01	<0.01	<0.02	<0.02	<0.01	5.7	0.41	<0.01	0.024	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	92.86
MW229	0207_MW229_220413	13/04/2022	Normal	EB2211261003	**26.2**	0.6	0.61	5.56	0.4	*20.6*	<0.05	<0.2	0.23	1.6	0.11	0.41	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	30.1
MW230	0207_MW230_220417	17/04/2022	Normal	EB2211261007	**10.3**	0.53	0.55	4.5	0.34	*5.8*	<0.02	3.8	13.9	7.67	6.59	**5.87**	1.56	0.05	<0.02	<0.02	<0.02	<0.06	<0.05	2.55	0.2	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	53.9
MW232	0207_MW232_220417	17/04/2022	Normal	EB2211261009	**20.8**	0.63	0.72	5.85	0.42	*14.9*	<0.05	0.9	2.63	2.34	1.1	**1.5**	0.29	0.22	<0.05	<0.05	<0.05	<0.12	<0.05	0.13	1.36	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	33
MW233	0207_MW233_220420	20/04/2022	Normal	EB2211261064	**0.85**	0.16	0.12	0.63	<0.02	*0.22*	<0.02	<0.1	0.04	0.13	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	<0.05	<0.05	<0.05	<0.02	<0.02	1.35
MW233	0207_QC113_220420	20/04/2022	Field_D	EB2211261079	**0.88**	0.16	0.1	0.66	<0.02	*0.22*	<0.02	<0.1	0.03	0.13	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	<0.05	<0.05	<0.05	<0.02	<0.02	1.35
MW233	0207_QC213_220420	20/04/2022	Interlab_D	N22/007597	**0.81**	0.16	0.12	0.64	<0.01	*0.17*	<0.01	0.056	0.035	0.092	0.013	0.014	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	1.3
MW235	0207_MW235_220420	20/04/2022	Normal	EB2211261061	**10.7**	1.81	1.8	5.9	0.1	*4.8*	<0.05	0.5	0.77	3.1	0.22	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	19.2
MW236	0207_MW236_220420	20/04/2022	Normal	EB2211261062	**2.8**	0.66	0.46	1.84	<0.06	*0.96*	<0.02	0.4	0.31	1.02	0.06	0.23	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	5.94
MW241	0207_MW241_220419	19/04/2022	Normal	EB2211261026	**5.09**	0.13	0.15	1

		Sum of PFHxS and PFOS	Perfluoroalkyl Sulfonic Acids						Perfluoroalkyl Carboxylic Acids												Fluorotelomer Sulfonic Acids				Perfluoroalkyl Sulfonamides							Sum of PFAS
			PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	4:2 FTS	6:2 FtS	8:2 FTS	10:2 FTS	FOSA	MeFOSE	EtFOSE	MeFOSA	EtFOSA	MFOSAA	EtFOSAA	
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.02	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	0.05	0.05	0.05	0.02	0.02	0.01
NEMP (HEPA, 2020) Human Health Drinking Water		**0.07**											**0.56**																		
NEMP (HEPA, 2020) Ecological Freshwater 99% Species Protection							*0.00023*						*19*																		

Location ID	Sample ID	Sample Date	Sample Type	Lab Sample Code																												
MW252	0207_MW252_220420	20/04/2022	Normal	EB2211261063	**5.45**	0.3	0.2	1.25	0.05	*4.2*	<0.05	<0.2	0.15	0.37	0.07	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	6.69
MW252	0207_QC112_220420	20/04/2022	Field_D	EB2211261078	**5.35**	0.28	0.24	1.3	0.08	*4.05*	<0.02	0.1	0.19	0.34	0.08	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	<0.05	<0.05	<0.05	<0.02	<0.02	6.78
MW252	0207_QC212_220420	20/04/2022	Interlab_D	N22/007596	**4.7**	0.32	0.25	1.3	0.051	*3.4*	<0.01	0.18	0.16	0.36	0.07	0.12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	6.211
MW255	0207_MW255_220415	15/04/2022	Normal	EB2211261054	0.04	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.04
MW257	0207_MW257_220415	15/04/2022	Normal	EB2211261052	0.02	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.02
MW262	0207_MW262_220416	16/04/2022	Normal	EB2211261037	**0.53**	0.05	0.04	0.26	<0.02	*0.27*	<0.02	<0.1	<0.02	0.05	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.7
MW264	0207_MW264_220414	14/04/2022	Normal	EB2211261043	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW265	0207_MW265_220416	16/04/2022	Normal	EB2211261035	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW266	0207_MW266_220416	16/04/2022	Normal	EB2211261032	**5.68**	0.59	0.51	2.6	0.18	*3.08*	<0.02	0.2	0.22	0.96	0.16	0.27	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	8.77
MW267	0207_MW267_220413	13/04/2022	Normal	EB2211310002	**0.47**	0.11	0.04	0.22	<0.02	*0.25*	<0.02	<0.1	0.05	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	0.8
MW268	0207_MW268_220413	13/04/2022	Normal	EB2211310004	**0.54**	0.04	0.05	0.39	<0.02	*0.15*	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.71
MW269	0207_MW269_220413	13/04/2022	Normal	EB2211310003	**0.08**	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.08
MW270	0207_MW270_220413	13/04/2022	Normal	EB2211310006	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW271	0207_MW271_220413	13/04/2022	Normal	EB2211310005	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW272	0207_MW272_220416	16/04/2022	Normal	EB2211261031	**0.34**	0.04	0.04	0.24	<0.02	*0.1*	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.49
MW272	0207_QC105_220416	15/04/2022	Field_D	EB2211261089	**0.41**	0.04	0.04	0.28	<0.02	*0.13*	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.55
MW272	0207_QC205_220416	16/04/2022	Interlab_D	N22/007589	**0.32**	0.038	0.04	0.25	<0.01	*0.065*	<0.01	<0.05	0.026	0.07	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	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	0.5
MW273	0207_MW273_220416	16/04/2022	Normal	EB2211261030	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW274	0207_MW274_220415	15/04/2022	Normal	EB2211261056	<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	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.02
MW275	0207_MW275_220415	15/04/2022	Normal	EB2211261055	<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	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.02
MW276	0207_MW276_220415	15/04/2022	Normal	EB2211261053	**19**	0.83	1	7.78	0.6	*11.2*	<0.02	0.3	0.34	1.67	0.25	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	24.5
MW278	0207_MW278_220416	16/04/2022	Normal	EB2211261036	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW279	0207_MW279_220415	15/04/2022	Normal	EB2211261046	<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	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.02
MW280	0207_MW280_220414	16/04/2022	Normal	EB2211261029	**0.28**	<0.02	<0.02	0.16	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.28
MW281	0207_MW281_220414	14/04/2022	Normal	EB2211316001	**3.36**	0.27	0.27	1.38	0.13	*1.98*	<0.02	<0.1	0.07	0.29	0.08	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	4.67
MW282	0207_MW282_220415	15/04/2022	Normal	EB2211261047	**1.2**	0.06	0.04	0.34	<0.02	*0.86*	<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	<0.05	<0.05	<0.05	<0.02	<0.02	1.3
MW282	0207_QC104_220415	14/04/2022	Field_D	EB2211261088	**1.14**	0.05	0.03	0.34	<0.02	*0.8*	<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	<0.05	<0.05	<0.05	<0.02	<0.02	1.22
MW282	0207_QC204_220415	15/04/2022	Interlab_D	N22/007588	**1.1**	0.05	0.038	0.35	<0.01	*0.75*	<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	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	1.188
MW283	0207_MW283_220413	13/04/2022	Normal	EB2211323002	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW285	0207_MW285_220416	16/04/2022	Normal	EB2211261040	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW288	0207_MW288_220421	21/04/2022	Normal	EB2211307001	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW289	0207_MW289_220421	21/04/2022	Normal	EB2211307002	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW290	0207_MW290_220421	21/04/2022	Normal	EB2211311001	**0.42**	0.21	0.19	0.42	<0.02	<0.03	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.87
MW291	0207_MW291_220421	21/04/2022	Normal	EB2211311002	0.03	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.03
MW292	0207_MW292_220414	14/04/2022	Normal	EB2211297002	**0.34**	<0.02	<0.02	0.18	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.34
MW292	0207_QC102_220414	14/04/2022	Field_D	EB2211297003	**0.34**	<0.02	<0.02	0.18	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.34
MW292	0207_QC202_220414	14/04/2022	Interlab_D	N22/007583	**0.26**	<0.01	0.012	0.15	<0.01	*0.11*	<0.01	<0.05	<0.02	0.017	<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	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	0.289
MW293	0207_MW293_220414	14/04/2022	Normal	EB2211297001	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW294	0207_MW294_220415	15/04/2022	Normal	EB2211310014	**1.66**	0.06	0.06	0.58	<0.05	*1.08*	<0.02	0.3	0.34	0.32	0.16	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	<0.05	<0.05	<0.05	<0.02	<0.02	3.05
MW295	0207_MW295_220413	13/04/2022	Normal	EB2211310001	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW295	0207_QC101_220413	13/04/2022	Field_D	EB2211310015	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
MW295	0207_QC201_220413	13/04/2022	Interlab_D	N22/007582	<0.01	<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	<0.02	<0.02	<0.01	0.034	<0.01	<0.01	<0.01	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	0.034
MW299	0207_MW299_220417	17/04/2022	Normal	EB2211261017	**169**	17.7	16.9	80.8	5.41	*88.5*	<0.24	5.5	10.6	49.6	10.4	***22.9***	<0.24	<0.24	<0.24	<0.24	<0.24	<0.61	<0.24	1.2	<0.24	<0.24	<0.24	<0.61	<0.61	<0.61	<0.61	<0.24	<0.24	310
MW300	0207_MW300_220417	17/04/2022	Normal	EB2211261018	**120**	4.94	5.35	36.6	4.14	*83.6*	<0.27	1.4	2.81	12.4	2.89	**9.03**	<0.27	<0.27	<0.27	<0.27	<0.27	<0.68	<0.27	<0.27	<0.27	<0.27	<0.27	<0.68	<0.68	<0.68	<0.68	<0.27	<0.27	163
MW562	0207_MW562_220420	20/04/2022	Normal	EB2211261060	**9.42**	3.3	2.37	8.81	<0.14	*0.61*	<0.02	0.9	1.57	4.49	0.43	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	23
MW563	0207_MW563_220420	20/04/2022	Normal	EB2211261059	<0.02	<0.02	<0.02	<0.07	<0.02	<0.02	<0.02	<0.1	0.22	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	0.26

LOR is limit of reporting
µg/L is micrograms per litre
-' denotes no analysis undertaken
<' denotes concentration is less than
NEMP is National Environmental Mangement Plan
NHMRC is National Health Medical Research Council
Denotes first time detection above LOR
Denotes new exceedance of human health guideline values

Table T3 Surface Water Quality Parameter Field Measurement Results

Property ID	Location ID	Location	Sample Date	DO (mg/L) *Field measurement*	EC (µS/cm) *Field measurement*	pH *Field measurement*	E_r (mV) *Field measurement*	E_h (mV)	Temp (°C) *Field measurement*	Turbidity	Water Colour	Odour	Sheen	Sample Method / Comments
0207	SW004	Oakey Creek	14/04/2022	8.08	1055	8.23	118.3	323.3	23.3	Medium	Clear	No odour	No sheen	Grab sample
0207	SW009	Drain 2	18/04/2022	4.88	94.8	8.92	82.7	287.7	18.1	Medium	Clear	No odour	No sheen	Grab sample
0207	SW010	Oakey Creek	16/04/2022	3.66	365.6	7.56	107.6	312.6	20.6	Medium	Clear	No odour	No sheen	Grab sample
0207	SW011	Oakey Creek	15/04/2022	2.98	386.3	7.34	132.3	337.3	22.4	Medium	Clear	No odour	No sheen	Grab sample
0207	SW012	Oakey Creek	15/04/2022	1.97	417.6	7.59	131.8	336.8	21.4	Medium	Clear	No odour	No sheen	Grab sample
0207	SW013	Oakey Creek	16/04/2022	3.26	470	7.82	118	323	21.8	Medium	Brown	No odour	No sheen	Grab sample
0207	SW019	Drain 3	22/03/2022	8.16	180.6	8.38	21.9	226.9	24.3	Medium	Clear	No odour	No sheen	Grab sample
0207	SW021	Drain 3	22/03/2022	0.68	349.9	7.31	16	221	28.9	Medium	Clear	No odour	No sheen	Grab sample
0207	SW024	Drain 2	22/03/2022	9.68	138.1	7.71	10.4	215.4	27	Low	Clear	No odour	Biosheen	Grab sample
0207	SW025	Drain 2	22/03/2022	14.78	171.7	8.84	-5.3	199.7	28.6	Medium	Clear	No odour	No sheen	Grab sample
0207	SW026	Drain 1	22/03/2022	5.92	175.8	7.74	4.9	209.9	26	Turbid	Clear	No odour	Biosheen	Grab sample
0207	SW027	Drain 2	22/03/2022	4.07	153	7.87	-2.4	202.6	25.2	Low	Clear	No odour	Biosheen	Grab sample
0207	SW028	Westbrook Creek	16/04/2022	8.94	1016	8.32	96.8	301.8	21.1	Medium	Clear	No odour	No sheen	Grab sample
0207	SW032	Oakey Creek	13/04/2022	4.69	576	7.9	117.1	322.1	23	Clear	Brown	No odour	No sheen	Grab sample
0207	SW040	Oakey Creek	22/03/2022	4.49	709	7.86	2.6	207.6	25.2	Medium	Clear	No odour	No sheen	Grab sample
0207	SW043	Doctor Creek	22/03/2022	6.74	444.2	7.95	2.7	207.7	29	Turbid	Clear	No odour	Biosheen	Grab sample
0207	SW056	Oakey Creek	15/04/2022	4.14	516	8.58	100.4	305.4	19.7	Clear	Clear	No odour	No sheen	Grab sample
0207	SW057	Drain 3	13/04/2022	-	-	-	-	-	-	-	-	-	-	Grab sample. Field parameter data lost due to EDCA fault.
0207	SW059	Oakey Creek	13/04/2022	8.55	1055	8.01	94.7	299.7	24	Clear	Clear	No odour	No sheen	Grab sample
0207	SW063	Drain 3	22/03/2022	-	-	-	-	-	-	Turbid	Clear	No odour	No sheen	Grab sample. Insufficient water for parameter measurements.
0207	SW065	Drain 1	22/03/2022	1	231.3	7.94	-98.6	106.4	22.8	Medium	Clear	No odour	No sheen	Grab sample
0207	SW066	Drain 1	22/03/2022	3.48	176.1	7.28	-21.6	183.4	23.7	Low	Clear	No odour	No sheen	Grab sample

DO is dissolved oxygen
EC is electrical conductivity
E_h is oxidation reduction potential
Oxidation reducation potential (E_r) measured with a platinum electrode and a silver/silver chloride reference electrode (E_r) and converted to E_h by $E_h = E_r + 205$ mV (based on a groundwater temperature of 21°C)
Temp is Temperature
µS/cm is microsiemens per centrimetre
ºC is degrees Celcius
mV is millivolts

Table T4 Surface Water PFAS Analytical Results

		Sum of PFHxS and PFOS	Perfluoroalkyl Sulfonic Acids						Perfluoroalkyl Carboxylic Acids												Fluorotelomer Sulfonic				Perfluoroalkyl Sulfonamides							Sum of PFAS
			PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	4:2 FTS	6:2 FtS	8:2 FTS	10:2 FTS	FOSA	MeFOSE	EtFOSE	MeFOSA	EtFOSA	MFOSAA	EtFOSAA	
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.02	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	0.05	0.05	0.05	0.02	0.02	0.01
NEMP (HEPA, 2020) Recreational Water		**2**											**10**																		
NEMP (HEPA, 2020) Ecological Freshwater 99% Species Protection							*0.00023*						*19*																		
Location ID	**Sample ID**	**Sample Date**	**Sample Type**	**Lab Sample Code**																											
SW004	0207_SW004_220414	14/04/2022	Normal	EB2211261044	<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	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.02
SW009	0207_QC109_220418	16/04/2022	Field_D	EB2211261090	0.75	0.03	0.02	0.19	<0.02	*0.56*	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	0.88
SW009	0207_QC209_220418	18/04/2022	Interlab_D	N22/007593	0.70	0.029	0.023	0.18	<0.01	*0.52*	<0.01	<0.05	0.025	0.054	<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	<0.01	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	0.831
SW009	0207_SW009_220418	18/04/2022	Normal	EB2211261057	0.77	0.03	<0.02	0.18	<0.02	*0.59*	<0.02	<0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.05	<0.05	<0.05	<0.05	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	0.85
SW010	0207_SW010_220416	16/04/2022	Normal	EB2211261039	0.02	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.02
SW011	0207_SW011_220415	15/04/2022	Normal	EB2211261048	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
SW012	0207_SW012_220415	15/04/2022	Normal	EB2211261050	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
SW013	0207_SW013_220416	16/04/2022	Normal	EB2211261034	0.04	<0.02	<0.02	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.04
SW019	0207_SW019_220318	18/03/2022	Normal	EB2208035006	0.55	0.04	0.02	0.16	<0.02	*0.39*	<0.02	<0.1	<0.05	0.08	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	<0.05	<0.05	<0.05	<0.02	<0.02	0.78
SW021	0207_QC161_220318	18/03/2022	Field_D	EB2208035023	0.18	<0.02	<0.02	0.02	<0.02	*0.16*	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	0.03	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	0.23
SW021	0207_QC261_220318	18/03/2022	Interlab_D	N22/005156	0.16	<0.01	<0.01	0.017	<0.01	*0.14*	<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	<0.01	<0.05	<0.05	<0.02	<0.02	<0.01	<0.01	0.16
SW021	0207_SW021_220318	18/03/2022	Normal	EB2208035004	0.16	<0.02	<0.02	0.02	<0.02	*0.14*	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	0.03	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	0.21
SW024	0207_SW024_220318	18/03/2022	Normal	EB2208035005	1.52	0.03	0.02	0.22	0.02	*1.3*	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	1.67
SW025	0207_SW025_220318	18/03/2022	Normal	EB2208035007	0.78	0.05	<0.02	0.19	<0.02	*0.59*	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	0.91
SW026	0207_SW026_220318	18/03/2022	Normal	EB2208035009	0.66	0.06	0.03	0.2	<0.02	*0.46*	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	0.84
SW027	0207_SW027_220318	18/03/2022	Normal	EB2208035008	0.87	<0.02	<0.02	0.17	<0.02	*0.7*	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	0.94
SW028	0207_SW028_220416	16/04/2022	Normal	EB2211261042	0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.01
SW032	0207_SW032_220413	13/04/2022	Normal	EB2211310007	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
SW040	0207_SW040_220318	18/03/2022	Normal	EB2208035011	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
SW043	0207_SW043_220318	18/03/2022	Normal	EB2208035010	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
SW056	0207_SW056_220415	15/04/2022	Normal	EB2211310011	<0.01	<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	<0.05	<0.05	<0.05	<0.02	<0.02	<0.01
SW057	0207_SW057_220413	13/04/2022	Normal	EB2211310010	0.65	<0.02	<0.02	0.1	<0.02	*0.55*	<0.02	<0.1	0.04	0.04	0.02	0.04	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	0.85
SW059	0207_SW059_220413	13/04/2022	Normal	EB2211323003	0.03	<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	<0.05	<0.05	<0.05	<0.02	<0.02	0.03
SW063	0207_SW063_220318	18/03/2022	Normal	EB2208035003	0.55	0.04	0.02	0.17	<0.02	*0.38*	<0.02	<0.1	<0.04	0.08	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	<0.05	<0.05	<0.05	<0.02	<0.02	0.77
SW065	0207_SW065_220318	18/03/2022	Normal	EB2208035001	1.01	0.08	0.04	0.3	<0.02	*0.71*	<0.02	<0.1	<0.02	0.09	<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	<0.05	<0.05	<0.05	<0.02	<0.02	1.25
SW066	0207_SW066_220318	18/03/2022	Normal	EB2208035002	0.72	0.04	0.03	0.23	<0.02	*0.49*	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	0.88

LOR is limit of reporting
µg/L is micrograms per litre
-' denotes no analysis undertaken
<' denotes concentration is less than
NEMP is National Environmental Mangement Plan
NHMRC is National Health Medical Research Council
Denotes first time detection above LOR
Denotes new exceedance of human health guideline values

Table T5 Sediment Field Observations

Property ID	Location ID	Location	Sample Date	Sample Description	Odour	Sample Method / Comments
0207	SD007	Doctor Creek	12/04/2022	Silty CLAY, brown, saturated, medium plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD010	Drain 2	18/03/2022	Silty CLAY, brown, saturated, medium plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD011	Drain 2	18/03/2022	Silty CLAY, brown, saturated, medium plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD013	Drain 2	18/04/2022	SILT, dark grey, saturated, medium plasticity, soft with traces of fine to medium sand and organic matter.	No odour	Grab sample
0207	SD015	Drain 1	18/03/2022	Silty CLAY, brown, saturated, medium plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD016	Drain 3	18/03/2022	Silty CLAY, brown, saturated, medium plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD017	Drain 3	13/04/2022	Silty CLAY, dark grey, saturated, low plasticity, very soft, with organic matter, trace of medium sand	No odour	Grab sample
0207	SD018_A	Drain 3	13/04/2022	Silty CLAY, dark brown, wet, low plasticity, soft with traces of fine sand and organic matter.	No odour	Grab sample
207	SD018_B	Oakey Creek	13/04/2022	Sandy CLAY, brown, low plasticity, moist, firm with fine to medium sand and organic matter.	No odour	Grab sample
0207	SD022	Drain 1	18/03/2022	Silty CLAY, brown, saturated, medium plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD024	Drain 2	18/03/2022	Silty CLAY, brown, saturated, medium plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD025	Drain 3	18/03/2022	Silty CLAY, brown, saturated, medium plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD032	Oakey Creek	13/04/2022	Silty CLAY, dark grey, saturated, low plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD036	Oakey Creek	15/04/2022	Gravelly SAND, grey, wet, loose with rounded fine gravel and organic matter.	No odour	Grab sample
0207	SD037	Oakey Creek	16/04/2022	SILT, dark grey, wet, soft, with organic matter.	No odour	Grab sample
0207	SD038	Oakey Creek	14/04/2022	Silty CLAY, dark brown, wet, low plasticity, soft with organics.	No odour	Grab sample
0207	SD040	Oakey Creek	12/04/2022	Silty CLAY, dark brown, saturated, low-medium plasticity.	No odour	Grab sample
0207	SD045	Oakey Creek	13/04/2022	Silty sandy CLAY, dark grey, saturated, low plasticity, soft, with fine to medium sand and organic matter.	No odour	Grab sample
0207	SD070	Westbrook Creek	16/04/2022	Silty CLAY, black, wet, low plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD102	Oakey Creek	16/04/2022	Silty SAND, dark grey, wet with organic matter. Sand is fine to medium.	No odour	Grab sample
0207	SD105	Oakey Creek	15/04/2022	Silty CLAY, dark grey, moist, medium plasticity, soft, with organic matter.	No odour	Grab sample
0207	SD106	Drain 1	18/03/2022	Silty CLAY, brown, saturated, medium plasticity, very soft, with organic matter.	No odour	Grab sample
0207	SD107	Drain 3	18/03/2022	Silty CLAY, brown, saturated, medium plasticity, very soft, with organic matter.	No odour	Grab sample

Table T6 Sediment PFAS Analytical Results

		Perfluoroalkyl Sulfonic Acids						Perfluoroalkyl Carboxylic Acids											Fluorotelomer Sulfonic Acids				Perfluoroalkyl Sulfonamides								
	Sum of PFHxS and PFOS	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	4:2 FTS	6:2 FtS	8:2 FTS	10:2 FTS	FOSA	MeFOSE	EtFOSE	MeFOSA	EtFOSA	MeFOSAA	EtFOSAA	Sum of PFAS	Moisture Content
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
LOR	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0002	0.0005	0.0005	0.0005	0.0005	0.0002	0.0005	0.0002	0.1
SD007	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0005	21.6
SD010	0.0098	<0.0002	<0.0002	0.0005	<0.0002	0.0093	0.0005	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0103	33.2
SD011	0.0478	<0.0002	<0.0002	0.0022	0.0003	0.0456	0.0016	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0499	24.7
SD013	0.0026	<0.0002	<0.0002	<0.0002	<0.0002	0.0026	<0.0004	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.0028	45.3
SD013	0.0064	<0.001	<0.001	<0.001	<0.001	0.0064	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	0.0064	-
SD013	0.0028	<0.0002	<0.0002	<0.0002	<0.0002	0.0028	0.0004	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0032	43.4
SD015	0.0177	<0.0002	<0.0002	0.0006	<0.0002	0.0171	0.0013	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.019	36.9
SD016	0.0314	<0.0002	<0.0002	0.0011	<0.0004	0.0303	<0.0002	<0.001	<0.0002	0.0003	<0.0002	0.0006	0.0008	0.0007	0.0003	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0344	44.4
SD017	0.0082	<0.0002	<0.0002	<0.0002	<0.0002	0.0082	0.0009	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	0.0012	0.0013	0.001	0.0002	<0.0005	<0.0005	<0.0005	<0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0132	35.3
SD018	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	40.2
SD018	0.0051	<0.0002	<0.0002	<0.0002	<0.0002	0.0051	<0.0005	<0.001	<0.0002	<0.0002	<0.0002	0.0002	0.0003	0.0004	0.0004	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0064	18.2
SD022	0.0169	<0.0002	<0.0002	0.0009	<0.0002	0.016	<0.0004	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0169	44.9
SD024	0.0427	<0.0004	<0.0002	0.0022	<0.0004	0.0405	0.0016	<0.001	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0004	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0453	50.5
SD024	0.03	<0.001	<0.001	0.0012	<0.001	0.03	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	0.0312	-
SD024	0.0374	<0.0004	<0.0002	0.0025	0.0004	0.0349	0.0015	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0004	0.0003	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	0.0407	43.9
SD025	0.037	<0.0005	<0.0005	0.0014	<0.0005	0.0356	0.0029	<0.002	0.001	<0.0005	<0.0005	<0.0005	<0.0005	0.0023	0.0071	0.0259	0.0237	0.0328	<0.0005	<0.0005	<0.001	<0.0005	0.0006	<0.0013	<0.0013	<0.0013	<0.0013	<0.0005	<0.0005	0.133	63.2
SD032	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	41.2
SD036	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.0002	25.2
SD037	0.0014	<0.0002	<0.0002	<0.0002	<0.0002	0.0014	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.0014	58.1
SD038	0.0012	<0.0002	<0.0002	<0.0002	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.0012	44.1
SD038	<0.002	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	-
SD038	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.0007	45.1
SD040	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.0002	36
SD045	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.0005	42.3
SD070	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.0006	41
SD102	0.0019	<0.0002	<0.0002	<0.0002	<0.0002	0.0019	<0.0003	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.0019	38
SD105	0.0022	<0.0002	<0.0002	<0.0002	<0.0002	0.0022	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0003	<0.0002	0.0011	<0.0002	0.0014	<0.0002	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.0053	38.5
SD106	0.106	<0.0004	<0.0004	0.0041	0.0009	0.102	0.0057	<0.001	0.0004	0.0005	<0.0006	0.0013	0.0024	0.015	0.0765	0.0887	0.0193	0.0081	<0.0005	<0.0005	0.0013	<0.0005	0.0013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.328	46.8
SD107	0.0223	<0.0002	<0.0002	0.001	<0.0002	0.0213	0.0023	<0.001	<0.0002	<0.0002	<0.0002	0.0002	0.0008	0.0048	0.0081	0.0124	0.0037	0.0021	<0.0005	<0.0005	0.001	<0.0005	0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	0.058	44.7

LOR is limit of reporting
mg/kg is milligrams per kilogram
µg/kg is micrograms per kilogram
-' denotes no analysis undertaken
<' denotes concentration is less than
Denotes first time detection above LOR

Appendix C

Analytical Data Validation

Appendix C Analytical Data Validation

DATA VALIDATION REPORT

Project No.:	60612563	**Validation by:** ST		**Date:**	26/05/22
Client:	Department of Defence				
Site:	Army Aviation Centre Oakey				
Matrix type:	Groundwater	**Data verified by:** JP		**Date:**	30/05/22
No. of primary samples:	95 groundwater, 22 surface water, 22 sediment				
Laboratory:	ALS (Brisbane), NMI (Sydney)	**Project Manager:** JP			
Lab reference:	EB2208035, EB2211260, EB2211261, EB2211274, EB2211278, EB2211288, EB2211290, EB221194, EB2211297, EB2211301, EB2211303, EB2211304, EB2211307, EB2211310, EB2211311, EB2211314, EB2211316, EB2211317, EB2211320, EB2211323, EB2211324, AECO06_220324, AEC06_220426, AECO06_220426_1, AECO06_220426_2, AECO06_220426_3				

Key Issues:	No QA/QC issues were identified in the field or laboratory datasets that could have a material implication on data interpretation and therefore decision-making on the project. The data are therefore considered appropriate for use to meet the project objectives.

Field QA/QC

Sampling personnel	Sampling was conducted by trained AECOM fieldstaff on 18 March 2022 and between 11 and 21 April 2022.
Sampling Methodology	Samples were collected using appropriate methods as identified within the main body of the report.
Hydrasleeve duration	All Hydrasleeves were installed in monitoring wells for a minimum of 24 hours.
Chain of Custody (COC)	COC documents completed as per AECOM procedures.
Rinsate Blank (refer to **Table C1**)	Rinsate blank samples were collected at a frequency of one per day of sampling (13 in total). All rinsates were collected from the decontaminated interface probe. With one exception, PFAS concentrations were reported below the LOR for all analytes. The exception was the detection of PFOS at 0.02 µg/L in QC302 collected on 13 April 2022. This result is marginally above the limit of reporting and could either be a false positive or possibly indicate that residual PFAS was present on the sampling equipment.
Trip Blanks (refer to **Table C1 and C2**)	Although not identified in the SAQP, five trip blanks (three water and two soil) were present during the transport of samples to verify the potential for cross-contamination. PFAS concentrations were reported below the LOR for all analytes.
Frequency of field QC	Field duplicate (intra-laboratory duplicates) and triplicates (inter-laboratory duplicates) were collected at a frequency of one in ten primary samples (total of 18 duplicate / triplicate pairs for 140 samples indicates a field QC frequency of 13%).
Handling and preservation	Primary, duplicate and triplicate samples were received preserved and chilled at the laboratory. All samples were received at the laboratory in appropriate sample containers with no sample container / preservation non-compliances noted.

Laboratory QA/QC	
Holding time compliance	With one exception, samples were extracted and analysed within the recommended holding times. The exception was moisture content analysis on the trip blank sample 0207_QC401_220411 on EB2211261_AA which exceeded the hold time limit by one day.
Laboratory Accreditation	The laboratory analysis was conducted by ALS Environmental Pty Ltd (Brisbane) a National Association of Testing Authorities (NATA) accredited laboratory. The triplicate samples were analysed at the National Measurement Institute (Sydney), also a NATA accredited laboratory.
Frequency of laboratory QC	The laboratory reported a sufficient frequency of quality control samples to assess whether the results have been reported to an acceptable accuracy and precision, except: • EB2208035, EB2211310 – laboratory duplicates for PFAS (9.09% compared to expected rate of 10%) and matrix spike for PFAS (0.0% compared to expected rate of 5%). • EB2211261 – laboratory duplicates for PFAS (7.23% compared to expected rate of 10%) and matrix spike for PFAS (4.82% compared to expected rate of 5%). • EB2211274, EB2211278, EB2211288, EB2211290, EB211297, EB2211301, EB2211303, EB2211304, EB2211307 – laboratory duplicates for PFAS (6.25% compared to expected rate of 10%) and matrix spike for PFAS (0.0% compared to expected rate of 5%). • EB2211311, EB2211314,EB2211316, EB2211317, EB2211320, EB2211323 and EB2211324 – laboratory duplicates for PFAS (0.0% compared to expected rate of 10%) and matrix spike for PFAS (0.0% compared to expected rate of 5%). The reason for insufficient laboratory and matrix spikes being analysed for the above batches is due to the way the laboratory assigns the duplicates and matrix spikes. These are assigned every 20 samples and may include samples from other submissions. The laboratory LIMS assigns laboratory QC to samples within the analytical run. Although additional bottles were included the LIMS system is not able to create runs to allocate samples with the additional bottles to allow for frequency compliance. As all other QC results met control limits this is not expected to impact data quality. This issue is being addressed with the laboratory.
Method Blank	No method blank value outliers were reported in any of the laboratory reports.
Laboratory duplicate RPDs	Laboratory duplicate Relative Percentage Differences (RPD) were within control limits for all samples.
Laboratory control spike recovery	Laboratory Control Spikes (LCS) recoveries were within the control limits across all primary laboratory batches with one exception. This was PFHpS in sample QC-4309232-002 where recovery was less than the lower control limit (64.3% compared to 69%.
Matrix spike recovery	All Matrix Spike (MS) recoveries (where reported) were within control limits, except: • EB2208035-024 (0207_QC162_220318) where matrix spike recovery of PFOS was not determined due to the background level being greater than or equal to 4 x spike level. • EB2211260-002 (1435_MW002_220419) where matrix spike recoveries of PFPeA, PFHxA and PFHpA were not determined due to the background level being greater than or equal to 4 x spike level. • EB2211261-007 (0207_MW230_220417) where matrix spike recoveries of PFOS, PFPeA, PFHxA, PFHpA and PFOA were not determined due to the background level being greater than or equal to 4 x spike level. The results indicate that matrix spike non-conformances are present in three groundwater samples (relative to 95 samples analysed) due to matrix interference. These non-conformances are not expected to impact data interpretation as the main

	compounds of concern (PFHxS and PFOS) are present at high concentrations in these samples, consistent with the historical dataset.
Surrogate spike recovery	Surrogate spike recoveries were within control limits.
QA/QC Data Evaluation	
Comparison of Field Observations and Laboratory Results	No anomalous results between field observations and analysis results were noted.
Data transcription	A random 10% check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by AECOM.
Limits of reporting	Limits of Reporting (LORs) were sufficiently low to enable assessment against adopted screening levels except for PFOS for NEMP (HEPA, 2020) ecological guideline values for the 99% protection of freshwater species. The potential exists for concentrations of PFOS to be above the adopted guideline, but below the laboratory LOR. This should be taken into consideration when interpreting and using this data quantitatively where results are reported below LOR.
Field duplicate RPDs (refer to **Tables C3-C5**)	Field duplicate RPDs were reported within control limits except the following (the sample with the higher concentration is in bold): • 0207_MW223_220413 and **0207_QC100_220413** for PFHpS (48%) • 0207_MW222_220417 and **0207_QC106_220417** for PFHpS (43%) • **0207_MW201_220417** and 0207_QC107_220417 for PFHpS (33%) • **0207_MW201_220417** and 0207_QC107_220417 for PFHxA (34%) • **0207_MW201_220417** and 0207_QC107_220417 for PFPeS (31%) • **0207_MW201_220417** and 0207_QC107_220417 for PFOA (33%) The magnitude of the differences between the primary and duplicates is noted to be relatively small, up to 48%, and therefore the elevated RPDs are not considered to affect data interpretation for use in this report.
Field triplicate RPDs (refer to **Tables C3-C5)**	Field triplicate RPDs were reported within control limits with the exception of the following (the sample with the higher concentration is in bold): • 0207_MW223_220413 and **0207_QC200_220413** for 8:2 FTS (60%) • **0207_MW223_220413** and 0207_QC200_220413 for PFPeA (34%) • **0207_MW223_220413** and 0207_QC200_220413 for PFOA (67%) • 0207_MW222_220417 and 0207_**QC206_220417** for 8:2 FTS (63%) • 0207_MW222_220417 and 0207_**QC206_220417** for PFNA (46%) • 0207_MW222_220417 and 0207_**QC206_220417** for PFPeA (44%) • **0207_MW201_220417** and 0207_QC207_220417 for PFHpS (36%) • **0207_MW201_220417** and 0207_QC207_220417 for PFHxA (35%) • **0207_MW201_220417** and 0207_QC207_220417 for PFPeS (39%) • **0207_MW201_220417** and 0207_QC207_220417 for PFPeA (34%) • **0207_MW201_220417** and 0207_QC207_220417 for PFOS (38%) • **0207_MW201_220417** and 0207_QC207_220417 for PFOA (54%) • 0207_MW245_220418 and **0207_QC208_220418** for PFOS (117%) • 0207_SD013_220418 and **0207_QC210_220418** for PFOS (78%) The differences between the primary and triplicate samples are considered to be due to different extraction methods between laboratories and are within an order of magnitude variation. Where the triplicate samples highlighted above reported a higher concentration than the primary sample, the higher triplicate sample concentrations do not constitute a first-time detection of PFOA or PFHxS+PFOS or a new maximum of the same concentrations and therefore the elevated RPDs are not considered to affect data interpretation for use in this report.

Other	
Other observations	With one exception, evaluation of the data does not indicate any first-time detections of PFHxS+PFOS or PFOA compounds above LOR and no new exceedances of human health guideline values compared to historical data. The exception was for the groundwater sample from monitoring well MW267 where PFOA was detected above the limit of reporting for the first time. However other PFAS have been regularly detected in groundwater from this well. Higher concentrations of sum of PFHxS and PFOS were reported in April 2022, which included the first-time detection of PFOA. Groundwater from the paired well (MW268) which is screened deeper in the alluvium aquifer has consistently reported the presence of PFOA (0.01-0.06 ug/L), so the first-time detection of PFOA in MW267, at the same location as MW268, is not considered of significance. The PFOS detection in QC302 is not considered to indicate to possible cross-contamination of MW267 as PFOA was not detected in the QC302 sample. The QC302 sample was not collected at the time of sampling MW267. PFAS have been consistently detected in samples from MW267. We have reviewed the results for samples collected on 13 April 2022 and no anomalies have been identified. A request was not made to the laboratory to review the results in QC302. Monitoring well MW193 was sampled using a Hydrasleeve. This well also reported the presence of LNAPL. Hydrasleeve guidance indicates Hydrasleeves should not be used for sampling due to the potential for incorporating LNAPL in the sample. Review of the results for MW193 in April 2022 indicates PFAS concentrations are consistent with recent historical results so the potential presence of LNAPL from use of this technique does not appear to have affected PFAS results.

Table C1 Water Trip Blank and Rinsate Analytical Results

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	Lab Report	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA	EB2211261-AA
	Sample ID	0207_QC300_220411	0207_QC301_220412	0207_QC302_220413	0207_QC303_220414	0207_QC304_220415	0207_QC305_220416	0207_QC306_220417	0207_QC307_220418	0207_QC308_220419	0207_QC309_220420	0207_QC310_220421	0207_QC502_220411	0207_QC503_220411	0207_QC504_220411
	Sample Date	11/04/2022	12/04/2022	13/04/2022	14/04/2022	15/04/2022	16/04/2022	17/04/2022	18/04/2022	19/04/2022	20/04/2022	21/04/2022	11/04/2022	18/04/2022	11/04/2022
	Sample Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Trip_B	Trip_B	Trip_B
Analyte	**Units**	**LOR**													
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	µg/L	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
Perfluorooctanoic Acid (PFOA)	µg/L	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
Perfluorohexane sulfonic acid (PFHxS)	µg/L	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

Lab Report	EB2211261-AA	EB2211261-AA
Sample ID	0207_QC500_220411	0207_QC501_220411
Sample Date	11/04/2022 9:28	11/04/2022 9:28
Sample Type	Trip_B	Trip_B

Analyte	**Units**	**EQL**		
Moisture Content_	%	0.1	**0.1**	<0.1
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	mg/kg	0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005	<0.0005	<0.0005
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002	<0.0002	<0.0002
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002	<0.0002	<0.0002
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	**<0.0002**	**<0.0002**

Table C3 Groundwater Duplicate and Triplicate Analytical Results

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	Lab Report	EB2211261-AA	EB2211261-AA	**RPD**	EB2211261-AA	RN1350926	**RPD**	EB2211260	EB2211260	**RPD**	EB2211260	RN1350928	**RPD**	EB2211260	EB2211260	**RPD**	EB2211260
	Sample ID	0207_MW223_220413	0207_QC100_220413		0207_MW223_220413	0207_QC200_220413		1435_MW013_220419	1435_QC100_220419		1435_MW013_220419	1435_QC200_220419		1435_MW010_220419	1435_QC101_220419		1435_MW010_220419
	Sample Date	13/04/2022	13/04/2022		13/04/2022	13/04/2022		19/04/2022	19/04/2022		19/04/2022	19/04/2022		19/04/2022	19/04/2022		19/04/2022
	Sample Type	Primary	Duplicate		Primary	Triplicate		Primary	Duplicate		Primary	Triplicate		Primary	Duplicate		Primary
Analyte	**Units**	**LOR**															
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	6.56	6.47	1	6.56	5.7	14	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	0.22	0.4	58	**0.22**	**0.41**	60	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.12	<0.05	0	<0.12	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.12	<0.05	0	<0.12	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.12	<0.05	0	<0.12	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.12	<0.05	0	<0.12	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	0.77	0.68	12	0.77	0.71	8	<0.02	<0.02	0	<0.02	<0.01	0	0.29	0.3	3	0.29
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	6.1	6.2	2	6.1	4.7	26	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	0.03	0	<0.05	0.013	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	**0.62**	**1.01**	48	0.62	0.82	28	<0.02	<0.02	0	<0.02	<0.01	0	0.02	<0.02	0	0.02
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	16.4	14.3	14	16.4	15	9	<0.02	<0.02	0	<0.02	<0.01	0	0.11	0.11	0	0.11
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	14.2	12.7	11	14.2	14	1	<0.02	<0.02	0	<0.02	<0.01	0	0.44	0.44	0	0.44
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	3.04	2.97	2	3.04	3.2	5	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	0.04	0	<0.05	0.024	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	0.78	1.02	27	0.78	0.78	0	<0.02	<0.02	0	<0.02	<0.01	0	0.25	0.24	4	0.25
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	30.9	23.3	28	**30.9**	**22**	34	<0.02	<0.02	0	<0.02	<0.02	0	0.19	0.2	5	0.19
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.12	<0.05	0	<0.12	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	14.8	18	20	14.8	15	1	<0.01	<0.01	0	<0.01	<0.02	0	0.1	0.1	0	0.1
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	10.2	10	2	**10.2**	**5.1**	67	<0.01	<0.01	0	<0.01	<0.01	0	0.1	0.1	0	0.1
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	6.4	7.26	13	6.4	5.4	17	<0.01	<0.01	0	<0.01	<0.01	0	0.81	0.8	1	0.81

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: NL (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table C3 Groundwater Duplicate and Triplicate Analytical Results

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Lab Report		RN1350928		EB2211310	EB2211310		EB2211310	RN1350401		EB2211297	EB2211297		EB2211297	RN1350929		EB2211261-AA	EB2211261-AA	
Sample ID		1435_QC201_220419	**RPD**	0207_MW295_220413	0207_QC101_220413	**RPD**	0207_MW295_220413	0207_QC201_220413	**RPD**	0207_MW292_220414	0207_QC102_220414	**RPD**	0207_MW292_220414	0207_QC202_220414	**RPD**	0207_MW282_220415	0207_QC104_220415	**RPD**
Sample Date		19/04/2022		13/04/2022	13/04/2022		13/04/2022	13/04/2022		14/04/2022	14/04/2022		14/04/2022	14/04/2022		15/04/2022	15/04/2022	
Sample Type		Triplicate		Primary	Duplicate		Primary	Triplicate		Primary	Duplicate		Primary	Triplicate		Primary	Duplicate	
Analyte	**Units**	**LOR**																
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	0.02	0	<0.05	<0.05	0	<0.05	0.034	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	0.23	23	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	0.06	0.05	18
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	0.071	0	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.01	67	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	0.083	28	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	0.41	7	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	0.017	0	<0.02	<0.02	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	0.2	22	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	0.012	0	0.04	0.03	29
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	0.18	5	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.054	60	<0.01	<0.01	0	<0.01	<0.02	0	0.16	0.16	0	0.16	0.11	37	0.86	0.8	7
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	0.069	37	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.71	13	<0.01	<0.01	0	<0.01	<0.01	0	0.18	0.18	0	0.18	0.15	18	0.34	0.34	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: NL (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table C3 Groundwater Duplicate and Triplicate Analytical Results

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	Lab Report	EB2211261-AA	RN1350926		EB2211261-AA	EB2211261-AA		EB2211261-AA	RN1350926		EB2211261-AA	EB2211261-AA		EB2211261-AA	RN1350926		EB2211261-AA
	Sample ID	0207_MW282_220415	0207_QC204_220415	**RPD**	0207_MW272_220416	0207_QC105_220416	**RPD**	0207_MW272_220416	0207_QC205_220416	**RPD**	0207_MW222_220417	0207_QC106_220417	**RPD**	0207_MW222_220417	0207_QC206_220417	**RPD**	0207_MW201_220417
	Sample Date	15/04/2022	15/04/2022		16/04/2022	16/04/2022		16/04/2022	16/04/2022		17/04/2022	17/04/2022		17/04/2022	17/04/2022		17/04/2022
	Sample Type	Primary	Triplicate		Primary	Duplicate		Primary	Triplicate		Primary	Duplicate		Primary	Triplicate		Primary
Analyte	**Units**	**LOR**															
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	1.35	1.68	22	1.35	1.8	29	0.46
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	0.14	0.21	40	**0.14**	**0.27**	**63**	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.12	<0.05	0	<0.12	<0.02	0	<0.12
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.05	<0.02	0	<0.05	<0.01	0	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.12	<0.05	0	<0.12	<0.05	0	<0.12
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.12	<0.05	0	<0.12	<0.02	0	<0.12
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.05	<0.02	0	<0.05	<0.01	0	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.12	<0.05	0	<0.12	<0.05	0	<0.12
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	0.06	0.05	18	0.04	0.04	0	0.04	0.038	5	0.74	0.7	6	0.74	0.73	1	16.8
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0	1	1.1	10	1	1.2	18	3.2
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.05	<0.02	0	<0.05	<0.01	0	<0.05
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.05	0.03	0	<0.05	0.039	0	<0.05
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.05	<0.02	0	<0.05	<0.01	0	<0.05
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	**0.6**	**0.93**	43	0.6	0.7	15	**6.35**
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	0.011	0	1.76	2.02	14	1.76	1.6	10	3.34
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	0.07	0.06	15	0.07	0.07	0	3.8	3.67	3	3.8	3.7	3	**25.7**
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	0.75	0.76	1	**0.75**	**1.2**	**46**	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.05	0.03	0	<0.05	0.013	0	<0.05
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	0.04	0.038	5	0.04	0.04	0	0.04	0.04	0	0.7	0.85	19	0.7	0.71	1	**17.8**
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	0.026	26	2.49	2.14	15	**2.49**	**1.6**	**44**	5.33
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.12	<0.05	0	<0.12	<0.02	0	<0.12
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.05	<0.02	0	<0.05	<0.01	0	<0.05
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.86	0.75	14	0.1	0.13	26	0.1	0.065	42	15.9	17.7	11	15.9	12	28	58.5
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	3.14	3.1	1	3.14	3	5	**7.46**
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.34	0.35	3	0.24	0.28	15	0.24	0.25	4	5.34	5.49	3	5.34	4.6	15	104

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: NL (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table C3 Groundwater Duplicate and Triplicate Analytical Results

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		Lab Report	EB2211261-AA	RPD	EB2211261-AA	RN1350926	RPD	EB2211261-AA	EB2211261-AA	RPD	EB2211261-AA	RN1350926	RPD	EB2211261-AA	EB2211261-AA	RPD	EB2211261-AA	RN1350926	RPD
		Sample ID	0207_QC107_220417		0207_MW201_220417	0207_QC207_220417		0207_MW245_220418	0207_QC108_220418		0207_MW245_220418	0207_QC208_220418		0207_MW249_220419	0207_QC111_220419		0207_MW249_220419	0207_QC211_220419	
		Sample Date	17/04/2022		17/04/2022	17/04/2022		18/04/2022	18/04/2022		18/04/2022	18/04/2022		19/04/2022	19/04/2022		19/04/2022	19/04/2022	
		Sample Type	Duplicate		Primary	Triplicate		Primary	Duplicate		Primary	Triplicate		Primary	Duplicate		Primary	Triplicate	
Analyte	**Units**	**LOR**																	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	0.61	28	0.46	0.5	8	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	0	<0.12	<0.02	0	<0.06	<0.05	0	<0.06	<0.02	0	<0.06	<0.05	0	<0.06	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	0	<0.12	<0.05	0	<0.06	<0.05	0	<0.06	<0.05	0	<0.06	<0.05	0	<0.06	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	0	<0.12	<0.02	0	<0.06	<0.05	0	<0.06	<0.02	0	<0.06	<0.05	0	<0.06	<0.02	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	0	<0.12	<0.05	0	<0.06	<0.05	0	<0.06	<0.05	0	<0.06	<0.05	0	<0.06	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	12.9	26	16.8	13	26	<0.02	0.03	40	<0.02	0.031	43	0.57	0.49	15	0.57	0.48	17
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	3.4	6	3.2	2.5	25	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	0.2	67	<0.1	0.22	75
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	**4.53**	**33**	**6.35**	**4.4**	**36**	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	0.03	40	<0.02	0.021	5
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	2.62	24	3.34	4	18	<0.02	<0.02	0	<0.02	<0.01	0	0.11	0.11	0	0.11	0.09	20
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	**18.3**	**34**	**25.7**	**18**	**35**	0.04	0.05	22	0.04	0.046	14	0.99	0.98	1	0.99	0.84	16
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	0.06	18	<0.05	0.041	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	**13**	**31**	**17.8**	**12**	**39**	<0.02	0.04	67	<0.02	0.033	49	0.57	0.53	7	0.57	0.52	9
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	4.8	10	**5.33**	**3.8**	**34**	<0.02	<0.02	0	<0.02	<0.02	0	0.3	0.27	11	0.3	0.22	31
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	0	<0.12	<0.02	0	<0.06	<0.05	0	<0.06	<0.02	0	<0.06	<0.05	0	<0.06	<0.02	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	50.8	14	**58.5**	**40**	**38**	0.1	0.12	18	**0.1**	**0.38**	**117**	0.11	0.11	0	0.11	0.082	29
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	**5.32**	**33**	**7.46**	**4.3**	**54**	<0.02	<0.01	0	<0.02	<0.01	0	0.07	0.08	13	0.07	0.06	15
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	85.7	19	104	79	27	0.18	0.2	11	0.18	0.21	15	2.58	2.52	2	2.58	2.1	21

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: NL (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table C3 Groundwater Duplicate and Triplicate Analytical Results

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Lab Report	EB2211261-AA	EB2211261-AA	RPD	EB2211261-AA	RN1350926	RPD	EB2211261-AA	EB2211261-AA	RPD	EB2211261-AA	RN1350926	RPD
Sample ID	0207_MW252_220420	0207_QC112_220420		0207_MW252_220420	0207_QC212_220420		0207_MW233_220420	0207_QC113_220420		0207_MW233_220420	0207_QC213_220420	
Sample Date	20/04/2022	20/04/2022		20/04/2022	20/04/2022		20/04/2022	20/04/2022		20/04/2022	20/04/2022	
Sample Type	Primary	Duplicate		Primary	Triplicate		Primary	Duplicate		Primary	Triplicate	
Analyte	**Units**	**LOR**										
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.12	<0.05	0	<0.12	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.12	<0.05	0	<0.12	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.12	<0.05	0	<0.12	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.12	<0.05	0	<0.12	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	0.3	0.28	7	0.3	0.32	6	0.16	0.16	0	0.16	0.16	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.2	0.1	0	<0.2	0.18	0	<0.1	<0.1	0	<0.1	0.056	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	0.05	0.08	46	0.05	0.051	2	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	0.07	0.08	13	0.07	0.07	0	0.02	0.02	0	0.02	0.013	42
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	0.37	0.34	8	0.37	0.36	3	0.13	0.13	0	0.13	0.092	34
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	0.2	0.24	18	0.2	0.25	22	0.12	0.1	18	0.12	0.12	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	0.15	0.19	24	0.15	0.16	6	0.04	0.03	29	0.04	0.035	13
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.12	<0.05	0	<0.12	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.05	<0.02	0	<0.05	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	4.2	4.05	4	4.2	3.4	21	0.22	0.22	0	0.22	0.17	26
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	0.1	0.12	18	0.1	0.12	18	0.03	0.03	0	0.03	0.014	73
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	1.25	1.3	4	1.25	1.3	4	0.63	0.66	5	0.63	0.64	2

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: NL (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table C4 Surface Water Duplicate and Triplicate Analytical Results

AECOM Imagine it. Delivered.

	Lab Report	EB2208035	EB2208035	**RPD**	EB2211261-AA	EB2211261-AA	**RPD**	EB2211261-AA	RN1350926	**RPD**
	Sample ID	0207_SW021_220318	0207_QC161_220318		0207_SW009_220418	0207_QC109_220418		0207_SW009_220418	0207_QC209_220418	
	Sample Date	18/03/2022	18/03/2022		18/04/2022	18/04/2022		18/04/2022	18/04/2022	
	Sample Type	Primary	Duplicate		Primary	Duplicate		Primary	Triplicate	
Analyte	**Units**	**LOR**								
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.06	<0.05	0	<0.06	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.06	<0.05	0	<0.06	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.06	<0.05	0	<0.06	<0.02	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.06	<0.05	0	<0.06	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	0.03	0.03	0	0.03	0.029	3
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	0.03	0.03	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	0.05	0.06	18	0.05	0.054	8
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	0.02	0	<0.02	0.023	14
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	0.025	22
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.06	<0.05	0	<0.06	<0.02	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	0.02	0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.14	0.16	13	0.59	0.56	5	0.59	0.52	13
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.02	0.02	0	<0.02	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.02	0.02	0	0.18	0.19	5	0.18	0.18	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: NL (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table C5 Sediment Duplicate and Triplicate Analytical Results

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	Lab Report	EB2208035	EB2208035	RPD	EB2211261-AA	EB2211261-AA	RPD	EB2211261-AA	EB2211261-AA	RPD	EB2211261-AA	RN1350926	RPD	EB2211261-AA	RN1350926	RPD
	Sample ID	0207_SD024_220318	0207_QC162_220318		0207_SD038_220414	0207_QC103_220414		0207_SD013_220418	0207_QC110_220418		0207_SD038_220414	0207_QC203_220414		0207_SD013_220418	0207_QC210_220418	
	Sample Date	18/03/2022	18/03/2022		14/04/2022	14/04/2022		18/04/2022	18/04/2022		14/04/2022	14/04/2022		18/04/2022	18/04/2022	
	Sample Type	Primary	Duplicate		Primary	Duplicate		Primary	Duplicate		Primary	Triplicate		Primary	Triplicate	
Analyte	**Units**	**LOR**														
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.002	0	<0.0005	<0.002	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005 : 0.001 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.001	0	<0.0005	<0.001	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005 : 0.001 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.001	0	<0.0005	<0.001	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005 : 0.001 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.001	0	<0.0005	<0.001	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.002	0	<0.0005	<0.002	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.002	0	<0.0002	<0.002	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.002	0	<0.0005	<0.002	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	mg/kg	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.002	0	<0.0002	<0.002	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.005	0
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0004	<0.0004	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.001	0	<0.0002	<0.001	0
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.002	0	<0.001	<0.002	0
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002	0.0015	0.0016	6	<0.0002	<0.0002	0	0.0004	<0.0004	0	<0.0002	<0.001	0	0.0004	<0.001	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0004	<0.0004	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.001	0	<0.0002	<0.001	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002 : 0.002 (Interlab)	0.0003	<0.0005	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.002	0	<0.0002	<0.002	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002 : 0.001 (Interlab)	0.0004	<0.0004	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.001	0	<0.0002	<0.001	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.001	0	<0.0002	<0.001	0
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002 : 0.001 (Interlab)	0.0004	0.0003	29	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.001	0	<0.0002	<0.001	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.001	0	<0.0002	<0.001	0
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002 : 0.001 (Interlab)	0.0004	0.0005	22	<0.0002	<0.0002	0	<0.0002	0.0002	0	<0.0002	<0.001	0	<0.0002	<0.001	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.001	0	<0.0002	<0.001	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002 : 0.002 (Interlab)	<0.0002	0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.002	0	<0.0002	<0.002	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.002	0	<0.0005	<0.002	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.002	0	<0.0002	<0.002	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002 : 0.002 (Interlab)	0.0003	<0.0005	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.002	0	<0.0002	<0.002	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002 : 0.002 (Interlab)	0.0349	0.0405	15	0.0007	0.0012	53	0.0028	0.0026	7	0.0007	<0.002	0	**0.0028**	**0.0064**	**78**
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.001	0	<0.0002	<0.001	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002 : 0.001 (Interlab)	0.0025	0.0022	13	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.001	0	<0.0002	<0.001	0
Moisture Content_	%	0.1	43.9	50.5	14	45.1	44.1	2	43.4	45.3	4	45.1	-	-	43.4	-	-

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: NL (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Appendix D

Chain of Custody Forms

Appendix D Chain of Custody Forms

AECOM

Chain of Custody

COC Page 1 of 2

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name:

Lab. Address:

Contact Name: ALS Brisbane

Lab. Ref:

Tel:

Fax:

Preliminary Report by:

Final Report by:

Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: fil'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_SW065_220318	18/3		✓				✓		6x2P	✓		LD + MS
2	0207_SW066_220318	"		✓				✓		2x2P	✓		LD
3	0207_SW063-220318	"		✓				✓		1x2P	✓		
4	0207_SW021_220318	"		✓				✓		"	✓		
5	0207_SW024_220318	"		✓				✓		"	✓		
6	0207_SW019_220318	"		✓				✓		"	✓		
7	0207_SW025_220318	"		✓				✓		"	✓		
8	0207_SW027_220318	"		✓				✓		"	✓		
9	0207_SW026_220318	"		✓				✓		"	✓		
10	0207_SW043_220318	"		✓				✓		"	✓		
11	0207_SW040_220318	"		✓				✓		"	✓		
12	0207_SED106_220318	"			✓			✓		1x2P	✓		
13	0207_SED022-220318	"			✓			✓		"	✓		
14	0207_SED107_220318	"			✓			✓		"	✓		

Environmental Division
Brisbane
Work Order Reference
EB2208035

Telephone : +61-7-3243 7222

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Report & invoice: [redacted]

Lab Report No. Esky ID

Relinquished by: [redacted] Signed: [redacted] Date: 23/3

Received by: Signed: Date:

Relinquished by: Signed: Date:

Received by: [redacted] Signed: Date: 23/3/22

16:28

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Chain of Custody

COC Page 2 of 2

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address:
Contact Name: ALS Brisbane
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
15	0207_SBD025-220318	18/3			✓			✓		1xP	✓		
16	0207_SBD024-220318	"			✓			✓		"	✓		
17	0207_SBD016-220318	"			✓			✓		"	✓		
18	0207_SBD010-220318	"			✓			✓		"	✓		
19	0207_SBD011-220318	"			✓			✓		"	✓		
20	0207_SBD015-220318	"			✓			✓		"	✓		
21	0207_SBD007-220318	"			✓			✓		"	✓		
22	0207_SBD040-220318	"			✓			✓		"	✓		
23	0207_QC161-220318	"		✓				✓		1x2P	✓		
24	0207_QC162-220318	"			✓			✓		1xP	✓		
	0207_												
	0207_												
	0207_												
	0207_												

Comments: **Please send ESdat files to DERP.labreports@esdat.com.au and ensure that the files use the PROJECT NAME**

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Report & invoice: [redacted]

Lab Report No: Esky ID:

Relinquished by: [redacted]	Signed: [redacted]	Date: 23/3	Relinquished by:	Signed:	Date:
Received by:	Signed:	Date:	Received by: [redacted]	Signed:	Date: 23/3/22

16:28

Chain of Custody

COC Page 1 of 2

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	1435_MW013_220419	19-Apr-2022 10:14		x				x		2 x P	x		
2	1435_MW002_220419	↓ 10:40		x				x		6 x P	x		EXTRA SAMPLE FOR ALS QC
3	1435_MW001_220420	20-Apr-2022 12:56		x				x		2 x P	x		
4	1435_MW012_220420	↓ 13:13		x				x		↓	x		
5	1435_MW011_220419	19-Apr-2022 11:47		x				x		↓	x		
6	1435_MW010_220419	↓ 12:26		x				x		↓	x		
7	1435_MW005_220420	20-Apr-2022 13:26		x				x		↓	x		
8	1435_MW007_220419	19-Apr-2022 13:27		x				x		6 x P	x		EXTRA SAMPLE FOR ALS QC
9	1435_MW008_220419	14:58		x				x		2 x P	x		
10	1435_MW009_220419	15:22		x				x		↓	x		
11	1435_MW003_220419	15:57		x				x		↓	x		
12	1435_MW004_220419	↓ 16:19		x				x		↓	x		
13	1435_MW006_220420	20-Apr-2022 12:27		x				x		↓	x		
14	1435_QC100_220419	19-Apr-2022		x				x		2 x P	x		

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Report & invoice: james.peachey@aecom.com

Relinquished by:	[redacted]	Signed: [redacted]	Date: 22/04/2022	Relinquished by:	Sig
Received by:	[redacted]	Signed: [redacted]	Date: 22/4/22	Received by:	Sig

14:16 14:16

Environmental Division
Brisbane
Work Order Reference
EB2211260

Telephone : +61-7-3243 7222

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Chain of Custody

COC Page 2 of 2

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: fil'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
15	1435_QC101-220419	19-Apr-2022		x				x		2xP	x		
16	1435_QC300-220419	↓		x				x		2xP	x		
17	1435_QC301-220420	20-Apr-2022		x				x		2xP	x		
18	1435_QC405-220419	19-Apr-2022		x				x		2xP	x		

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Report & invoice: [redacted]

Lab Report No | Esky ID

Relinquished by: [redacted] Signed: [redacted] Date: 22/04/2022 14:16

Received by: [redacted] Signed: [redacted] Date: 22/4/22 14/6

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Received by: Signed: Date:

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COC Page 1 of 8

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name:
Lab. Address: ALS LABORATORY
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW187_220411	11-Apr-2022 14:35		X				X		2xP	✓		
2	0207_MW189_220411	↓ 15:35		X				X		6xP	✓		EXTRA SAMPLE FOR ALS QCs
3	0207_MW229_220413	13-Apr-2022 07:45		X				X		2xP	✓		
4	0207_MW223_220413	↓ 08:20		X				X		2xP	✓		
5	0207_MW174_220417	17-Apr-2022 08:00		X				X		2xP	✓		
6	0207_MW178_220417	08:38		X				X		2xP	✓		
7	0207_MW230_220417	09:20		X				X		6xP	✓		EXTRA SAMPLE FOR ALS QCs
8	0207_MW222_220417	09:55		X				X		2xP	✓		
9	0207_MW232_220417	10:25		X				X		2xP	✓		
10	0207_MW221_220417	11:09		X				X		2xP	✓		
11	0207_MW193_220417	11:46		X				X		2xP	✓		
12	0207_MW198_220417	12:15		X				X		2xP	✓		
13	0207_MW207_220417	12:38		X				X		2xP	✓		
14	0207_MW202_220417	↓ 13:20		X				X		2xP	✓		

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Report & invoice: [redacted]

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Received by: [redacted] Signed: [redacted] Date: 22/4/22 1416

Relinquished by: Sig

Received by: Sig

Environmental Division
Brisbane
Work Order Reference
EB2211261

Telephone : +61-7-3243 7222

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COC Page 2 of 8

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[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: James Peachey

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: EP231X (PFAS Std 28)	HOLD	Notes
15	0207_MW201-220417	17-Apr-2022 13:58		X				X		2xP	X		
16	0207_MW203-220417	14:30		X				X		2xP	X		
17	0207_MW299-220417	14:55		X				X		6xP	X		EXTRA SAMPLE FOR ALS QC's
18	0207_MW300-220417	15:08		X				X		2xP	X		
19	0207_MW167-220417	15:33		X				X		2xP	X		
20	0207_MW172-220417	15:50		X				X		2xP	X		
21	0207_MW173-220417	16:16		X				X		2xP	X		
22	0207_MW245-220418	18-Apr-2022 07:50		X				X		2xP	X		
23	0207_MW242-220418	08:50		X				X		2xP	X		
24	0207_MW179-220418	10:18		X				X		2xP	X		
25	0207_MW249-220419	19-Apr-2022 08:10		X				X		2xP	X		
26	0207_MW241-220419	08:38		X				X		6xP	X		EXTRA SAMPLE FOR ALS QCs.
27	0207_MW204-220420	20-Apr-2022 08:04		X				X		6xP	X		EXTRA SAMPLE FOR ALS QCs
28	0207_MW205-220420	08:18		X				X		2xP	X		

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Report & invoice: [redacted]

Lab Report No: Esky ID:

Relinquished by: [redacted]	Signed:	Date: 22/04/2022	Relinquished by:	Signed:	Date:
Received by:	Signed: [redacted]	Date: 22/4/22	Received by:	Signed:	Date:

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Chain of Custody

COC Page 3 of 8

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
29	0207_MW280-220414	14-Apr-2022 13:10		X				X		2xP	X		
30	0207_MW273-220416	16-Apr-2022 08:25		X				X		2xP	X		
31	0207_MW272-220416	08:50		X				X		2xP	X		
32	0207_MW266-220416	09:40		X				X		2x6	X		EXTRA SAMPLE FOR ALS QCs
33	0207_SD102-220416	10:10			X			X		1xP	X		
34	0207_SW013-220416	10:12		X				X		2xP	X		
35	0207_MW265-220416	10:55		X				X		2xP	X		
36	0207_MW278-220416	11:26		X				X		2xP	X		
37	0207_MW262-220416	12:06		X				X		2xP	X		
38	0207_SD037-220416	12:30			X			X		1xP	X		
39	0207_SW010-220416	12:31		X				X		2xP	X		
40	0207_MW285-220416	18:10		X				X		2xP	X		
41	0207_SD070-220416	13:40			X			X		1xP	X		
42	0207_SW028-220416	13:45		X				X		2xP	X		

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: 22/04/2022 14:16

Received by: [redacted] Signed: [redacted] Date: 22/4/22 14:16

Relinquished by: Signed: Date:

Received by: Signed: Date:

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Chain of Custody

COC Page 4 of 8

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: fil'ed	acid	ice	other	Container (No. & type)	Analysis Request: EP231X (PFAS Std 28)	HOLD	Notes
43	0207_MW264_220414	14-APR-2022 17:18		X				X		2xP	X		
44	0207_SW004_220414	17:25		X				X		2xP	X		
45	0207_SD038_220414	17:25			X			X		1xP	X		
46	0207_MW279_220415	15-APR-2022 12:10		X				X		6xP	X		EXTRA SAMPLE FOR ALS QCs
47	0207_MW282_220415	12:50		X				X		2xP	X		
48	0207_SW011_220415	15-APR-2022 13:18		X				X		2xP	X		
49	0207_SD036_220415	13:18			X			X		1xP	X		
50	0207_SW012_220415	13:56		X				X		2xP	X		
51	0207_SED105_220415	13:56			X			X		1xP	X		
52	0207_MW257_220415	14:31		X				X		2xP	X		
53	0207_MW276_220415	15:10		X				X		2xP	X		
54	0207_MW255_220415	15:50		X				X		2xP	X		
55	0207_MW275_220415	16:50		X				X		2xP	X		
56	0207_MW274_220415	17:00		X				X		2xP	X		

Comments: Please send ESdat files to DERP.labreports@esdat.com.au and ensure that the files use the PROJECT NAME

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Report & invoice: [redacted]

Lab Report No: Esky ID:

Relinquished by: [redacted] Signed: [redacted] Date: 22/04/2022 14:16

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Received by: Signed: Date:

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AECOM Australia Pty Ltd [redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: EP231X (PFAS Std 28)	HOLD	Notes
57	0207_SW009-220418	18-Apr-2022 11:07		X				X		2xP	X		
58	0207_SD013-220418	↓ 11:07			X			X		1xP	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
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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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by: [redacted]	Signed: [redacted]	Date: 22/4/22	Received by:	Signed:	Date:

14:16 14:16

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AECOM — **Chain of Custody** — COC Page 6 of 8

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: fil'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
59	0207_MW563_220420	20-Apr-2022 09:39		x				x		2xP	x		
60	0207_MW562_220420	09:54		x				x		6xP	x		EXTRA SAMPLE FOR ALS QC
61	0207_MW235_220420	10:20		x				x		2xP	x		
62	0207_MW236_220420	10:40		x				x		2xP	x		
63	0207_MW252_220420	11:08		x				x		2xP	x		
64	0207_MW233_220420	14:44		x				x		2xP	x		
65	0207_MW206_220421	21-Apr-2022 12:54		x				x		2xP	x		
66	0207_QC300_220411	11-Apr-2022		x				x		2xP	x		
67	0207_QC301_220412	12-Apr-2022		x				x		2xP	x		
68	0207_QC302_220413	13-Apr-2022		x				x		2xP	x		
69	0207_QC303_220414	14-Apr-2022		x				x		2xP	x		
70	0207_QC304_220415	15-Apr-2022		x				x		2xP	x		
71	0207_QC305_220416	16-Apr-2022		x				x		2xP	x		
72	0207_QC306_220417	17-Apr-2022		x				x		2xP	x		

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Report & invoice: [redacted]

Lab Report No: Esky ID:

Relinquished by: [redacted] Signed: [redacted] Date: 22/04/2022 14:16

Received by: [redacted] Signed: [redacted] Date: 22/4/22 1416

Relinquished by: Signed: Date:

Received by: Signed: Date:

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Chain of Custody

COC Page 7 of 8

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
75	0207_QC100-220413	13-Apr-2022		X				X		2xP	X		
76	0207_QC106-220417	17-Apr-2022		X				X		2xP	X		
75	0207_QC107-220417	↓		X				X		2xP	X		
76	0207_QC108-220418	18-Apr-2022		X				X		2xP	X		
77	0207_QC111-220419	19-Apr-2022		X				X		2xP	X		
78	0207_QC112-220420	20-Apr-2022		X				X		2xP	X		
79	0207_QC113-220420	↓		X				X		2xP	X		
80	0207_QC307-220418	18-Apr-2022		X				X		2xP	X		
81	0207_QC308-220419	19-Apr-2022		X				X		2xP	X		
82	0207_QC309-220420	20-Apr-2022		X				X		2xP	X		
83	0207_QC310-220421	21-Apr-2022		X				X		2xP	X		
84	0207_QC400-220411	11-Apr-2022			X			X		1xP	X		ALS No. 030226
85	0207_QC401-220411	↓			X			X		1xP	X		ALS No. 030250
86	0207_QC402-220411	↓		X				X		2xP	X		ALS No. 140310

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by: [redacted]	Signed: [redacted]	Date: 22/4/22	Received by:	Signed:	Date:

14:16 1416

OFFSITE

AECOM

Chain of Custody

COC Page 8 of 8

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
87	0207_QC103-220414	14-Apr-2022			X			X		1xP	X		
88	0207_QC104-220415	15-Apr-2022		X	X	(X)		X		2xP	X		
89	0207_QC105-220416	16-Apr-2022		X	X			X		2xP	X		
90	0207_QC109-220418	18-Apr-2022		X				X		2xP	X		
91	0207_QC110-220418	↓			X			X		1xP	X		
92	0207_QC403-22044	11-Apr-2022		X				X		2xP	X		ALS No. 140309
93	0207_QC404-22044			X				X		2xP	X		ALS No. 140312
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by:	[redacted]	Signed	[redacted]	Date: 22/4/22	Received by:	Signed:	Date:

14:16 1416

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: fil'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW056_220412	12-Apr-2022 08:37		X				X		2 x P	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211274

Telephone : +61-7-3243 7222

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by: [redacted]	Signed: [redacted]	Date: 22/4/22	Received by:	Signed:	Date:

14:16 14:16

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name: ALS LABORATORY

Lab. Address:

Contact Name:

Lab. Ref:

Tel:

Fax:

Preliminary Report by:

Final Report by:

Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: fil'ed	acid	ice	other	Container (No. & type)	Analysis Request: EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW149-220412	12-Apr-2022 09:25		X				X		2 x P	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211278

Telephone : +61-7-3243 7222

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: 22/04/2022 14:16

Received by: [redacted] Signed: [redacted] Date: 22/4/22 14:16

Relinquished by: Signed: Date:

Received by: Signed: Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name: ALS LABORATORY

Lab. Address:

Contact Name:

Lab. Ref:

Tel:

Fax:

Preliminary Report by:

Final Report by:

Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW019-220412	12-Apr-2022 10:30		X				X		2 x P	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211288

Telephone : +61-7-3243 7222

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: 22/04/2022 14:16	Relinquished by:	Signed:	Date:
Received by: [redacted]	Signed: [redacted]	Date: 22/4/22 14:16	Received by:	Signed:	Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW021_220412	12-Apr-2022 11:24		X				X		2 x P	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211290

Telephone : +61-7-3243 7222

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: 22/04/2022 14:16	Relinquished by:	Signed:	Date:
Received by: [redacted]	Signed: [redacted]	Date: 22/4/22 1416	Received by:	Signed:	Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name: ALS LABORATORY

Lab. Address:

Contact Name:

Lab. Ref:

Tel:

Fax:

Preliminary Report by:

Final Report by:

Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW122-220420	20-Apr-2022 16:16		x				x		2xP	x		
2	0207_MW15T_220420	16:24		x				x		2xP	x		
3	0207_MW114_220420	16:37		x				x		2xP	x		
4	0207_MW118_220420	16:53		x				x		2xP	x		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211294

Telephone : +61-7-3243 7222

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: 22/04/2022 14:16	Relinquished by:	Signed:	Date:
Received by:	[redacted]	Signed:	[redacted]	Date: 22/4/22 1416	Received by:	Signed:	Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name:
Lab. Address: ALS LABORATORY
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By [redacted] **ect Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW293_220414	14-APR-2022 10:45		X				X		2xP	X		
2	0207_MW292_220414	11:05		X				X		2xP	X		
3	0207_QC102_220414	N/A		X				X		2xP	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211297

Telephone : + 61-7-3243 7222

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: 22/04/2022 14:16	Relinquished by:	Signed:	Date:
Received by:	Signed:	Date: 22/4/22 14/6	Received by:	Signed:	Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name: ALS LABORATORY

Lab. Address:

Contact Name:

Lab. Ref:

Tel:

Fax:

Preliminary Report by:

Final Report by:

Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW113_220412	12-Apr-2022 14:08		X				X		6 x P	X		EXTRA SAMPLE FOR ALS QC's
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211301

Telephone : +61-7-3243 7222

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by:	[redacted]	Signed:	[redacted]	Date: 22/4/22	Received by:	Signed:	Date:

14:16 14:16

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name: ALS LABORATORY

Lab. Address:

Contact Name:

Lab. Ref:

Tel:

Fax:

Preliminary Report by:

Final Report by:

Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: sed	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW022-220412	12-Apr-2022 16:20		X				X		2xP	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211303

Telephone : +61-7-3243 7222

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by:	[redacted]	Signed:	[redacted]	Date: 22 4 22	Received by:	Signed:	Date:

14:16 1416

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name:
Lab. Address: ALS LABORATORY
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: fil'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW151_220414	14-Apr-2022 09:40		X				X		2 x P	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211304

Telephone : +61-7-3243 7222

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by:	[redacted]	Signed:	[redacted]	Date: 22/4/22	Received by:	Signed:	Date:

14:16 14:16

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd
[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW288-220421	21-Apr-2022 08:52		X				X		2xP	X		
2	0207_MW289-220421	09:03		X				X		2xP	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211307

Telephone : – 61-7-3243 7222

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by: [redacted]	Signed: [redacted]	Date: 22/4/22	Received by:	Signed:	Date:

14:16 14/6

AECOM

Chain of Custody

COC Page 1 of 2

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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 [redacted]

Environmental Division
Brisbane
Work Order Reference
EB2211310

Telephone : + 61-7-3243 7222

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: fil'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	
1	0207_MW295_220413	13-Apr-2022 09:55		X				X		2 x P	✓		
2	0207_MW267_220413	11:35		X				X		2 x P	✓		
3	0207_MW269_220413	11:50		X				X		2 x P	✓		
4	0207_MW268_220413	12:25		X				X		2 x P	✓		
5	0207_MW271_220413	13:15		X				X		6 x P	✓		EXTRA SAMPLE FOR ALS QC
6	0207_MW270_220413	13:45		X				X		2 x P	✓		
7	0207_SW032_220413	14:45		X				X		2 x P	✓		
8	0207_SD032_220413	14:45			X			X		1 x P	✓		
9	0207_SD017_220413	13:55			X			X		1 x P	✓		
10	0207_SW057_220413	13:55		X				X		2 x P	✓		
11	0207_SW056_2204	15-Apr-2022 08:42		X				X		2 x P	✓		
12	0207_SED18_A_2204	08:33			X			X		1 x P	✓		
13	0207_SED18_B_2204	08:37			X			X		1 x P	✓		
14	0207_MW294_2204	08:07		X				X		2 x P	✓		

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by: [redacted]	Signed: [redacted]	Date: 22/4/22	Received by:	Signed:	Date:
14:16		14:16			

AECOM

Chain of Custody

COC Page 2 of 2

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name: ALS LABORATORY

Lab. Address:

Contact Name:

Lab. Ref:

Tel:

Fax:

Preliminary Report by:

Final Report by:

Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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 [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
15	0207_QC101-220413	13-APR-2022		X				X		2xP	✓		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by: [redacted]	Signed: [redacted]	Date: 22/4/22	Received by:	Signed:	Date:

14:16 14:16

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted]

Project Name: QLD_0207_PFASOMP

AECOM Project #: 60612563 2.1

Purchase Order No:

Specification [redacted]

	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 [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW290-220421	21-Apr-2022 07:19		X				X		2xP	X		
2	0207_MW291-220421	07:38		X				X		2xP	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211311

Telephone : + 61-7-3243 7222

Comments: Please send ESdat files to DERP.labreports@esdat.com.au and ensure that [redacted] NAME

Temp. received: °C

Report & invoice [redacted]

Relinquished by: [redacted] Signed: [redacted] Date: 22/04/2022 14:16

Received by: Signed: Date: 22/4/22 14:16

Relinquished by: Signed: Date:

Received by: Signed: Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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 [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW134-220414	14-APR-2022 0810		X				X		2xP	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211314

Telephone : +61-7-3243 7222

Comments: Please send ESdat files to DERP.labreports@esdat.com.au and ensure that the files use the PROJECT NAME

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Report & invoice [redacted]

Lab Report No. | Esky ID

Relinquished by: [redacted]	Signed: [redacted]	Date: 22/04/2022 14:16	Relinquished by:	Signed:	Date:
Received by: [redacted]	Signed: [redacted]	Date: 22/4/22 14:16	Received by:	Signed:	Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd [redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name:
Lab. Address: ALS LABORATORY
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW281_220414	14-Apr-2022 12:46		X				X		2 x P	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211316

Telephone : +61-7-3243 7222

Comments: **Please send ESdat files to DERP.labreports@esdat.com.au and ensure that the files use the PROJECT NAME**

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Report & invoice: [redacted]

Relinquished by:	[redacted]	Signed:	[redacted]	Date: 22/04/2022 14:16	Relinquished by:	Signed:	Date:
Received by:		Signed:		Date: 22/4/22 14:16	Received by:	Signed:	Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_MW018_220421	21-Apr-2022 10:21		X				X		2xP	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
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	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

Environmental Division
Brisbane
Work Order Reference
EB2211317

Telephone : +61-7-3243 7222

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: 22/04/2022 14:16	Relinquished by:	Signed:	Date:
Received by: [redacted]	Signed: [redacted]	Date: 22/4/22 14:16	Received by:	Signed:	Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted]

Project Name: QLD_0207_PFASOMP

AECOM Project #: 60612563 2.1

Purchase Order No:

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Environmental Division
Brisbane
Work Order Reference
EB2211320

Telephone : +61-7-3243 7222

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: fil'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD
	0207_MW147-220412	12-Apr-2022 14:55		X				X		2 x P	X	
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by:	Signed:	Date: 22/4/22	Received by:	Signed:	Date:

14:16 14:16

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details
Lab. Name: ALS LABORATORY
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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 [redacted]

Environmental Division
Brisbane
Work Order Reference
EB2211323

Telephone : +61-7-3243 7222

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: EP231X (PFAS Std 28)	HOLD
	0207_MW003_220413	13-Apr-2022 16:25		X				X		2 x P	X	
	0207_MW283_220413	16:45		X				X		2 x P	X	
	0207_SW059_220413	17:05		X				X		2 x P	X	
	0207_SD045_220413	17:00			X			X		1 x P	X	
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											

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: 22/04/2022 14:16

Received by: [redacted] Signed: [redacted] Date: 22/4/22 1416

Relinquished by: Signed: Date:

Received by: Signed: Date:

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name: ALS LABORATORY

Lab. Address:

Contact Name:

Lab. Ref:

Tel:

Fax:

Preliminary Report by:

Final Report by:

Lab Quote No: SY/139/19

Sampled By: [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

Analysis Request

Environmental Division
Brisbane
Work Order Reference
EB2211324

Telephone : +61-7-3243 7222

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD
	0207_MW032_220421	21-Apr-2022 11:50		X				X		2xP	X	
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											
	0207_											

Comments: Please send ESdat files to DERP.labreports@esdat.com.au and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & invoic [redacted]

Lab Report No: Esky ID:

Relinquished by:	[redacted]	Signed:		Date: 21/04/2022	Relinquished by:	Signed:	Date:
Received by:	[redacted]	Signed:		Date: 21/4/22	Received by:	Signed:	Date:

14:16 14:16

Forward to NMI with this COC.

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: AECOQ6/220324 [redacted]

Laboratory Details

Lab. Name:
Lab. Address:
Contact Name: NMI
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted]

Project Name: QLD_0207_PFASOMP

AECOM Project #: 60612563 2.1

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 [redacted]

Analysis Request

EP231X (PFAS Std 28)

HOLD

Due: 31/3/22

Notes

RECEIVED
24 MAR 2022
BY: AO 9:00 C

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)
N22/005156	0207_ QC261-220318	18/3		✓				✓		1x2P
N22/005157	0207_ QC262-220318	11			✓			✓		1xP
	0207_									
	0207_									
	0207_									
	0207_									
	0207_									
	0207_									
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	0207_									
	0207_									

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: 23/3	Relinquished by:	Signed:	Date:
Received by:	Signed: [redacted]	Date:	Received by:	Signed:	Date:

NMI LABORATORY AECOO6/220426 5/5

AECOM

Chain of Custody

Ao COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name:
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted] Project Name: QLD_0207_PFASOMP AECOM Project #: 60612563 2.1 Purchase Order No:

Specification	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 [redacted]

RECEIVED 26 APR 2022 BY: Ao 9:40 C

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
N22/007586	0207_QC200-220413	13-Apr-2022		X				X		2xP	X		
N22/007587	0207_QC203-220414	14-Apr-2022		X				X		2xP	X		* Soil Sample not water Ao 26/4/22
N22/007588	0207_QC204-220415	15-Apr-2022		X				X		2xP	X		
N22/007589	0207_QC205-220416	16-Apr-2022		X				X		2xP	X		
N22/007590	0207_QC206-220417	17-Apr-2022		X				X		2xP	X		
N22/007591	0207_QC207-220417	↓		X				X		2xP	X		
N22/007592	0207_QC208-220418	18-Apr-2022		X				X		2xP	X		
N22/007593	0207_QC209-220418			X				X		2xP	X		
N22/007594	0207_QC210-220418	↓			X			X		1xP	X		
N22/007595	0207_QC211-220419	19-Apr-2022		X				X		2xP	X		
N22/007596	0207_QC212-220420	20-Apr-2022		X				X		2xP	X		
N22/007597	0207_QC213-220420	↓		X				X		2xP	X		
	0207_												
	0207_												

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: 22/04/2022

Received by: [redacted] Signed: Date:

Relinquished by: Signed: Date:

Received by: Signed: Date:

NMI LABORATORY. AECOO6 | 220426 | 1 ✓ 3/5

AECOM

Chain of Custody

AO COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name:
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By [redacted] **Project Name:** QLD_0207_PFASOMP **AECOM Project #:** 60612563 2.1 **Purchase Order No:**

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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: [redacted]

RECEIVED 26 APR 2022 BY: AO 9:10 C

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
N22/007582	0207_QC201-220413	13-Apr-2022		✓				✓		2xP	✓		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

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: 22/04/2022	Relinquished by:	Signed:	Date:
Received by:	Signed:	Date:	Received by:	Signed:	Date:

NMI LABORATORY. AECOOG|220426|2 ✓ 3/5

AECOM

Chain of Custody

Ao COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name:
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled B[redacted] oject Name: QLD_0207_PFASOMP

AECOM Project #: 60612563 2.1 Purchase Order No:

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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 Manage[redacted]

Analysis Request

RECEIVED 26 APR 2022 BY: Ao 9:10

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
N22/007583	0207_QC202-220414	14-Apr-2022 N/A		X				X		2xP	X		
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												
	0207_												

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: 22/04/2022

Received by: Signed: Date:

Relinquished by: Signed: Date:

Received by: Signed: Date:

AECOO6|220426|3 5/5

AECOM

Chain of Custody

AO

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name: NMI LABORATORY

Lab. Address:

Contact Name:

Lab. Ref:

Tel:

Fax:

Preliminary Report by:

Final Report by:

Lab Quote No: SY/139/19

Sampled By [redacted]

Project Name: QLD_0207_PFASOMP

AECOM Project #: 60612563 2.1

Purchase Order No:

Specifications: Please report in ESdat format	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	STANDARD
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 Mana [redacted]

Analysis Request

RECEIVED
26 APR 2022
BY: AO 9:10 C

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
N22/007584	1435-QC200-220419	19-Apr-2022		x				x		2x1P	x		
N22/007585	1435-QC201-220419	↓		x				x		2x1P	x		

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:

Received by: Signed: Date:

Relinquished by: Signed: Date:

Received by: Signed: Date:

Appendix E

Laboratory Analytical Certificates and QA/QC Reports

Appendix E Laboratory Analytical Certificates and QA/QC Reports

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2208035**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 23-Mar-2022 16:28	Issue Date	: 24-Mar-2022
Client Requested Due Date	: 01-Apr-2022	Scheduled Reporting Date	: **01-Apr-2022**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 4.7°C - Ice present
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 24 / 24

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
- ***24/03/2022*: SRN has been resent to acknowledge the change in nomenclature of the sediment samples from 'SED' to 'SD' as instructed via email received from [redacted]. For any further information regarding these adjustments please contact client services at [redacted]**
- Please be advised that ID allocation to ALS samples # 12 & 17 is as per email directive C.McCosker 24/03/2022 8:52am
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EB2208035-012	18-Mar-2022 00:00	0207_SD106_220318	✓	✓
EB2208035-013	18-Mar-2022 00:00	0207_SD022_220318	✓	✓
EB2208035-014	18-Mar-2022 00:00	0207_SD107_220318	✓	✓
EB2208035-015	18-Mar-2022 00:00	0207_SD025_220318	✓	✓
EB2208035-016	18-Mar-2022 00:00	0207_SD024_220318	✓	✓
EB2208035-017	18-Mar-2022 00:00	0207_SD016_220318	✓	✓
EB2208035-018	18-Mar-2022 00:00	0207_SD010_220318	✓	✓
EB2208035-019	18-Mar-2022 00:00	0207_SD011_220318	✓	✓
EB2208035-020	18-Mar-2022 00:00	0207_SD015_220318	✓	✓
EB2208035-021	18-Mar-2022 00:00	0207_SD007_220318	✓	✓
EB2208035-022	18-Mar-2022 00:00	0207_SD040_220318	✓	✓
EB2208035-024	18-Mar-2022 00:00	0207_QC162_220318	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2208035-001	18-Mar-2022 00:00	0207_SW065_220318	✓
EB2208035-002	18-Mar-2022 00:00	0207_SW066_220318	✓
EB2208035-003	18-Mar-2022 00:00	0207_SW063_220318	✓
EB2208035-004	18-Mar-2022 00:00	0207_SW021_220318	✓
EB2208035-005	18-Mar-2022 00:00	0207_SW024_220318	✓
EB2208035-006	18-Mar-2022 00:00	0207_SW019_220318	✓
EB2208035-007	18-Mar-2022 00:00	0207_SW025_220318	✓
EB2208035-008	18-Mar-2022 00:00	0207_SW027_220318	✓
EB2208035-009	18-Mar-2022 00:00	0207_SW026_220318	✓
EB2208035-010	18-Mar-2022 00:00	0207_SW043_220318	✓
EB2208035-011	18-Mar-2022 00:00	0207_SW040_220318	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
EB2208035-023	18-Mar-2022 00:00	0207_QC161_220318	✓

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 [redacted]

[redacted]

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

[redacted]

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

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT) — Email [redacted]

[redacted]

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

[redacted]

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

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2208035**	Page	: 1 of 21
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR CAMDEN McCOSKER	Contact	: Christopher Redford
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: QLD_0207_PFASOMP	Date Samples Received	: 23-Mar-2022 16:28
Order number	: 60612563 2.1	Date Analysis Commenced	: 24-Mar-2022
C-O-C number	: ----	Issue Date	: 31-Mar-2022 09:43
Sampler	: CAMDEN McCOSKER		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 24		
No. of samples analysed	: 24		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD
Morgan Lennox	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
Thomas Donovan	Senior Organic Chemist - PFAS	Brisbane Inorganics, Stafford, QLD
Thomas Donovan	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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 - PFAS: Sample "0207_SD106_220318" shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- 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: Sample "0207_SD011_220318" required dilution prior to extraction due to matrix interferences. LOR values have been adjusted accordingly.
- EP231X - PFAS: The LOR values of particular analytes for particular samples have been raised due to matrix interference.
- 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.
- EP231X-INJ: The direct injection LCMSMS method may be used where the sample matrix is not suitable for Solid Phase Extraction (e.g. significant particulate load) or where only a single sample container is received.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0207_SD106_220318	0207_SD022_220318	0207_SD107_220318	0207_SD025_220318	0207_SD024_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-012	EB2208035-013	EB2208035-014	EB2208035-015	EB2208035-016
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**46.8**	**44.9**	**44.7**	**63.2**	**43.9**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0004	<0.0002	<0.0002	<0.0005	<0.0004
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0004	<0.0002	<0.0002	<0.0005	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0041**	**0.0009**	**0.0010**	**0.0014**	**0.0025**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		**0.0009**	<0.0002	<0.0002	<0.0005	**0.0004**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.102**	**0.0160**	**0.0213**	**0.0356**	**0.0349**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		**0.0057**	<0.0004	**0.0023**	**0.0029**	**0.0015**
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.002	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		**0.0004**	<0.0002	<0.0002	**0.0010**	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0005**	<0.0002	<0.0002	<0.0005	**0.0004**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0006	<0.0002	<0.0002	<0.0005	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		**0.0013**	<0.0002	**0.0002**	<0.0005	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		**0.0024**	<0.0002	**0.0008**	<0.0005	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		**0.0150**	<0.0002	**0.0048**	**0.0023**	<0.0004
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		**0.0765**	<0.0002	**0.0081**	**0.0071**	**0.0003**
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		**0.0887**	<0.0002	**0.0124**	**0.0259**	**0.0003**
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		**0.0193**	<0.0002	**0.0037**	**0.0237**	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		**0.0081**	<0.0005	**0.0021**	**0.0328**	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		**0.0013**	<0.0002	**0.0003**	**0.0006**	**0.0004**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0013	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0207_SD106_220318	0207_SD022_220318	0207_SD107_220318	0207_SD025_220318	0207_SD024_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-012	EB2208035-013	EB2208035-014	EB2208035-015	EB2208035-016
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0013	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0013	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0013	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0005	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0005	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		**0.0013**	<0.0005	**0.0010**	<0.0010	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.328**	**0.0169**	**0.0580**	**0.133**	**0.0407**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.106**	**0.0169**	**0.0223**	**0.0370**	**0.0374**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.110**	**0.0169**	**0.0235**	**0.0380**	**0.0378**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**98.0**	**116**	**113**	**87.5**	**118**
13C8-PFOA	----	0.0002	%		**108**	**111**	**97.0**	**82.5**	**104**

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	0207_SD016_220318	0207_SD010_220318	0207_SD011_220318	0207_SD015_220318	0207_SD007_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
					EB2208035-017	EB2208035-018	EB2208035-019	EB2208035-020	EB2208035-021
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**44.4**	**33.2**	**24.7**	**36.9**	**21.6**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0011**	**0.0005**	**0.0022**	**0.0006**	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0004	<0.0002	**0.0003**	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0303**	**0.0093**	**0.0456**	**0.0171**	**0.0005**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	**0.0005**	**0.0016**	**0.0013**	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0003**	<0.0002	**0.0002**	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		**0.0006**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		**0.0008**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		**0.0007**	<0.0002	<0.0004	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0207_SD016_220318	0207_SD010_220318	0207_SD011_220318	0207_SD015_220318	0207_SD007_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-017	EB2208035-018	EB2208035-019	EB2208035-020	EB2208035-021
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0344**	**0.0103**	**0.0499**	**0.0190**	**0.0005**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0314**	**0.0098**	**0.0478**	**0.0177**	**0.0005**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0323**	**0.0098**	**0.0480**	**0.0177**	**0.0005**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**99.0**	**110**	**102**	**108**	**90.0**
13C8-PFOA	----	0.0002	%		**108**	**116**	**111**	**110**	**104**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0207_SD040_220318	0207_QC162_220318	----	----	----
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2208035-022	EB2208035-024	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**36.0**	**50.5**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0004	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	**0.0022**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0004	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0002**	**0.0405**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	**0.0016**	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	**0.0002**	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	**0.0003**	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0004	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0005	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0005	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	**0.0005**	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0207_SD040_220318	0207_QC162_220318	----	----	----
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2208035-022	EB2208035-024	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0002**	**0.0453**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0002**	**0.0427**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0002**	**0.0432**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**105**	**95.0**	----	----	----
13C8-PFOA	----	0.0002	%		**97.5**	**99.5**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW065_220318	0207_SW066_220318	0207_SW063_220318	0207_SW021_220318	0207_SW024_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-001	EB2208035-002	EB2208035-003	EB2208035-004	EB2208035-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.08**	----	----	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.04**	----	----	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.30**	----	----	**0.02**	----
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		**0.71**	----	----	**0.14**	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	<0.02	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	**0.04**	**0.04**	----	**0.03**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		----	**0.03**	**0.02**	----	**0.02**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	**0.23**	**0.17**	----	**0.22**
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		----	**0.49**	**0.38**	----	**1.30**
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	0.10	µg/L		<0.10	----	----	<0.10	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.09**	----	----	<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		**0.03**	----	----	<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	----	----	**0.03**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW065_220318	0207_SW066_220318	0207_SW063_220318	0207_SW021_220318	0207_SW024_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-001	EB2208035-002	EB2208035-003	EB2208035-004	EB2208035-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
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	----
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	<0.04	----	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	**0.07**	**0.08**	----	**0.06**
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**	**0.04**	----	**0.02**
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	----
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	----
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	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW065_220318	0207_SW066_220318	0207_SW063_220318	0207_SW021_220318	0207_SW024_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-001	EB2208035-002	EB2208035-003	EB2208035-004	EB2208035-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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
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	----
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	----
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		**1.25**	----	----	**0.21**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW065_220318	0207_SW066_220318	0207_SW063_220318	0207_SW021_220318	0207_SW024_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-001	EB2208035-002	EB2208035-003	EB2208035-004	EB2208035-005
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.01**	**----**	**----**	**0.16**	**----**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.21**	**----**	**----**	**0.16**	**----**
Sum of PFAS	----	0.01	µg/L		**----**	**0.88**	**0.77**	**----**	**1.67**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**----**	**0.72**	**0.55**	**----**	**1.52**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**----**	**0.85**	**0.73**	**----**	**1.63**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**----**	**111**	**105**	**----**	**103**
13C4-PFOS	----	0.02	%		**96.8**	**----**	**----**	**96.4**	**----**
13C8-PFOA	----	0.02	%		**----**	**104**	**97.3**	**----**	**102**
13C8-PFOA	----	0.02	%		**105**	**----**	**----**	**106**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW019_220318	0207_SW025_220318	0207_SW027_220318	0207_SW026_220318	0207_SW043_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-006	EB2208035-007	EB2208035-008	EB2208035-009	EB2208035-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	**0.05**	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		----	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	**0.19**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		----	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	**0.59**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		----	<0.02	----	----	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	----	<0.02	**0.06**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.02**	----	<0.02	**0.03**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.16**	----	**0.17**	**0.20**	<0.01
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		**0.39**	----	**0.70**	**0.46**	<0.01
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	0.10	µg/L		----	<0.10	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	**0.06**	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	**0.02**	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW019_220318	0207_SW025_220318	0207_SW027_220318	0207_SW026_220318	0207_SW043_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-006	EB2208035-007	EB2208035-008	EB2208035-009	EB2208035-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		----	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		----	<0.05	----	----	----
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		<0.05	----	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.08**	----	**0.05**	**0.07**	<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		**0.05**	----	**0.02**	**0.02**	<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	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		----	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		----	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		----	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		----	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		----	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		----	<0.02	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW019_220318	0207_SW025_220318	0207_SW027_220318	0207_SW026_220318	0207_SW043_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-006	EB2208035-007	EB2208035-008	EB2208035-009	EB2208035-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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
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	----	----	----
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	----	----	----
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		----	**0.91**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW019_220318	0207_SW025_220318	0207_SW027_220318	0207_SW026_220318	0207_SW043_220318
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00	18-Mar-2022 00:00
Compound	CAS Number	LOR	Unit		EB2208035-006	EB2208035-007	EB2208035-008	EB2208035-009	EB2208035-010
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**----**	**0.78**	**----**	**----**	**----**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**----**	**0.91**	**----**	**----**	**----**
Sum of PFAS	----	0.01	µg/L		**0.78**	**----**	**0.94**	**0.84**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.55**	**----**	**0.87**	**0.66**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.74**	**----**	**0.94**	**0.81**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**113**	**----**	**106**	**111**	**102**
13C4-PFOS	----	0.02	%		**----**	**103**	**----**	**----**	**----**
13C8-PFOA	----	0.02	%		**106**	**----**	**104**	**104**	**103**
13C8-PFOA	----	0.02	%		**----**	**100**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW040_220318	0207_QC161_220318	----	----	----
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2208035-011	EB2208035-023	--------	--------	--------
					Result	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		----	**0.02**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		----	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	**0.16**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		----	<0.02	----	----	----
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	0.10	µg/L		----	<0.10	----	----	----
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		----	**0.03**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW040_220318	0207_QC161_220318	----	----	----
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2208035-011	EB2208035-023	--------	--------	--------
					Result	Result	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		----	**0.02**	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		----	<0.05	----	----	----
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	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW040_220318	0207_QC161_220318	----	----	----
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2208035-011	EB2208035-023	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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	----	----	----	----
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	----	----	----
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		----	**0.23**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW040_220318	0207_QC161_220318	----	----	----
				Sampling date / time	18-Mar-2022 00:00	18-Mar-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2208035-011	EB2208035-023	--------	--------	--------
					Result	Result	----	----	----
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**----**	**0.18**	**----**	**----**	**----**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**----**	**0.18**	**----**	**----**	**----**
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	%		**108**	**----**	**----**	**----**	**----**
13C4-PFOS	----	0.02	%		**----**	**98.9**	**----**	**----**	**----**
13C8-PFOA	----	0.02	%		**107**	**----**	**----**	**----**	**----**
13C8-PFOA	----	0.02	%		**----**	**94.7**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

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

QUALITY CONTROL REPORT

Work Order	: **EB2208035**	Page	: 1 of 16
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR CAMDEN McCOSKER	Contact	: Christopher Redford
Address	: PO BOX 1307 FORTITUDE VALLEY QLD, AUSTRALIA 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: QLD_0207_PFASOMP	Date Samples Received	: 23-Mar-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 24-Mar-2022
C-O-C number	: ----	Issue Date	: 31-Mar-2022
Sampler	: CAMDEN McCOSKER		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 24		
No. of samples analysed	: 24		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD
Morgan Lennox	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
Thomas Donovan	Senior Organic Chemist - PFAS	Brisbane Inorganics, Stafford, QLD
Thomas Donovan	Senior Organic Chemist - PFAS	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4248084)									
EB2207895-001	Anonymous	EA055: Moisture Content	----	0.1	%	19.7	20.0	1.2	0% - 20%
EB2208035-018	0207_SD010_220318	EA055: Moisture Content	----	0.1	%	33.2	33.0	0.7	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4248080)									
EB2207776-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EB2208035-012	0207_SD106_220318	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0004	<0.0004	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0004	<0.0004	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0041	0.0042	3.0	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0009	0.0010	14.4	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.102	0.0894	12.8	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	0.0057	0.0057	0.0	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4248081)									
EB2208035-022	0207_SD040_220318	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0002	0.0003	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4248080)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4248080) - continued									
EB2207776-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EB2208035-012	0207_SD106_220318	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0004	0.0006	36.4	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0005	0.0005	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0006	<0.0006	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0013	0.0013	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	0.0024	0.0023	0.0	0% - 50%
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	0.0150	0.0158	5.1	0% - 20%
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	0.0765	0.0751	1.9	0% - 20%
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	0.0887	0.0956	7.5	0% - 20%
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	0.0193	0.0216	11.0	0% - 20%
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	0.0081	0.0094	15.3	0% - 50%
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4248081)									
EB2208035-022	0207_SD040_220318	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4248080)									
EB2207776-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4248080) - continued									
EB2207776-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2208035-012	0207_SD106_220318	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	0.0013	0.0019	37.4	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4248081)									
EB2208035-022	0207_SD040_220318	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4248080)									
EB2207776-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4248080) - continued									
EB2207776-001	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2208035-012	0207_SD106_220318	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	0.0013	0.0012	8.7	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4248081)									
EB2208035-022	0207_SD040_220318	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **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: 4250308)									
EB2208035-002	0207_SW066_220318	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.23	0.23	0.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.49	0.46	5.6	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.03	0.03	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: 4253618)									
EB2208035-001	0207_SW065_220318	EP231X-INJ: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.30	0.28	5.2	0% - 20%
		EP231X-INJ: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.71	0.80	11.5	0% - 20%
		EP231X-INJ: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.08	0.08	0.0	No Limit
		EP231X-INJ: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.04	0.04	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: 4253618) - continued									
EB2208035-001	0207_SW065_220318	EP231X-INJ: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4250308)									
EB2208035-002	0207_SW066_220318	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.02	0.02	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	0.07	0.07	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: 4253618)									
EB2208035-001	0207_SW065_220318	EP231X-INJ: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.03	0.03	0.0	No Limit
		EP231X-INJ: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.09	0.11	16.9	No Limit
		EP231X-INJ: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.10	<0.10	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4250308)									
EB2208035-002	0207_SW066_220318	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: 4250308) - continued									
EB2208035-002	0207_SW066_220318	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: 4253618)									
EB2208035-001	0207_SW065_220318	EP231X-INJ: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X-INJ: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4250308)									
EB2208035-002	0207_SW066_220318	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: 4253618)									
EB2208035-001	0207_SW065_220318	EP231X-INJ: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X-INJ: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4250308)									
EB2208035-002	0207_SW066_220318	EP231X: Sum of PFAS	----	0.01	µg/L	0.88	0.85	3.5	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.72	0.69	4.3	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 (%)*
EP231P: PFAS Sums (QC Lot: 4250308) - continued									
EB2208035-002	0207_SW066_220318	EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.85	0.82	3.6	0% - 20%
EP231P: PFAS Sums (QC Lot: 4253618)									
EB2208035-001	0207_SW065_220318	EP231X-INJ: Sum of PFAS	----	0.01	µg/L	1.25	1.34	6.9	0% - 20%
		EP231X-INJ: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	1.01	1.08	6.7	0% - 20%
		EP231X-INJ: Sum of PFAS (WA DER List)	----	0.01	µg/L	1.21	1.30	7.2	0% - 20%

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4248080)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	99.1	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00117 mg/kg	77.8	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	83.0	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	85.7	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	83.6	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	73.8	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4248081)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	101	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00117 mg/kg	74.4	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	76.7	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	76.0	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	112	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	111	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248080)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	102	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.4	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.6	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.8	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	97.0	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248081)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	122	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.8	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.2	64.0	136

Sub-Matrix: **SOIL**

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: 4248081) - continued								
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.6	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.2	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	113	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248080)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	112	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	93.6	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	86.0	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	108	61.9	137
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.6	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.6	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248081)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	115	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	111	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.6	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	107	61.9	137
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.6	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4248080)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	82.0	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	89.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	95.8	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	82.1	54.8	124
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4248081)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	79.9	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	73.7	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	115	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	81.2	54.8	124

Sub-Matrix: **WATER**

	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
		Spike	Spike Recovery (%)	Acceptable Limits (%)

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
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4250308)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	114	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	118	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	112	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	113	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	105	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4253618)								
EP231X-INJ: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.444 µg/L	99.1	72.0	130
EP231X-INJ: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.47 µg/L	87.0	71.0	127
EP231X-INJ: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.475 µg/L	109	68.0	131
EP231X-INJ: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.477 µg/L	85.3	69.0	134
EP231X-INJ: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.4646 µg/L	119	65.0	140
EP231X-INJ: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.5 µg/L	81.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4250308)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	117	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	116	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	116	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	116	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	116	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	116	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	117	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	75.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	80.2	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4253618)								
EP231X-INJ: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.10	2.5 µg/L	105	73.0	129
EP231X-INJ: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	87.0	72.0	129
EP231X-INJ: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	93.4	72.0	129
EP231X-INJ: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	92.2	72.0	130
EP231X-INJ: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	107	71.0	133
EP231X-INJ: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	90.0	69.0	130
EP231X-INJ: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	93.2	71.0	129
EP231X-INJ: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	93.8	69.0	133
EP231X-INJ: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	91.8	72.0	134
EP231X-INJ: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	90.2	65.0	144
EP231X-INJ: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4250308)								

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: 4250308) - continued								
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	104	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	111	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	107	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	107	62.6	138
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	118	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4253618)								
EP231X-INJ: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	103	67.0	137
EP231X-INJ: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	111	68.0	141
EP231X-INJ: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	99.0	62.1	136
EP231X-INJ: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	93.5	65.2	135
EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	108	63.2	135
EP231X-INJ: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	82.6	65.0	136
EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	85.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4250308)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	120	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	111	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	74.9	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4253618)								
EP231X-INJ: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.469 µg/L	87.6	63.0	143
EP231X-INJ: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.476 µg/L	96.0	64.0	140
EP231X-INJ: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.48 µg/L	73.1	67.0	138
EP231X-INJ: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.483 µg/L	85.9	62.2	139
EP231P: PFAS Sums (QCLot: 4250308)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

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
EP231P: PFAS Sums (QCLot: 4253618)								
EP231X-INJ: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X-INJ: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X-INJ: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4248080)							
EB2207836-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	106	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	83.3	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	83.9	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	82.8	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	87.9	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	79.2	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4248081)							
EB2208035-024	0207_QC162_220318	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	103	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	83.0	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	88.1	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	77.1	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	71.2	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248080)							
EB2207836-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	109	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	96.0	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	109	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	88.4	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	110	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	88.4	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	100	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	82.4	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	93.6	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	89.6	66.0	139

Sub-Matrix: **SOIL**

				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: 4248080) - continued							
EB2207836-001	Anonymous	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	111	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4248081)							
EB2208035-024	0207_QC162_220318	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	119	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	91.7	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	98.6	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	100	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	80.9	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	78.0	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	108	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	88.0	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	86.1	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	105	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	124	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248080)							
EB2207836-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	103	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	104	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	99.2	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	115	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	96.8	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	102	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4248081)							
EB2208035-024	0207_QC162_220318	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	84.4	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	130	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	105	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	80.9	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	84.3	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	72.4	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	115	61.0	139

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4248080)							
EB2207836-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	91.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	82.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	88.8	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	90.0	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4248081)							
EB2208035-024	0207_QC162_220318	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	76.5	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	105	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	117	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	90.0	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4253618)							
EB2208035-004	0207_SW021_220318	EP231X-INJ: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.443 µg/L	120	70.0	130
		EP231X-INJ: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.47 µg/L	86.0	70.0	130
		EP231X-INJ: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.475 µg/L	93.9	70.0	130
		EP231X-INJ: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.477 µg/L	77.8	70.0	130
		EP231X-INJ: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	102	70.0	130
		EP231X-INJ: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.482 µg/L	82.0	70.0	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4253618)							
EB2208035-004	0207_SW021_220318	EP231X-INJ: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	100	70.0	130
		EP231X-INJ: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	83.8	70.0	130
		EP231X-INJ: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	90.6	70.0	130
		EP231X-INJ: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	89.8	70.0	130
		EP231X-INJ: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	103	70.0	130
		EP231X-INJ: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	89.4	70.0	130
		EP231X-INJ: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	82.2	70.0	130
		EP231X-INJ: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	88.8	70.0	130
		EP231X-INJ: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	87.4	70.0	130
		EP231X-INJ: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.5 µg/L	85.2	70.0	130
		EP231X-INJ: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	100	70.0	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4253618)							
EB2208035-004	0207_SW021_220318	EP231X-INJ: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	106	70.0	130
		EP231X-INJ: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	105	70.0	130
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	95.4	70.0	130

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: 4253618) - continued							
EB2208035-004	0207_SW021_220318	EP231X-INJ: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	91.8	70.0	130
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	113	70.0	130
		EP231X-INJ: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	83.4	70.0	130
		EP231X-INJ: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	84.4	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4253618)							
EB2208035-004	0207_SW021_220318	EP231X-INJ: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.468 µg/L	85.9	70.0	130
		EP231X-INJ: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.475 µg/L	100	70.0	130
		EP231X-INJ: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.48 µg/L	94.8	70.0	130
		EP231X-INJ: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.483 µg/L	104	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2208035**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 23-Mar-2022
Site	: ----	Issue Date	: 31-Mar-2022
Sampler	: [redacted]	No. of samples received	: 24
Order number	: 60612563 2.1	No. of samples analysed	: 24

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: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EB2208035--024	0207_QC162_220318	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	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	1	11	9.09	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / ***Container*** / Client Sample ID(s)		***Sample Date***	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
0207_SD106_220318,	0207_SD022_220318,	**18-Mar-2022**	**----**	----	----	**24-Mar-2022**	01-Apr-2022	✓
0207_SD107_220318,	0207_SD025_220318,							
0207_SD024_220318,	0207_SD016_220318,							
0207_SD010_220318,	0207_SD011_220318,							
0207_SD015_220318,	0207_SD007_220318,							
0207_SD040_220318,	0207_QC162_220318							

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0207_SD106_220318, 0207_SD022_220318, 0207_SD107_220318, 0207_SD025_220318, 0207_SD024_220318, 0207_SD016_220318, 0207_SD010_220318, 0207_SD011_220318, 0207_SD015_220318, 0207_SD007_220318, 0207_SD040_220318, 0207_QC162_220318	**18-Mar-2022**	**25-Mar-2022**	14-Sep-2022	✓	**28-Mar-2022**	04-May-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
0207_SD106_220318, 0207_SD022_220318, 0207_SD107_220318, 0207_SD025_220318, 0207_SD024_220318, 0207_SD016_220318, 0207_SD010_220318, 0207_SD011_220318, 0207_SD015_220318, 0207_SD007_220318, 0207_SD040_220318, 0207_QC162_220318	**18-Mar-2022**	**25-Mar-2022**	14-Sep-2022	✓	**28-Mar-2022**	04-May-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
0207_SD106_220318, 0207_SD022_220318, 0207_SD107_220318, 0207_SD025_220318, 0207_SD024_220318, 0207_SD016_220318, 0207_SD010_220318, 0207_SD011_220318, 0207_SD015_220318, 0207_SD007_220318, 0207_SD040_220318, 0207_QC162_220318	**18-Mar-2022**	**25-Mar-2022**	14-Sep-2022	✓	**28-Mar-2022**	04-May-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0207_SD106_220318, 0207_SD022_220318, 0207_SD107_220318, 0207_SD025_220318, 0207_SD024_220318, 0207_SD016_220318, 0207_SD010_220318, 0207_SD011_220318, 0207_SD015_220318, 0207_SD007_220318, 0207_SD040_220318, 0207_QC162_220318	**18-Mar-2022**	**25-Mar-2022**	14-Sep-2022	✓	**28-Mar-2022**	04-May-2022	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0207_SD106_220318, 0207_SD022_220318, 0207_SD107_220318, 0207_SD025_220318, 0207_SD024_220318, 0207_SD016_220318, 0207_SD010_220318, 0207_SD011_220318, 0207_SD015_220318, 0207_SD007_220318, 0207_SD040_220318, 0207_QC162_220318	**18-Mar-2022**	**25-Mar-2022**	14-Sep-2022	✓	**28-Mar-2022**	04-May-2022	✓

Matrix: **WATER**

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

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)							
0207_SW066_220318, 0207_SW063_220318, 0207_SW024_220318, 0207_SW019_220318, 0207_SW027_220318, 0207_SW026_220318, 0207_SW043_220318, 0207_SW040_220318	**18-Mar-2022**	**28-Mar-2022**	14-Sep-2022	✓	**29-Mar-2022**	14-Sep-2022	✓
HDPE (no PTFE) (EP231X-INJ)							
0207_SW065_220318, 0207_SW021_220318, 0207_SW025_220318, 0207_QC161_220318	**18-Mar-2022**	**29-Mar-2022**	14-Sep-2022	✓	**29-Mar-2022**	14-Sep-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_SW066_220318, 0207_SW063_220318, 0207_SW024_220318, 0207_SW019_220318, 0207_SW027_220318, 0207_SW026_220318, 0207_SW043_220318, 0207_SW040_220318	**18-Mar-2022**	**28-Mar-2022**	14-Sep-2022	✓	**29-Mar-2022**	14-Sep-2022	✓
HDPE (no PTFE) (EP231X-INJ)							
0207_SW065_220318, 0207_SW021_220318, 0207_SW025_220318, 0207_QC161_220318	**18-Mar-2022**	**29-Mar-2022**	14-Sep-2022	✓	**29-Mar-2022**	14-Sep-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_SW066_220318, 0207_SW063_220318, 0207_SW024_220318, 0207_SW019_220318, 0207_SW027_220318, 0207_SW026_220318, 0207_SW043_220318, 0207_SW040_220318	**18-Mar-2022**	**28-Mar-2022**	14-Sep-2022	✓	**29-Mar-2022**	14-Sep-2022	✓
HDPE (no PTFE) (EP231X-INJ)							
0207_SW065_220318, 0207_SW021_220318, 0207_SW025_220318, 0207_QC161_220318	**18-Mar-2022**	**29-Mar-2022**	14-Sep-2022	✓	**29-Mar-2022**	14-Sep-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_SW066_220318, 0207_SW063_220318, 0207_SW024_220318, 0207_SW019_220318, 0207_SW027_220318, 0207_SW026_220318, 0207_SW043_220318, 0207_SW040_220318	**18-Mar-2022**	**28-Mar-2022**	14-Sep-2022	✓	**29-Mar-2022**	14-Sep-2022	✓
HDPE (no PTFE) (EP231X-INJ)							
0207_SW065_220318, 0207_SW021_220318, 0207_SW025_220318, 0207_QC161_220318	**18-Mar-2022**	**29-Mar-2022**	14-Sep-2022	✓	**29-Mar-2022**	14-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)							
0207_SW066_220318, 0207_SW063_220318, 0207_SW024_220318, 0207_SW019_220318, 0207_SW027_220318, 0207_SW026_220318, 0207_SW043_220318, 0207_SW040_220318	**18-Mar-2022**	**28-Mar-2022**	14-Sep-2022	✓	**29-Mar-2022**	14-Sep-2022	✓
HDPE (no PTFE) (EP231X-INJ)							
0207_SW065_220318, 0207_SW021_220318, 0207_SW025_220318, 0207_QC161_220318	**18-Mar-2022**	**29-Mar-2022**	14-Sep-2022	✓	**29-Mar-2022**	14-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: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	11	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
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.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	WATER	In house: Direct injection analysis of fresh waters after dilution (1:1) with mobile phase solvent. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers.

Preparation Methods	Method	Matrix	Method Descriptions
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Preparation for PFAS in water.	EP231-PR	WATER	Method presumes direct injection without workup. Preparation includes addition of internal standard and surrogate, and filtration prior to analysis.
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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211260**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	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 be advised there was an ID discrepancy with sample "1435_QC405_220419" (ALS #18) which was labelled "QC405". The sample will be reported as per the Chain of Custody unless we are otherwise advised.**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211260-001	19-Apr-2022 10:14	1435_MW013_220419	✓
EB2211260-002	19-Apr-2022 10:40	1435_MW002_220419	✓
EB2211260-003	20-Apr-2022 12:56	1435_MW001_220420	✓
EB2211260-004	20-Apr-2022 13:13	1435_MW012_220420	✓
EB2211260-005	19-Apr-2022 11:47	1435_MW011_220419	✓
EB2211260-006	19-Apr-2022 12:26	1435_MW010_220419	✓
EB2211260-007	20-Apr-2022 13:26	1435_MW005_220420	✓
EB2211260-008	19-Apr-2022 13:27	1435_MW007_220419	✓
EB2211260-009	19-Apr-2022 14:58	1435_MW008_220419	✓
EB2211260-010	19-Apr-2022 15:22	1435_MW009_220419	✓
EB2211260-011	19-Apr-2022 15:51	1435_MW003_220419	✓
EB2211260-012	19-Apr-2022 16:19	1435_MW004_220419	✓
EB2211260-013	20-Apr-2022 00:27	1435_MW006_220420	✓
EB2211260-014	19-Apr-2022 00:00	1435_QC100_220419	✓
EB2211260-015	19-Apr-2022 00:00	1435_QC101_220419	✓
EB2211260-016	19-Apr-2022 00:00	1435_QC300_220419	✓
EB2211260-017	20-Apr-2022 00:00	1435_QC301_220420	✓
EB2211260-018	19-Apr-2022 00:00	1435_QC405_220419	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211260**	Page	: 1 of 11
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022 12:53
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
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]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: Samples "1435_MW002_220419" & "1435_MW003_220419" required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly. The LOR of PFOS for sample "1435_MW002_220419" has been raised due to matrix interference
- 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: WATER (Matrix: WATER)				Sample ID	1435_MW013_220419	1435_MW002_220419	1435_MW001_220420	1435_MW012_220420	1435_MW011_220419
				Sampling date / time	19-Apr-2022 10:14	19-Apr-2022 10:40	20-Apr-2022 12:56	20-Apr-2022 13:13	19-Apr-2022 11:47
Compound	CAS Number	LOR	Unit		EB2211260-001	EB2211260-002	EB2211260-003	EB2211260-004	EB2211260-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**0.75**	**0.09**	**0.80**	**0.02**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**0.52**	**0.08**	**0.74**	**0.02**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**1.60**	**0.31**	**2.68**	**0.10**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	**0.12**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.04	**0.10**	**1.08**	<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	**2.3**	<0.1	**0.1**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**24.0**	**0.28**	**0.58**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	**18.7**	**0.25**	**1.08**	**0.04**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**6.61**	**0.07**	**0.26**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.30**	**0.03**	**0.24**	<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	<0.06	<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	<0.06	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.06	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	1435_MW013_220419	1435_MW002_220419	1435_MW001_220420	1435_MW012_220420	1435_MW011_220419
				Sampling date / time	19-Apr-2022 10:14	19-Apr-2022 10:40	20-Apr-2022 12:56	20-Apr-2022 13:13	19-Apr-2022 11:47
Compound	CAS Number	LOR	Unit		EB2211260-001	EB2211260-002	EB2211260-003	EB2211260-004	EB2211260-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.06	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.06	<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	**0.06**	<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	**54.8**	**1.27**	**7.68**	**0.18**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**1.60**	**0.41**	**3.76**	**0.10**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**54.3**	**1.19**	**6.82**	**0.16**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.6**	**92.4**	**103**	**97.1**	**93.5**
13C8-PFOA	----	0.02	%		**93.6**	**96.5**	**98.2**	**95.4**	**96.8**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	1435_MW010_220419	1435_MW005_220420	1435_MW007_220419	1435_MW008_220419	1435_MW009_220419
				Sampling date / time	19-Apr-2022 12:26	20-Apr-2022 13:26	19-Apr-2022 13:27	19-Apr-2022 14:58	19-Apr-2022 15:22
					EB2211260-006	EB2211260-007	EB2211260-008	EB2211260-009	EB2211260-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.29**	<0.02	<0.02	<0.02	**1.61**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.25**	<0.02	<0.02	<0.02	**1.75**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.81**	<0.01	<0.01	<0.01	**8.01**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.02**	<0.02	<0.02	<0.02	**0.48**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.10**	<0.01	<0.01	<0.01	**6.68**
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	**0.2**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.19**	<0.02	<0.02	<0.02	**0.72**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.44**	<0.02	<0.02	<0.02	**2.34**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.11**	<0.02	<0.02	<0.02	**0.57**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.10**	<0.01	<0.01	<0.01	**1.01**
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: WATER (Matrix: WATER)				Sample ID	1435_MW010_220419	1435_MW005_220420	1435_MW007_220419	1435_MW008_220419	1435_MW009_220419
				Sampling date / time	19-Apr-2022 12:26	20-Apr-2022 13:26	19-Apr-2022 13:27	19-Apr-2022 14:58	19-Apr-2022 15:22
Compound	CAS Number	LOR	Unit		EB2211260-006	EB2211260-007	EB2211260-008	EB2211260-009	EB2211260-010
					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	**0.09**
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		**2.31**	<0.01	<0.01	<0.01	**23.5**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.91**	<0.01	<0.01	<0.01	**14.7**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**2.04**	<0.01	<0.01	<0.01	**21.2**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.3**	**107**	**87.0**	**94.4**	**87.0**
13C8-PFOA	----	0.02	%		**96.2**	**98.6**	**98.0**	**96.6**	**96.1**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	1435_MW003_220419	1435_MW004_220419	1435_MW006_220420	1435_QC100_220419	1435_QC101_220419
				Sampling date / time	19-Apr-2022 15:51	19-Apr-2022 16:19	20-Apr-2022 00:27	19-Apr-2022 00:00	19-Apr-2022 00:00
					EB2211260-011	EB2211260-012	EB2211260-013	EB2211260-014	EB2211260-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**4.00**	<0.02	<0.02	<0.02	**0.30**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**4.37**	<0.02	<0.02	<0.02	**0.24**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**20.5**	<0.01	<0.01	<0.01	**0.80**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**1.19**	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**18.0**	<0.01	<0.01	<0.01	**0.10**
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		**0.7**	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**1.81**	<0.02	<0.02	<0.02	**0.20**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**6.11**	<0.02	<0.02	<0.02	**0.44**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**1.47**	<0.02	<0.02	<0.02	**0.11**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**2.71**	<0.01	<0.01	<0.01	**0.10**
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		<0.06	<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		<0.06	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.06	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	1435_MW003_220419	1435_MW004_220419	1435_MW006_220420	1435_QC100_220419	1435_QC101_220419
				Sampling date / time	19-Apr-2022 15:51	19-Apr-2022 16:19	20-Apr-2022 00:27	19-Apr-2022 00:00	19-Apr-2022 00:00
Compound	CAS Number	LOR	Unit		EB2211260-011	EB2211260-012	EB2211260-013	EB2211260-014	EB2211260-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.06	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.06	<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		**0.21**	<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		**61.1**	<0.01	<0.01	<0.01	**2.29**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**38.5**	<0.01	<0.01	<0.01	**0.90**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**55.5**	<0.01	<0.01	<0.01	**2.05**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**93.3**	**91.8**	**94.7**	**93.0**	**101**
13C8-PFOA	----	0.02	%		**95.1**	**95.9**	**96.2**	**93.8**	**96.4**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	1435_QC300_220419	1435_QC301_220420	1435_QC405_220419	----	----
				Sampling date / time	19-Apr-2022 00:00	20-Apr-2022 00:00	19-Apr-2022 00:00	----	----
Compound	CAS Number	LOR	Unit		EB2211260-016	EB2211260-017	EB2211260-018	--------	--------
					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: WATER (Matrix: WATER)				Sample ID	1435_QC300_220419	1435_QC301_220420	1435_QC405_220419	----	----
				Sampling date / time	19-Apr-2022 00:00	20-Apr-2022 00:00	19-Apr-2022 00:00	----	----
Compound	CAS Number	LOR	Unit		EB2211260-016	EB2211260-017	EB2211260-018	--------	--------
					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	%		**93.2**	**93.5**	**96.0**	----	----
13C8-PFOA	----	0.02	%		**95.9**	**97.4**	**96.0**	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211260**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
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]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311421)									
EB2211260-002	1435_MW002_220419	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	1.60	1.56	2.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.04	<0.04	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.75	0.70	6.3	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.52	0.51	3.2	0% - 20%
		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
EB2211260-008	1435_MW007_220419	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: 4311421)									
EB2211260-002	1435_MW002_220419	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.30	0.30	0.0	0% - 50%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	24.0	24.7	3.0	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	18.7	18.9	1.0	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	6.61	6.61	0.0	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	<0.06	<0.06	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	2.3	2.4	0.0	0% - 50%

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: 4311421) - continued									
EB2211260-008	1435_MW007_220419	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: 4311421)									
EB2211260-002	1435_MW002_220419	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	<0.06	<0.06	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.06	<0.06	0.0	No Limit
EB2211260-008	1435_MW007_220419	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: 4311421)									
EB2211260-002	1435_MW002_220419	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: 4311421) - continued									
EB2211260-002	1435_MW002_220419	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
EB2211260-008	1435_MW007_220419	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: 4311421)									
EB2211260-002	1435_MW002_220419	EP231X: Sum of PFAS	----	0.01	µg/L	54.8	55.7	1.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	1.60	1.56	2.5	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	54.3	55.2	1.7	0% - 20%
EB2211260-008	1435_MW007_220419	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4311421)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	87.0	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	95.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	83.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	92.0	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	86.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	90.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311421)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	81.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	83.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	88.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	86.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	88.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	85.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	87.6	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	94.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	87.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	89.6	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311421)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	79.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	96.8	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	88.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	87.5	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	85.0	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	83.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	84.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311421)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	81.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	89.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	97.5	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: 4311421) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 4311421)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4311421)							
EB2211260-002	1435_MW002_220419	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	101	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	122	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	108	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	119	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	98.0	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	103	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311421)							
EB2211260-002	1435_MW002_220419	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	98.1	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	# Not Determined	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	# Not Determined	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	97.8	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	99.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	106	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	93.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	106	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	97.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	108	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311421)							
EB2211260-002	1435_MW002_220419	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	87.6	59.0	135

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: 4311421) - continued							
EB2211260-002	1435_MW002_220419	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	120	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	105	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	114	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	95.2	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	100	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311421)							
EB2211260-002	1435_MW002_220419	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	97.0	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	102	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	130	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	113	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2211260**	Page	: 1 of 6
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]	No. of samples received	: 18
Order number	: 60612563 2.1	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.**
- **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							
EP231B: Perfluoroalkyl Carboxylic Acids	EB2211260--002	1435_MW002_220419	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EB2211260--002	1435_MW002_220419	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EB2211260--002	1435_MW002_220419	**Perfluoroheptanoic acid (PFHpA)**	375-85-9	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)								
1435_MW013_220419,	1435_MW002_220419,	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**29-Apr-2022**	16-Oct-2022	✓
1435_MW011_220419,	1435_MW010_220419,							
1435_MW007_220419,	1435_MW008_220419,							
1435_MW009_220419,	1435_MW003_220419,							
1435_MW004_220419,	1435_QC100_220419,							
1435_QC101_220419,	1435_QC300_220419,							
1435_QC405_220419								
HDPE (no PTFE) (EP231X)								
1435_MW001_220420,	1435_MW012_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**29-Apr-2022**	17-Oct-2022	✓
1435_MW005_220420,	1435_MW006_220420,							
1435_QC301_220420								

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)							
1435_MW013_220419, 1435_MW002_220419, 1435_MW011_220419, 1435_MW010_220419, 1435_MW007_220419, 1435_MW008_220419, 1435_MW009_220419, 1435_MW003_220419, 1435_MW004_220419, 1435_QC100_220419, 1435_QC101_220419, 1435_QC300_220419, 1435_QC405_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**29-Apr-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X)							
1435_MW001_220420, 1435_MW012_220420, 1435_MW005_220420, 1435_MW006_220420, 1435_QC301_220420	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**29-Apr-2022**	17-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
1435_MW013_220419, 1435_MW002_220419, 1435_MW011_220419, 1435_MW010_220419, 1435_MW007_220419, 1435_MW008_220419, 1435_MW009_220419, 1435_MW003_220419, 1435_MW004_220419, 1435_QC100_220419, 1435_QC101_220419, 1435_QC300_220419, 1435_QC405_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**29-Apr-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X)							
1435_MW001_220420, 1435_MW012_220420, 1435_MW005_220420, 1435_MW006_220420, 1435_QC301_220420	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**29-Apr-2022**	17-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
1435_MW013_220419, 1435_MW002_220419, 1435_MW011_220419, 1435_MW010_220419, 1435_MW007_220419, 1435_MW008_220419, 1435_MW009_220419, 1435_MW003_220419, 1435_MW004_220419, 1435_QC100_220419, 1435_QC101_220419, 1435_QC300_220419, 1435_QC405_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**29-Apr-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X)							
1435_MW001_220420, 1435_MW012_220420, 1435_MW005_220420, 1435_MW006_220420, 1435_QC301_220420	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**29-Apr-2022**	17-Oct-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)							
1435_MW013_220419, 1435_MW002_220419, 1435_MW011_220419, 1435_MW010_220419, 1435_MW007_220419, 1435_MW008_220419, 1435_MW009_220419, 1435_MW003_220419, 1435_MW004_220419, 1435_QC100_220419, 1435_QC101_220419, 1435_QC300_220419, 1435_QC405_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**29-Apr-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X)							
1435_MW001_220420, 1435_MW012_220420, 1435_MW005_220420, 1435_MW006_220420, 1435_QC301_220420	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**29-Apr-2022**	17-Oct-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	2	18	**11.11**	**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	1	18	**5.56**	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211261**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 5
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 28-Apr-2022
Client Requested Due Date	: 06-May-2022	Scheduled Reporting Date	: **06-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 2.9, 3.1°C - Ice present
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 95 / 94

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please be advised there were two additional samples received labelled "0207_MW132_220412 and 0207_MW132_220413" (ALS #94 & 95) and added onto the end of this work order. The requested analysis has been assigned. If analysis is not required or for any further information please contact Client Services at ALSEnviro.Brisbane@alsglobal.com.**
- **28/04/2022: SRN has been resent to acknowledge change of sample IDs for ALS #s -032 and -051. For any further information regarding these adjustments please contact client services at ALSEnviro.Brisbane@alsglobal.com.**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EB2211261-084	: [11-Apr-2022]	: 0207_QC400_220411 - ALS No. 030226
EB2211261-085	: [11-Apr-2022]	: 0207_QC401_220411 - ALS No. 030250
EB2211261-086	: [11-Apr-2022]	: 0207_QC402_220411 - ALS No. 140310
EB2211261-092	: [18-Apr-2022]	: 0207_QC403_220411 - ALS No. 140309
EB2211261-093	: [11-Apr-2022]	: 0207_QC404_220411 - ALS No. 140312

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EB2211261-033	16-Apr-2022 10:10	0207_SD102_220416	✓	✓
EB2211261-038	16-Apr-2022 12:30	0207_SD037_220416	✓	✓
EB2211261-041	16-Apr-2022 13:40	0207_SD070_220416	✓	✓
EB2211261-045	14-Apr-2022 17:25	0207_SD038_220414	✓	✓
EB2211261-049	15-Apr-2022 13:18	0207_SD036_220415	✓	✓
EB2211261-051	15-Apr-2022 13:56	0207_SD105_220415	✓	✓
EB2211261-058	18-Apr-2022 11:07	0207_SD013_220418	✓	✓
EB2211261-084	11-Apr-2022 00:00	0207_QC400_220411 A...	✓	✓
EB2211261-085	11-Apr-2022 00:00	0207_QC401_220411 A...	✓	✓
EB2211261-087	14-Apr-2022 00:00	0207_QC103_220414	✓	✓
EB2211261-091	18-Apr-2022 00:00	0207_QC110_220418	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211261-001	11-Apr-2022 14:35	0207_MW187_220411	✓
EB2211261-002	11-Apr-2022 15:35	0207_MW189_220411	✓
EB2211261-003	13-Apr-2022 07:45	0207_MW229_220413	✓
EB2211261-004	13-Apr-2022 08:20	0207_MW223_220413	✓
EB2211261-005	17-Apr-2022 08:10	0207_MW174_220417	✓
EB2211261-006	17-Apr-2022 08:38	0207_MW178_220417	✓
EB2211261-007	17-Apr-2022 09:20	0207_MW230_220417	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211261-008	17-Apr-2022 09:55	0207_MW222_220417	✓
EB2211261-009	17-Apr-2022 10:25	0207_MW232_220417	✓
EB2211261-010	17-Apr-2022 11:09	0207_MW221_220417	✓
EB2211261-011	17-Apr-2022 11:46	0207_MW193_220417	✓
EB2211261-012	17-Apr-2022 12:15	0207_MW198_220417	✓
EB2211261-013	17-Apr-2022 12:38	0207_MW207_220417	✓
EB2211261-014	17-Apr-2022 13:20	0207_MW202_220417	✓
EB2211261-015	17-Apr-2022 13:58	0207_MW201_220417	✓
EB2211261-016	17-Apr-2022 14:30	0207_MW203_220417	✓
EB2211261-017	17-Apr-2022 14:55	0207_MW299_220417	✓
EB2211261-018	17-Apr-2022 15:08	0207_MW300_220417	✓
EB2211261-019	17-Apr-2022 15:33	0207_MW167_220417	✓
EB2211261-020	17-Apr-2022 15:50	0207_MW172_220417	✓
EB2211261-021	17-Apr-2022 16:16	0207_MW173_220417	✓
EB2211261-022	18-Apr-2022 07:50	0207_MW245_220418	✓
EB2211261-023	18-Apr-2022 08:50	0207_MW242_220418	✓
EB2211261-024	18-Apr-2022 10:18	0207_MW179_220418	✓
EB2211261-025	19-Apr-2022 08:10	0207_MW249_220419	✓
EB2211261-026	19-Apr-2022 08:38	0207_MW241_220419	✓
EB2211261-027	20-Apr-2022 08:00	0207_MW204_220420	✓
EB2211261-028	14-Apr-2022 08:18	0207_MW205_220420	✓
EB2211261-029	16-Apr-2022 13:10	0207_MW280_220414	✓
EB2211261-030	16-Apr-2022 08:25	0207_MW273_220416	✓
EB2211261-031	16-Apr-2022 08:50	0207_MW272_220416	✓
EB2211261-032	16-Apr-2022 09:40	0207_MW266_220416	✓
EB2211261-034	16-Apr-2022 10:12	0207_SW013_220416	✓
EB2211261-035	16-Apr-2022 10:55	0207_MW265_220416	✓
EB2211261-036	16-Apr-2022 11:26	0207_MW278_220416	✓
EB2211261-037	16-Apr-2022 12:06	0207_MW262_220416	✓
EB2211261-039	16-Apr-2022 12:31	0207_SW010_220416	✓
EB2211261-040	16-Apr-2022 13:10	0207_MW285_220416	✓
EB2211261-042	16-Apr-2022 13:45	0207_SW028_220416	✓
EB2211261-043	14-Apr-2022 17:18	0207_MW264_220414	✓
EB2211261-044	14-Apr-2022 17:25	0207_SW004_220414	✓
EB2211261-046	15-Apr-2022 12:10	0207_MW279_220415	✓
EB2211261-047	15-Apr-2022 12:50	0207_MW282_220415	✓
EB2211261-048	15-Apr-2022 13:18	0207_SW011_220415	✓
EB2211261-050	15-Apr-2022 13:56	0207_SW012_220415	✓
EB2211261-052	15-Apr-2022 14:31	0207_MW257_220415	✓
EB2211261-053	15-Apr-2022 15:10	0207_MW276_220415	✓
EB2211261-054	15-Apr-2022 15:50	0207_MW255_220415	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211261-055	15-Apr-2022 16:50	0207_MW275_220415	✓
EB2211261-056	15-Apr-2022 17:00	0207_MW274_220415	✓
EB2211261-057	18-Apr-2022 11:07	0207_SW009_220418	✓
EB2211261-059	20-Apr-2022 09:59	0207_MW563_220420	✓
EB2211261-060	20-Apr-2022 12:54	0207_MW562_220420	✓
EB2211261-061	20-Apr-2022 10:20	0207_MW235_220420	✓
EB2211261-062	20-Apr-2022 10:40	0207_MW236_220420	✓
EB2211261-063	20-Apr-2022 11:08	0207_MW252_220420	✓
EB2211261-064	20-Apr-2022 14:44	0207_MW233_220420	✓
EB2211261-065	21-Apr-2022 12:54	0207_MW206_220421	✓
EB2211261-066	11-Apr-2022 00:00	0207_QC300_220411	✓
EB2211261-067	12-Apr-2022 00:00	0207_QC301_220412	✓
EB2211261-068	13-Apr-2022 00:00	0207_QC302_220413	✓
EB2211261-069	14-Apr-2022 00:00	0207_QC303_220414	✓
EB2211261-070	15-Apr-2022 00:00	0207_QC304_220415	✓
EB2211261-071	16-Apr-2022 00:00	0207_QC305_220416	✓
EB2211261-072	17-Apr-2022 00:00	0207_QC306_220417	✓
EB2211261-073	13-Apr-2022 00:00	0207_QC100_220413	✓
EB2211261-074	17-Apr-2022 00:00	0207_QC106_220417	✓
EB2211261-075	17-Apr-2022 00:00	0207_QC107_220417	✓
EB2211261-076	18-Apr-2022 00:00	0207_QC108_220418	✓
EB2211261-077	19-Apr-2022 00:00	0207_QC111_220419	✓
EB2211261-078	20-Apr-2022 00:00	0207_QC112_220420	✓
EB2211261-079	20-Apr-2022 00:00	0207_QC113_220420	✓
EB2211261-080	18-Apr-2022 00:00	0207_QC307_220418	✓
EB2211261-081	19-Apr-2022 00:00	0207_QC308_220419	✓
EB2211261-082	20-Apr-2022 00:00	0207_QC309_220420	✓
EB2211261-083	21-Apr-2022 00:00	0207_QC310_220421	✓
EB2211261-086	11-Apr-2022 00:00	0207_QC402_220411 A...	✓
EB2211261-088	14-Apr-2022 00:00	0207_QC104_220415	✓
EB2211261-089	15-Apr-2022 00:00	0207_QC105_220416	✓
EB2211261-090	16-Apr-2022 00:00	0207_QC109_220418	✓
EB2211261-092	18-Apr-2022 00:00	0207_QC403_220411 A...	✓
EB2211261-093	11-Apr-2022 00:00	0207_QC404_220411 A...	✓
EB2211261-094	12-Apr-2022 00:00	0207_MW132_220412	✓

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	

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 - 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 - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211261-AB**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: PO BOX 1307 [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 09-May-2022 11:00
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 2		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: The LOR of PFDS for samples ‘0207_SD102_220416’ (EB2211261-033) and ‘0207_QC110_220418’ (EB2211261-091) has been raised due to sample matrix interferences.
- EP231X PFAS: The LOR of PFOA for sample ‘0207_SD105_220415’ (EB2211261-051) has been raised due to sample matrix interferences.
- EP231X PFAS: Whole bottle extraction was not possible for some samples. Samples required dilution prior to extraction due to matrix interference (sediment). LOR values have been adjusted accordingly. The LORs of particular analytes for particular samples have been raised further due to matrix interference.
- EP231X PFAS: The LOR of PFOS for samples ‘0207_SW012_220415’ (EB2211261-050) and ‘0207_MW257_220415’ (EB2211261-052) has been raised due to sample matrix interferences.
- EP231X PFAS: The LOR OF PFBS for samples "0207_MW174_220417" & "0207_MW207_220417" have been raised due to matrix interferences.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW132_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211261-094	--------	--------	--------	--------
					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		**0.09**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.11**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW132_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211261-094	--------	--------	--------	--------
					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		**0.22**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.20**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.22**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**125**	----	----	----	----
13C8-PFOA	----	0.02	%		**107**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211261-AB**	Page	: 1 of 6
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 09-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 2		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4309243)									
EB2211261-094	0207_MW132_220412	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.09	0.11	12.4	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.11	0.12	14.5	0% - 50%
		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: 4309243)									
EB2211261-094	0207_MW132_220412	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: 4309243)									
EB2211261-094	0207_MW132_220412	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: 4309243) - continued									
EB2211261-094	0207_MW132_220412	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: 4309243)									
EB2211261-094	0207_MW132_220412	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: 4309243)									
EB2211261-094	0207_MW132_220412	EP231X: Sum of PFAS	----	0.01	µg/L	0.22	0.25	12.8	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.20	0.23	14.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.22	0.25	12.8	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: 4309243)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	99.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	100	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	93.3	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	102	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	91.1	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309243)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	86.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	89.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	84.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	75.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	72.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	67.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	97.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309243)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	99.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	91.0	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	88.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	78.2	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	91.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	81.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309243)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	87.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	109	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	98.3	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: 4309243) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	105	64.2	133
EP231P: PFAS Sums (QCLot: 4309243)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309243)							
EB2211261-094	0207_MW132_220412	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	85.2	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	82.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	86.9	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	118	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	128	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	120	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309243)							
EB2211261-094	0207_MW132_220412	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	85.3	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	81.3	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	93.8	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	98.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	86.3	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.9	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	74.3	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	71.9	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	74.8	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	69.0	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	91.3	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309243)							
EB2211261-094	0207_MW132_220412	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	75.4	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	80.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.8	70.0	130

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: 4309243) - continued							
EB2211261-094	0207_MW132_220412	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	95.4	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	73.4	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.8	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309243)							
EB2211261-094	0207_MW132_220412	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	75.6	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	88.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	77.1	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	86.1	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2211261**	Page	: 1 of 17
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 09-May-2022
Sampler	: [redacted]	No. of samples received	: 95
Order number	: 60612563 2.1	No. of samples analysed	: 94

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : 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
Laboratory Control Spike (LCS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	QC-4309232-002	----	**Perfluoroheptane sulfonic acid (PFHpS)**	375-92-8	64.3 %	69.0-134%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EB2211261--007	0207_MW230_220417	**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	EB2211261--007	0207_MW230_220417	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EB2211261--007	0207_MW230_220417	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EB2211261--007	0207_MW230_220417	**Perfluoroheptanoic acid (PFHpA)**	375-85-9	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EB2211261--007	0207_MW230_220417	**Perfluorooctanoic acid (PFOA)**	335-67-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / **Container** / Client Sample ID(s)	*Extraction / Preparation*			*Analysis*		
	Date extracted	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EA055: Moisture Content (Dried @ 105-110°C)						
HDPE Soil Jar						
0207_QC400_220411 - ALS No. 030226, 0207_QC401_220411 - ALS No. 030250	----	----	----	26-Apr-2022	25-Apr-2022	**1**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	6	83	7.23	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	4	83	4.82	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
0207_QC400_220411 - ALS No. 030226,	0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**----**	----	----	**26-Apr-2022**	25-Apr-2022	×
HDPE Soil Jar (EA055)								
0207_SD038_220414,	0207_QC103_220414	**14-Apr-2022**	**----**	----	----	**26-Apr-2022**	28-Apr-2022	✓
HDPE Soil Jar (EA055)								
0207_SD036_220415,	0207_SD105_220415	**15-Apr-2022**	**----**	----	----	**26-Apr-2022**	29-Apr-2022	✓
HDPE Soil Jar (EA055)								
0207_SD102_220416, 0207_SD070_220416	0207_SD037_220416,	**16-Apr-2022**	**----**	----	----	**26-Apr-2022**	30-Apr-2022	✓
HDPE Soil Jar (EA055)								
0207_SD013_220418,	0207_QC110_220418	**18-Apr-2022**	**----**	----	----	**26-Apr-2022**	02-May-2022	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0207_QC400_220411 - ALS No. 030226,	0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**27-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD038_220414,	0207_QC103_220414	**14-Apr-2022**	**27-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD036_220415,	0207_SD105_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD102_220416, 0207_SD070_220416	0207_SD037_220416,	**16-Apr-2022**	**27-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD013_220418,	0207_QC110_220418	**18-Apr-2022**	**27-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X) 0207_QC400_220411 - ALS No. 030226,	0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**27-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD038_220414,	0207_QC103_220414	**14-Apr-2022**	**27-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD036_220415,	0207_SD105_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD102_220416, 0207_SD070_220416	0207_SD037_220416,	**16-Apr-2022**	**27-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD013_220418,	0207_QC110_220418	**18-Apr-2022**	**27-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X) 0207_QC400_220411 - ALS No. 030226,	0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**27-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD038_220414,	0207_QC103_220414	**14-Apr-2022**	**27-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD036_220415,	0207_SD105_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD102_220416, 0207_SD070_220416	0207_SD037_220416,	**16-Apr-2022**	**27-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD013_220418,	0207_QC110_220418	**18-Apr-2022**	**27-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X) 0207_QC400_220411 - ALS No. 030226,	0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**27-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD038_220414,	0207_QC103_220414	**14-Apr-2022**	**27-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD036_220415,	0207_SD105_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD102_220416, 0207_SD070_220416	0207_SD037_220416,	**16-Apr-2022**	**27-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD013_220418,	0207_QC110_220418	**18-Apr-2022**	**27-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) 0207_QC400_220411 - ALS No. 030226, 0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**27-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD038_220414, 0207_QC103_220414	**14-Apr-2022**	**27-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD036_220415, 0207_SD105_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD102_220416, 0207_SD037_220416, 0207_SD070_220416	**16-Apr-2022**	**27-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD013_220418, 0207_QC110_220418	**18-Apr-2022**	**27-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	06-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

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)								
0207_MW187_220411,	0207_MW189_220411	**11-Apr-2022**	**04-May-2022**	08-Oct-2022	✓	**04-May-2022**	08-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC300_220411,	0207_QC402_220411 - ALS No. 140310,	**11-Apr-2022**	**29-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	08-Oct-2022	✓
0207_QC404_220411 - ALS No. 140312								
HDPE (no PTFE) (EP231X)								
0207_QC301_220412,	0207_MW132_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**03-May-2022**	09-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC302_220413		**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW229_220413,	0207_MW223_220413	**13-Apr-2022**	**04-May-2022**	10-Oct-2022	✓	**04-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC100_220413		**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC303_220414		**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW205_220420,	0207_MW264_220414	**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**04-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_SW004_220414,	0207_QC104_220415	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC304_220415		**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW279_220415,	0207_MW282_220415,	**15-Apr-2022**	**29-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
0207_SW011_220415,	0207_SW012_220415,							
0207_MW257_220415,	0207_MW276_220415,							
0207_MW255_220415,	0207_MW275_220415,							
0207_MW274_220415,	0207_QC105_220416							
HDPE (no PTFE) (EP231X)								
0207_QC305_220416		**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW280_220414,	0207_MW273_220416,	**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**04-May-2022**	13-Oct-2022	✓
0207_MW272_220416,	0207_MW266_220416,							
0207_SW013_220416,	0207_MW265_220416,							
0207_MW278_220416,	0207_MW262_220416,							
0207_SW010_220416,	0207_MW285_220416,							
0207_SW028_220416								
HDPE (no PTFE) (EP231X)								
0207_QC109_220418		**16-Apr-2022**	**29-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW173_220417		**17-Apr-2022**	**03-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
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								
0207_MW174_220417, 0207_MW230_220417, 0207_MW232_220417, 0207_MW193_220417, 0207_MW207_220417, 0207_MW201_220417, 0207_MW299_220417, 0207_MW167_220417,	0207_MW178_220417, 0207_MW222_220417, 0207_MW221_220417, 0207_MW198_220417, 0207_MW202_220417, 0207_MW203_220417, 0207_MW300_220417, 0207_MW172_220417	**17-Apr-2022**	**04-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC306_220417, 0207_QC107_220417	0207_QC106_220417,	**17-Apr-2022**	**29-Apr-2022**	14-Oct-2022	✓	**03-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW245_220418, 0207_MW179_220418	0207_MW242_220418,	**18-Apr-2022**	**03-May-2022**	15-Oct-2022	✓	**04-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_SW009_220418, 0207_QC307_220418,	0207_QC108_220418, 0207_QC403_220411 - ALS No. 140309	**18-Apr-2022**	**29-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW249_220419,	0207_MW241_220419	**19-Apr-2022**	**03-May-2022**	16-Oct-2022	✓	**04-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC111_220419,	0207_QC308_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**03-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW204_220420		**20-Apr-2022**	**03-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW563_220420, 0207_MW235_220420, 0207_MW252_220420, 0207_QC112_220420, 0207_QC309_220420	0207_MW562_220420, 0207_MW236_220420, 0207_MW233_220420, 0207_QC113_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**03-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW206_220421,	0207_QC310_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**03-May-2022**	18-Oct-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
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0207_MW187_220411,	0207_MW189_220411	**11-Apr-2022**	**04-May-2022**	08-Oct-2022	✓	**04-May-2022**	08-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC300_220411,	0207_QC402_220411 - ALS No. 140310,	**11-Apr-2022**	**29-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	08-Oct-2022	✓
0207_QC404_220411 - ALS No. 140312								
HDPE (no PTFE) (EP231X)								
0207_QC301_220412,	0207_MW132_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**03-May-2022**	09-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC302_220413		**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW229_220413,	0207_MW223_220413	**13-Apr-2022**	**04-May-2022**	10-Oct-2022	✓	**04-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC100_220413		**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC303_220414		**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW205_220420,	0207_MW264_220414	**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**04-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_SW004_220414,	0207_QC104_220415	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC304_220415		**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW279_220415,	0207_MW282_220415,	**15-Apr-2022**	**29-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
0207_SW011_220415,	0207_SW012_220415,							
0207_MW257_220415,	0207_MW276_220415,							
0207_MW255_220415,	0207_MW275_220415,							
0207_MW274_220415,	0207_QC105_220416							
HDPE (no PTFE) (EP231X)								
0207_QC305_220416		**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW280_220414,	0207_MW273_220416,	**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**04-May-2022**	13-Oct-2022	✓
0207_MW272_220416,	0207_MW266_220416,							
0207_SW013_220416,	0207_MW265_220416,							
0207_MW278_220416,	0207_MW262_220416,							
0207_SW010_220416,	0207_MW285_220416,							
0207_SW028_220416								
HDPE (no PTFE) (EP231X)								
0207_QC109_220418		**16-Apr-2022**	**29-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW173_220417		**17-Apr-2022**	**03-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
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
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
0207_MW174_220417, 0207_MW230_220417, 0207_MW232_220417, 0207_MW193_220417, 0207_MW207_220417, 0207_MW201_220417, 0207_MW299_220417, 0207_MW167_220417,	0207_MW178_220417, 0207_MW222_220417, 0207_MW221_220417, 0207_MW198_220417, 0207_MW202_220417, 0207_MW203_220417, 0207_MW300_220417, 0207_MW172_220417	**17-Apr-2022**	**04-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC306_220417, 0207_QC107_220417	0207_QC106_220417,	**17-Apr-2022**	**29-Apr-2022**	14-Oct-2022	✓	**03-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW245_220418, 0207_MW179_220418	0207_MW242_220418,	**18-Apr-2022**	**03-May-2022**	15-Oct-2022	✓	**04-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_SW009_220418, 0207_QC307_220418,	0207_QC108_220418, 0207_QC403_220411 - ALS No. 140309	**18-Apr-2022**	**29-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW249_220419,	0207_MW241_220419	**19-Apr-2022**	**03-May-2022**	16-Oct-2022	✓	**04-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC111_220419,	0207_QC308_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**03-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW204_220420		**20-Apr-2022**	**03-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW563_220420, 0207_MW235_220420, 0207_MW252_220420, 0207_QC112_220420, 0207_QC309_220420	0207_MW562_220420, 0207_MW236_220420, 0207_MW233_220420, 0207_QC113_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**03-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW206_220421,	0207_QC310_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**03-May-2022**	18-Oct-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)								
0207_MW187_220411,	0207_MW189_220411	**11-Apr-2022**	**04-May-2022**	08-Oct-2022	✓	**04-May-2022**	08-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC300_220411,	0207_QC402_220411 - ALS No. 140310,	**11-Apr-2022**	**29-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	08-Oct-2022	✓
0207_QC404_220411 - ALS No. 140312								
HDPE (no PTFE) (EP231X)								
0207_QC301_220412,	0207_MW132_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**03-May-2022**	09-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC302_220413		**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW229_220413,	0207_MW223_220413	**13-Apr-2022**	**04-May-2022**	10-Oct-2022	✓	**04-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC100_220413		**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC303_220414		**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW205_220420,	0207_MW264_220414	**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**04-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_SW004_220414,	0207_QC104_220415	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC304_220415		**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW279_220415,	0207_MW282_220415,	**15-Apr-2022**	**29-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
0207_SW011_220415,	0207_SW012_220415,							
0207_MW257_220415,	0207_MW276_220415,							
0207_MW255_220415,	0207_MW275_220415,							
0207_MW274_220415,	0207_QC105_220416							
HDPE (no PTFE) (EP231X)								
0207_QC305_220416		**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW280_220414,	0207_MW273_220416,	**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**04-May-2022**	13-Oct-2022	✓
0207_MW272_220416,	0207_MW266_220416,							
0207_SW013_220416,	0207_MW265_220416,							
0207_MW278_220416,	0207_MW262_220416,							
0207_SW010_220416,	0207_MW285_220416,							
0207_SW028_220416								
HDPE (no PTFE) (EP231X)								
0207_QC109_220418		**16-Apr-2022**	**29-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW173_220417		**17-Apr-2022**	**03-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
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
EP231C: Perfluoroalkyl Sulfonamides - Continued								
0207_MW174_220417, 0207_MW230_220417, 0207_MW232_220417, 0207_MW193_220417, 0207_MW207_220417, 0207_MW201_220417, 0207_MW299_220417, 0207_MW167_220417,	0207_MW178_220417, 0207_MW222_220417, 0207_MW221_220417, 0207_MW198_220417, 0207_MW202_220417, 0207_MW203_220417, 0207_MW300_220417, 0207_MW172_220417	**17-Apr-2022**	**04-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC306_220417, 0207_QC107_220417	0207_QC106_220417,	**17-Apr-2022**	**29-Apr-2022**	14-Oct-2022	✓	**03-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW245_220418, 0207_MW179_220418	0207_MW242_220418,	**18-Apr-2022**	**03-May-2022**	15-Oct-2022	✓	**04-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_SW009_220418, 0207_QC307_220418,	0207_QC108_220418, 0207_QC403_220411 - ALS No. 140309	**18-Apr-2022**	**29-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW249_220419,	0207_MW241_220419	**19-Apr-2022**	**03-May-2022**	16-Oct-2022	✓	**04-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC111_220419,	0207_QC308_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**03-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW204_220420		**20-Apr-2022**	**03-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW563_220420, 0207_MW235_220420, 0207_MW252_220420, 0207_QC112_220420, 0207_QC309_220420	0207_MW562_220420, 0207_MW236_220420, 0207_MW233_220420, 0207_QC113_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**03-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW206_220421,	0207_QC310_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**03-May-2022**	18-Oct-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)								
0207_MW187_220411,	0207_MW189_220411	**11-Apr-2022**	**04-May-2022**	08-Oct-2022	✓	**04-May-2022**	08-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC300_220411,	0207_QC402_220411 - ALS No. 140310,	**11-Apr-2022**	**29-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	08-Oct-2022	✓
0207_QC404_220411 - ALS No. 140312								
HDPE (no PTFE) (EP231X)								
0207_QC301_220412,	0207_MW132_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**03-May-2022**	09-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC302_220413		**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW229_220413,	0207_MW223_220413	**13-Apr-2022**	**04-May-2022**	10-Oct-2022	✓	**04-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC100_220413		**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC303_220414		**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW205_220420,	0207_MW264_220414	**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**04-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_SW004_220414,	0207_QC104_220415	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC304_220415		**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW279_220415,	0207_MW282_220415,	**15-Apr-2022**	**29-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
0207_SW011_220415,	0207_SW012_220415,							
0207_MW257_220415,	0207_MW276_220415,							
0207_MW255_220415,	0207_MW275_220415,							
0207_MW274_220415,	0207_QC105_220416							
HDPE (no PTFE) (EP231X)								
0207_QC305_220416		**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW280_220414,	0207_MW273_220416,	**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**04-May-2022**	13-Oct-2022	✓
0207_MW272_220416,	0207_MW266_220416,							
0207_SW013_220416,	0207_MW265_220416,							
0207_MW278_220416,	0207_MW262_220416,							
0207_SW010_220416,	0207_MW285_220416,							
0207_SW028_220416								
HDPE (no PTFE) (EP231X)								
0207_QC109_220418		**16-Apr-2022**	**29-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW173_220417		**17-Apr-2022**	**03-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
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
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued								
0207_MW174_220417, 0207_MW230_220417, 0207_MW232_220417, 0207_MW193_220417, 0207_MW207_220417, 0207_MW201_220417, 0207_MW299_220417, 0207_MW167_220417,	0207_MW178_220417, 0207_MW222_220417, 0207_MW221_220417, 0207_MW198_220417, 0207_MW202_220417, 0207_MW203_220417, 0207_MW300_220417, 0207_MW172_220417	**17-Apr-2022**	**04-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC306_220417, 0207_QC107_220417	0207_QC106_220417,	**17-Apr-2022**	**29-Apr-2022**	14-Oct-2022	✓	**03-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW245_220418, 0207_MW179_220418	0207_MW242_220418,	**18-Apr-2022**	**03-May-2022**	15-Oct-2022	✓	**04-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_SW009_220418, 0207_QC307_220418,	0207_QC108_220418, 0207_QC403_220411 - ALS No. 140309	**18-Apr-2022**	**29-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW249_220419,	0207_MW241_220419	**19-Apr-2022**	**03-May-2022**	16-Oct-2022	✓	**04-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC111_220419,	0207_QC308_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**03-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW204_220420		**20-Apr-2022**	**03-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW563_220420, 0207_MW235_220420, 0207_MW252_220420, 0207_QC112_220420, 0207_QC309_220420	0207_MW562_220420, 0207_MW236_220420, 0207_MW233_220420, 0207_QC113_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**03-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW206_220421,	0207_QC310_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**03-May-2022**	18-Oct-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)								
0207_MW187_220411,	0207_MW189_220411	**11-Apr-2022**	**04-May-2022**	08-Oct-2022	✓	**04-May-2022**	08-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC300_220411,	0207_QC402_220411 - ALS No. 140310,	**11-Apr-2022**	**29-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	08-Oct-2022	✓
0207_QC404_220411 - ALS No. 140312								
HDPE (no PTFE) (EP231X)								
0207_QC301_220412,	0207_MW132_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**03-May-2022**	09-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC302_220413		**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW229_220413,	0207_MW223_220413	**13-Apr-2022**	**04-May-2022**	10-Oct-2022	✓	**04-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC100_220413		**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC303_220414		**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW205_220420,	0207_MW264_220414	**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**04-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_SW004_220414,	0207_QC104_220415	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC304_220415		**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW279_220415,	0207_MW282_220415,	**15-Apr-2022**	**29-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
0207_SW011_220415,	0207_SW012_220415,							
0207_MW257_220415,	0207_MW276_220415,							
0207_MW255_220415,	0207_MW275_220415,							
0207_MW274_220415,	0207_QC105_220416							
HDPE (no PTFE) (EP231X)								
0207_QC305_220416		**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW280_220414,	0207_MW273_220416,	**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**04-May-2022**	13-Oct-2022	✓
0207_MW272_220416,	0207_MW266_220416,							
0207_SW013_220416,	0207_MW265_220416,							
0207_MW278_220416,	0207_MW262_220416,							
0207_SW010_220416,	0207_MW285_220416,							
0207_SW028_220416								
HDPE (no PTFE) (EP231X)								
0207_QC109_220418		**16-Apr-2022**	**29-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW173_220417		**17-Apr-2022**	**03-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
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
EP231P: PFAS Sums - Continued								
0207_MW174_220417, 0207_MW230_220417, 0207_MW232_220417, 0207_MW193_220417, 0207_MW207_220417, 0207_MW201_220417, 0207_MW299_220417, 0207_MW167_220417,	0207_MW178_220417, 0207_MW222_220417, 0207_MW221_220417, 0207_MW198_220417, 0207_MW202_220417, 0207_MW203_220417, 0207_MW300_220417, 0207_MW172_220417	**17-Apr-2022**	**04-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC306_220417, 0207_QC107_220417	0207_QC106_220417,	**17-Apr-2022**	**29-Apr-2022**	14-Oct-2022	✓	**03-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW245_220418, 0207_MW179_220418	0207_MW242_220418,	**18-Apr-2022**	**03-May-2022**	15-Oct-2022	✓	**04-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_SW009_220418, 0207_QC307_220418,	0207_QC108_220418, 0207_QC403_220411 - ALS No. 140309	**18-Apr-2022**	**29-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW249_220419,	0207_MW241_220419	**19-Apr-2022**	**03-May-2022**	16-Oct-2022	✓	**04-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC111_220419,	0207_QC308_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**03-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW204_220420		**20-Apr-2022**	**03-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW563_220420, 0207_MW235_220420, 0207_MW252_220420, 0207_QC112_220420, 0207_QC309_220420	0207_MW562_220420, 0207_MW236_220420, 0207_MW233_220420, 0207_QC113_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**03-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW206_220421,	0207_QC310_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**03-May-2022**	18-Oct-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: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	6	83	7.23	10.00	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	5	83	6.02	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	5	83	6.02	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	83	4.82	5.00	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
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
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211261**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: +[redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 5
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 28-Apr-2022
Client Requested Due Date	: 06-May-2022	Scheduled Reporting Date	: **06-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 2.9, 3.1°C - Ice present
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 95 / 94

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please be advised there were two additional samples received labelled "0207_MW132_220412 and 0207_MW132_220413" (ALS #94 & 95) and added onto the end of this work order. The requested analysis has been assigned. If analysis is not required or for any further information please contact Client Services at ALSEnviro.Brisbane@alsglobal.com.**
- **28/04/2022: SRN has been resent to acknowledge change of sample IDs for ALS #s -032 and -051. For any further information regarding these adjustments please contact client services at ALSEnviro.Brisbane@alsglobal.com.**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EB2211261-084	: [11-Apr-2022]	: 0207_QC400_220411 - ALS No. 030226
EB2211261-085	: [11-Apr-2022]	: 0207_QC401_220411 - ALS No. 030250
EB2211261-086	: [11-Apr-2022]	: 0207_QC402_220411 - ALS No. 140310
EB2211261-092	: [18-Apr-2022]	: 0207_QC403_220411 - ALS No. 140309
EB2211261-093	: [11-Apr-2022]	: 0207_QC404_220411 - ALS No. 140312

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EB2211261-033	16-Apr-2022 10:10	0207_SD102_220416	✓	✓
EB2211261-038	16-Apr-2022 12:30	0207_SD037_220416	✓	✓
EB2211261-041	16-Apr-2022 13:40	0207_SD070_220416	✓	✓
EB2211261-045	14-Apr-2022 17:25	0207_SD038_220414	✓	✓
EB2211261-049	15-Apr-2022 13:18	0207_SD036_220415	✓	✓
EB2211261-051	15-Apr-2022 13:56	0207_SD105_220415	✓	✓
EB2211261-058	18-Apr-2022 11:07	0207_SD013_220418	✓	✓
EB2211261-084	11-Apr-2022 00:00	0207_QC400_220411 A...	✓	✓
EB2211261-085	11-Apr-2022 00:00	0207_QC401_220411 A...	✓	✓
EB2211261-087	14-Apr-2022 00:00	0207_QC103_220414	✓	✓
EB2211261-091	18-Apr-2022 00:00	0207_QC110_220418	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211261-001	11-Apr-2022 14:35	0207_MW187_220411	✓
EB2211261-002	11-Apr-2022 15:35	0207_MW189_220411	✓
EB2211261-003	13-Apr-2022 07:45	0207_MW229_220413	✓
EB2211261-004	13-Apr-2022 08:20	0207_MW223_220413	✓
EB2211261-005	17-Apr-2022 08:10	0207_MW174_220417	✓
EB2211261-006	17-Apr-2022 08:38	0207_MW178_220417	✓
EB2211261-007	17-Apr-2022 09:20	0207_MW230_220417	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211261-008	17-Apr-2022 09:55	0207_MW222_220417	✓
EB2211261-009	17-Apr-2022 10:25	0207_MW232_220417	✓
EB2211261-010	17-Apr-2022 11:09	0207_MW221_220417	✓
EB2211261-011	17-Apr-2022 11:46	0207_MW193_220417	✓
EB2211261-012	17-Apr-2022 12:15	0207_MW198_220417	✓
EB2211261-013	17-Apr-2022 12:38	0207_MW207_220417	✓
EB2211261-014	17-Apr-2022 13:20	0207_MW202_220417	✓
EB2211261-015	17-Apr-2022 13:58	0207_MW201_220417	✓
EB2211261-016	17-Apr-2022 14:30	0207_MW203_220417	✓
EB2211261-017	17-Apr-2022 14:55	0207_MW299_220417	✓
EB2211261-018	17-Apr-2022 15:08	0207_MW300_220417	✓
EB2211261-019	17-Apr-2022 15:33	0207_MW167_220417	✓
EB2211261-020	17-Apr-2022 15:50	0207_MW172_220417	✓
EB2211261-021	17-Apr-2022 16:16	0207_MW173_220417	✓
EB2211261-022	18-Apr-2022 07:50	0207_MW245_220418	✓
EB2211261-023	18-Apr-2022 08:50	0207_MW242_220418	✓
EB2211261-024	18-Apr-2022 10:18	0207_MW179_220418	✓
EB2211261-025	19-Apr-2022 08:10	0207_MW249_220419	✓
EB2211261-026	19-Apr-2022 08:38	0207_MW241_220419	✓
EB2211261-027	20-Apr-2022 08:00	0207_MW204_220420	✓
EB2211261-028	14-Apr-2022 08:18	0207_MW205_220420	✓
EB2211261-029	16-Apr-2022 13:10	0207_MW280_220414	✓
EB2211261-030	16-Apr-2022 08:25	0207_MW273_220416	✓
EB2211261-031	16-Apr-2022 08:50	0207_MW272_220416	✓
EB2211261-032	16-Apr-2022 09:40	0207_MW266_220416	✓
EB2211261-034	16-Apr-2022 10:12	0207_SW013_220416	✓
EB2211261-035	16-Apr-2022 10:55	0207_MW265_220416	✓
EB2211261-036	16-Apr-2022 11:26	0207_MW278_220416	✓
EB2211261-037	16-Apr-2022 12:06	0207_MW262_220416	✓
EB2211261-039	16-Apr-2022 12:31	0207_SW010_220416	✓
EB2211261-040	16-Apr-2022 13:10	0207_MW285_220416	✓
EB2211261-042	16-Apr-2022 13:45	0207_SW028_220416	✓
EB2211261-043	14-Apr-2022 17:18	0207_MW264_220414	✓
EB2211261-044	14-Apr-2022 17:25	0207_SW004_220414	✓
EB2211261-046	15-Apr-2022 12:10	0207_MW279_220415	✓
EB2211261-047	15-Apr-2022 12:50	0207_MW282_220415	✓
EB2211261-048	15-Apr-2022 13:18	0207_SW011_220415	✓
EB2211261-050	15-Apr-2022 13:56	0207_SW012_220415	✓
EB2211261-052	15-Apr-2022 14:31	0207_MW257_220415	✓
EB2211261-053	15-Apr-2022 15:10	0207_MW276_220415	✓
EB2211261-054	15-Apr-2022 15:50	0207_MW255_220415	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211261-055	15-Apr-2022 16:50	0207_MW275_220415	✓
EB2211261-056	15-Apr-2022 17:00	0207_MW274_220415	✓
EB2211261-057	18-Apr-2022 11:07	0207_SW009_220418	✓
EB2211261-059	20-Apr-2022 09:59	0207_MW563_220420	✓
EB2211261-060	20-Apr-2022 12:54	0207_MW562_220420	✓
EB2211261-061	20-Apr-2022 10:20	0207_MW235_220420	✓
EB2211261-062	20-Apr-2022 10:40	0207_MW236_220420	✓
EB2211261-063	20-Apr-2022 11:08	0207_MW252_220420	✓
EB2211261-064	20-Apr-2022 14:44	0207_MW233_220420	✓
EB2211261-065	21-Apr-2022 12:54	0207_MW206_220421	✓
EB2211261-066	11-Apr-2022 00:00	0207_QC300_220411	✓
EB2211261-067	12-Apr-2022 00:00	0207_QC301_220412	✓
EB2211261-068	13-Apr-2022 00:00	0207_QC302_220413	✓
EB2211261-069	14-Apr-2022 00:00	0207_QC303_220414	✓
EB2211261-070	15-Apr-2022 00:00	0207_QC304_220415	✓
EB2211261-071	16-Apr-2022 00:00	0207_QC305_220416	✓
EB2211261-072	17-Apr-2022 00:00	0207_QC306_220417	✓
EB2211261-073	13-Apr-2022 00:00	0207_QC100_220413	✓
EB2211261-074	17-Apr-2022 00:00	0207_QC106_220417	✓
EB2211261-075	17-Apr-2022 00:00	0207_QC107_220417	✓
EB2211261-076	18-Apr-2022 00:00	0207_QC108_220418	✓
EB2211261-077	19-Apr-2022 00:00	0207_QC111_220419	✓
EB2211261-078	20-Apr-2022 00:00	0207_QC112_220420	✓
EB2211261-079	20-Apr-2022 00:00	0207_QC113_220420	✓
EB2211261-080	18-Apr-2022 00:00	0207_QC307_220418	✓
EB2211261-081	19-Apr-2022 00:00	0207_QC308_220419	✓
EB2211261-082	20-Apr-2022 00:00	0207_QC309_220420	✓
EB2211261-083	21-Apr-2022 00:00	0207_QC310_220421	✓
EB2211261-086	11-Apr-2022 00:00	0207_QC402_220411 A...	✓
EB2211261-088	14-Apr-2022 00:00	0207_QC104_220415	✓
EB2211261-089	15-Apr-2022 00:00	0207_QC105_220416	✓
EB2211261-090	16-Apr-2022 00:00	0207_QC109_220418	✓
EB2211261-092	18-Apr-2022 00:00	0207_QC403_220411 A...	✓
EB2211261-093	11-Apr-2022 00:00	0207_QC404_220411 A...	✓
EB2211261-094	12-Apr-2022 00:00	0207_MW132_220412	✓

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	[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 - 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 - ESDAT (ESDAT)	Email	

LUCY MUIR

- *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	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211261-AA**	Page	: 1 of 43
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 09-May-2022 10:58
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 93		
No. of samples analysed	: 93		

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]	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: The LOR of PFDS for samples ‘0207_SD102_220416’ (EB2211261-033) and ‘0207_QC110_220418’ (EB2211261-091) has been raised due to sample matrix interferences.
- EP231X PFAS: The LOR of PFOA for sample ‘0207_SD105_220415’ (EB2211261-051) has been raised due to sample matrix interferences.
- EP231X PFAS: Whole bottle extraction was not possible for some samples. Samples required dilution prior to extraction due to matrix interference (sediment). LOR values have been adjusted accordingly. The LORs of particular analytes for particular samples have been raised further due to matrix interference.
- EP231X PFAS: The LOR of PFOS for samples ‘0207_SW012_220415’ (EB2211261-050) and ‘0207_MW257_220415’ (EB2211261-052) has been raised due to sample matrix interferences.
- EP231X PFAS: The LOR OF PFBS for samples "0207_MW174_220417" & "0207_MW207_220417" have been raised due to matrix interferences.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	0207_SD102_220416	0207_SD037_220416	0207_SD070_220416	0207_SD038_220414	0207_SD036_220415
				Sampling date / time	16-Apr-2022 10:10	16-Apr-2022 12:30	16-Apr-2022 13:40	14-Apr-2022 17:25	15-Apr-2022 13:18
					EB2211261-033	EB2211261-038	EB2211261-041	EB2211261-045	EB2211261-049
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**38.0**	**58.1**	**41.0**	**45.1**	**25.2**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0019**	**0.0014**	**0.0006**	**0.0007**	**0.0002**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0003	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0207_SD102_220416	0207_SD037_220416	0207_SD070_220416	0207_SD038_220414	0207_SD036_220415
				Sampling date / time	16-Apr-2022 10:10	16-Apr-2022 12:30	16-Apr-2022 13:40	14-Apr-2022 17:25	15-Apr-2022 13:18
Compound	CAS Number	LOR	Unit		EB2211261-033	EB2211261-038	EB2211261-041	EB2211261-045	EB2211261-049
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0019**	**0.0014**	**0.0006**	**0.0007**	**0.0002**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0019**	**0.0014**	**0.0006**	**0.0007**	**0.0002**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0019**	**0.0014**	**0.0006**	**0.0007**	**0.0002**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**107**	**129**	**114**	**108**	**102**
13C8-PFOA	----	0.0002	%		**108**	**108**	**110**	**109**	**106**

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	0207_SD105_220415	0207_SD013_220418	0207_QC400_220411 ALS No. 030226	0207_QC401_220411 ALS No. 030250	0207_QC103_220414
				Sampling date / time	15-Apr-2022 13:56	18-Apr-2022 11:07	11-Apr-2022 00:00	11-Apr-2022 00:00	14-Apr-2022 00:00
					EB2211261-051	EB2211261-058	EB2211261-084	EB2211261-085	EB2211261-087
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**38.5**	**43.4**	**0.1**	<0.1	**44.1**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0022**	**0.0028**	<0.0002	<0.0002	**0.0012**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	**0.0004**	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0003	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		**0.0011**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		**0.0014**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		**0.0006**	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0207_SD105_220415	0207_SD013_220418	0207_QC400_220411 ALS No. 030226	0207_QC401_220411 ALS No. 030250	0207_QC103_220414
				Sampling date / time	15-Apr-2022 13:56	18-Apr-2022 11:07	11-Apr-2022 00:00	11-Apr-2022 00:00	14-Apr-2022 00:00
Compound	CAS Number	LOR	Unit		EB2211261-051	EB2211261-058	EB2211261-084	EB2211261-085	EB2211261-087
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0053**	**0.0032**	<0.0002	<0.0002	**0.0012**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0022**	**0.0028**	<0.0002	<0.0002	**0.0012**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0022**	**0.0028**	<0.0002	<0.0002	**0.0012**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**110**	**114**	**108**	**102**	**104**
13C8-PFOA	----	0.0002	%		**121**	**106**	**109**	**118**	**100**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	0207_QC110_220418	----	----	----	----
			Sampling date / time	18-Apr-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2211261-091	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**45.3**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0026**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0004	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	**0.0002**	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0207_QC110_220418	----	----	----	----
				Sampling date / time	18-Apr-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211261-091	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0028**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0026**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0026**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**128**	----	----	----	----
13C8-PFOA	----	0.0002	%		**110**	----	----	----	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW187_220411	0207_MW189_220411	0207_MW229_220413	0207_MW223_220413	0207_MW174_220417
				Sampling date / time	11-Apr-2022 14:35	11-Apr-2022 15:35	13-Apr-2022 07:45	13-Apr-2022 08:20	17-Apr-2022 08:10
					EB2211261-001	EB2211261-002	EB2211261-003	EB2211261-004	EB2211261-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.03**	<0.02	**0.60**	**0.77**	<0.04
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.02**	<0.02	**0.61**	**0.78**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.16**	**0.07**	**5.56**	**6.40**	**0.03**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.40**	**0.62**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.45**	**0.08**	**20.6**	**14.8**	**0.03**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.1**	<0.1	<0.2	**6.1**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.13**	<0.02	**0.23**	**30.9**	**0.03**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.24**	<0.02	**1.60**	**14.2**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.11**	**16.4**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	**0.41**	**10.2**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.05	**3.04**	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.12	<0.12	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.12	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.12	<0.12	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW187_220411	0207_MW189_220411	0207_MW229_220413	0207_MW223_220413	0207_MW174_220417
				Sampling date / time	11-Apr-2022 14:35	11-Apr-2022 15:35	13-Apr-2022 07:45	13-Apr-2022 08:20	17-Apr-2022 08:10
Compound	CAS Number	LOR	Unit		EB2211261-001	EB2211261-002	EB2211261-003	EB2211261-004	EB2211261-005
					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	<0.12	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.12	<0.12	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<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	<0.05	**6.56**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	**0.22**	<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		**1.13**	**0.15**	**30.1**	**111**	**0.09**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.61**	**0.15**	**26.2**	**21.2**	**0.06**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.11**	**0.15**	**29.1**	**106**	**0.09**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.6**	**105**	**94.1**	**97.2**	**102**
13C8-PFOA	----	0.02	%		**101**	**102**	**102**	**104**	**93.1**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW178_220417	0207_MW230_220417	0207_MW222_220417	0207_MW232_220417	0207_MW221_220417
				Sampling date / time	17-Apr-2022 08:38	17-Apr-2022 09:20	17-Apr-2022 09:55	17-Apr-2022 10:25	17-Apr-2022 11:09
					EB2211261-006	EB2211261-007	EB2211261-008	EB2211261-009	EB2211261-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**0.53**	**0.74**	**0.63**	**0.33**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**0.55**	**0.70**	**0.72**	**0.29**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**4.50**	**5.34**	**5.85**	**1.70**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	**0.34**	**0.60**	**0.42**	**0.16**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**5.80**	**15.9**	**14.9**	**2.34**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	**3.8**	**1.0**	**0.9**	**0.1**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**13.9**	**2.49**	**2.63**	**0.24**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	**7.67**	**3.80**	**2.34**	**0.88**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**6.59**	**1.76**	**1.10**	**0.21**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**5.87**	**3.14**	**1.50**	**0.37**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	**1.56**	**0.75**	**0.29**	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	**0.05**	<0.05	**0.22**	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.06	<0.12	<0.12	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.06	<0.12	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.06	<0.12	<0.12	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW178_220417	0207_MW230_220417	0207_MW222_220417	0207_MW232_220417	0207_MW221_220417
				Sampling date / time	17-Apr-2022 08:38	17-Apr-2022 09:20	17-Apr-2022 09:55	17-Apr-2022 10:25	17-Apr-2022 11:09
Compound	CAS Number	LOR	Unit		EB2211261-006	EB2211261-007	EB2211261-008	EB2211261-009	EB2211261-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.06	<0.12	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.06	<0.12	<0.12	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.05	<0.05	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<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	**2.55**	**1.35**	**0.13**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	**0.20**	**0.14**	**1.36**	<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	**53.9**	**37.7**	**33.0**	**6.62**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**10.3**	**21.2**	**20.8**	**4.04**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**51.4**	**35.7**	**31.3**	**6.17**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.4**	**94.5**	**106**	**99.9**	**99.5**
13C8-PFOA	----	0.02	%		**99.7**	**103**	**100**	**102**	**102**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW193_220417	0207_MW198_220417	0207_MW207_220417	0207_MW202_220417	0207_MW201_220417
				Sampling date / time	17-Apr-2022 11:46	17-Apr-2022 12:15	17-Apr-2022 12:38	17-Apr-2022 13:20	17-Apr-2022 13:58
					EB2211261-011	EB2211261-012	EB2211261-013	EB2211261-014	EB2211261-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**2.94**	**0.23**	<0.04	**10.8**	**16.8**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**2.77**	**0.21**	<0.02	**10.2**	**17.8**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**14.8**	**1.56**	**0.14**	**100**	**104**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**1.35**	**0.24**	<0.02	**9.25**	**6.35**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**16.7**	**5.99**	**0.10**	**475**	**58.5**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<2.50	<0.05
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**6.0**	**0.1**	<0.1	<12.5	**3.2**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**1.92**	**0.26**	<0.02	**4.00**	**5.33**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**8.13**	**0.62**	**0.03**	**21.2**	**25.7**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**1.87**	**0.16**	<0.02	<2.50	**3.34**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**2.91**	**0.29**	<0.01	**7.75**	**7.46**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<2.50	<0.05
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<2.50	<0.05
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<2.50	<0.05
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<2.50	<0.05
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<2.50	<0.05
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.06	<0.05	<0.05	<6.25	<0.12
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<2.50	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.06	<0.05	<0.05	<6.25	<0.12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.06	<0.05	<0.05	<6.25	<0.12

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW193_220417	0207_MW198_220417	0207_MW207_220417	0207_MW202_220417	0207_MW201_220417
				Sampling date / time	17-Apr-2022 11:46	17-Apr-2022 12:15	17-Apr-2022 12:38	17-Apr-2022 13:20	17-Apr-2022 13:58
					EB2211261-011	EB2211261-012	EB2211261-013	EB2211261-014	EB2211261-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.06	<0.05	<0.05	<6.25	<0.12
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.06	<0.05	<0.05	<6.25	<0.12
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<2.50	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<2.50	<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	<2.50	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.07**	<0.05	<0.05	<2.50	**0.46**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<2.50	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<2.50	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**59.5**	**9.66**	**0.27**	**638**	**249**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**31.5**	**7.55**	**0.24**	**575**	**162**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**55.3**	**9.21**	**0.27**	**619**	**225**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.8**	**87.7**	**98.4**	**113**	**93.9**
13C8-PFOA	----	0.02	%		**100**	**103**	**97.3**	**97.0**	**99.6**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW203_220417	0207_MW299_220417	0207_MW300_220417	0207_MW167_220417	0207_MW172_220417
				Sampling date / time	17-Apr-2022 14:30	17-Apr-2022 14:55	17-Apr-2022 15:08	17-Apr-2022 15:33	17-Apr-2022 15:50
					EB2211261-016	EB2211261-017	EB2211261-018	EB2211261-019	EB2211261-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.72**	**17.7**	**4.94**	**0.55**	**1.03**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.79**	**16.9**	**5.35**	**0.46**	**0.91**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**6.49**	**80.8**	**36.6**	**2.48**	**4.61**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.07**	**5.41**	**4.14**	**0.22**	**0.56**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.79**	**88.5**	**83.6**	**4.34**	**22.1**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.24	<0.27	<0.02	<0.05
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.3**	**5.5**	**1.4**	**0.1**	**0.9**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.51**	**10.6**	**2.81**	**0.26**	**2.34**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.29**	**49.6**	**12.4**	**1.18**	**3.99**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.25**	**10.4**	**2.89**	**0.17**	**1.70**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.17**	**22.9**	**9.03**	**0.36**	**1.88**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.24	<0.27	<0.02	**0.13**
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.24	<0.27	<0.02	**0.08**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.24	<0.27	<0.02	<0.05
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.24	<0.27	<0.02	<0.05
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.24	<0.27	<0.02	<0.05
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.61	<0.68	<0.06	<0.12
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.24	<0.27	<0.02	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.61	<0.68	<0.06	<0.12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.61	<0.68	<0.06	<0.12

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW203_220417	0207_MW299_220417	0207_MW300_220417	0207_MW167_220417	0207_MW172_220417
				Sampling date / time	17-Apr-2022 14:30	17-Apr-2022 14:55	17-Apr-2022 15:08	17-Apr-2022 15:33	17-Apr-2022 15:50
Compound	CAS Number	LOR	Unit		EB2211261-016	EB2211261-017	EB2211261-018	EB2211261-019	EB2211261-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.61	<0.68	<0.06	<0.12
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.61	<0.68	<0.06	<0.12
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.24	<0.27	<0.02	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.24	<0.27	<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	<0.24	<0.27	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	**1.20**	<0.27	<0.05	**7.07**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.24	<0.27	<0.05	**1.94**
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.24	<0.27	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**11.4**	**310**	**163**	**10.1**	**49.2**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**7.28**	**169**	**120**	**6.82**	**26.7**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**10.5**	**287**	**154**	**9.44**	**47.6**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**113**	**107**	**96.8**	**93.1**	**103**
13C8-PFOA	----	0.02	%		**96.4**	**95.0**	**98.3**	**102**	**103**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW173_220417	0207_MW245_220418	0207_MW242_220418	0207_MW179_220418	0207_MW249_220419
				Sampling date / time	17-Apr-2022 16:16	18-Apr-2022 07:50	18-Apr-2022 08:50	18-Apr-2022 10:18	19-Apr-2022 08:10
					EB2211261-021	EB2211261-022	EB2211261-023	EB2211261-024	EB2211261-025
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.24**	<0.02	<0.02	**0.54**	**0.57**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.25**	<0.02	<0.02	**0.46**	**0.57**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**2.37**	**0.18**	<0.02	**2.39**	**2.58**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.15**	<0.02	<0.02	**0.20**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**2.90**	**0.10**	**0.05**	**2.33**	**0.11**
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		**0.3**	<0.1	<0.1	**0.2**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.93**	<0.02	<0.02	**0.27**	**0.30**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.05**	**0.04**	<0.02	**1.37**	**0.99**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.47**	<0.02	<0.02	**0.23**	**0.11**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.56**	<0.02	<0.02	**0.41**	**0.07**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.14**	<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		<0.06	<0.06	<0.06	<0.06	<0.06
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		<0.06	<0.06	<0.06	<0.06	<0.06
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.06	<0.06	<0.06	<0.06	<0.06

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW173_220417	0207_MW245_220418	0207_MW242_220418	0207_MW179_220418	0207_MW249_220419
				Sampling date / time	17-Apr-2022 16:16	18-Apr-2022 07:50	18-Apr-2022 08:50	18-Apr-2022 10:18	19-Apr-2022 08:10
Compound	CAS Number	LOR	Unit		EB2211261-021	EB2211261-022	EB2211261-023	EB2211261-024	EB2211261-025
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.06	<0.06	<0.06	<0.06	<0.06
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.06	<0.06	<0.06	<0.06	<0.06
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		**0.66**	<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		**10.0**	**0.32**	**0.05**	**8.40**	**5.30**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**5.27**	**0.28**	**0.05**	**4.72**	**2.69**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**9.48**	**0.32**	**0.05**	**7.74**	**4.73**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**107**	**88.5**	**94.6**	**103**
13C8-PFOA	----	0.02	%		**99.6**	**96.9**	**99.1**	**102**	**97.1**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW241_220419	0207_MW204_220420	0207_MW205_220420	0207_MW280_220414	0207_MW273_220416
				Sampling date / time	19-Apr-2022 08:38	20-Apr-2022 08:00	14-Apr-2022 08:18	16-Apr-2022 13:10	16-Apr-2022 08:25
Compound	CAS Number	LOR	Unit		EB2211261-026	EB2211261-027	EB2211261-028	EB2211261-029	EB2211261-030
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.13**	**22.0**	**1.00**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.15**	**25.6**	**1.11**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**1.38**	**175**	**6.85**	**0.16**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.07**	**6.15**	**0.40**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**3.71**	**25.2**	**5.96**	**0.12**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.50	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<2.5	**0.2**	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.06**	**6.85**	**0.41**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.21**	**30.6**	**1.78**	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.05**	**5.35**	**0.31**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.11**	**10.6**	**0.56**	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.50	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.50	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.50	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.50	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.50	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.06	<1.25	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.50	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.06	<1.25	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.06	<1.25	<0.05	<0.05	<0.05

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW241_220419	0207_MW204_220420	0207_MW205_220420	0207_MW280_220414	0207_MW273_220416
				Sampling date / time	19-Apr-2022 08:38	20-Apr-2022 08:00	14-Apr-2022 08:18	16-Apr-2022 13:10	16-Apr-2022 08:25
					EB2211261-026	EB2211261-027	EB2211261-028	EB2211261-029	EB2211261-030
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.06	<1.25	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.06	<1.25	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.50	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.50	<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	<0.50	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.50	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.50	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.50	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**5.87**	**307**	**18.6**	**0.28**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**5.09**	**200**	**12.8**	**0.28**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**5.65**	**276**	**17.1**	**0.28**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.4**	**95.4**	**93.8**	**95.6**	**93.1**
13C8-PFOA	----	0.02	%		**100**	**95.4**	**100**	**97.6**	**99.2**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW272_220416	0207_MW266_220416	0207_SW013_220416	0207_MW265_220416	0207_MW278_220416
				Sampling date / time	16-Apr-2022 08:50	16-Apr-2022 09:40	16-Apr-2022 10:12	16-Apr-2022 10:55	16-Apr-2022 11:26
					EB2211261-031	EB2211261-032	EB2211261-034	EB2211261-035	EB2211261-036
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	**0.59**	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.04**	**0.51**	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.24**	**2.60**	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	**0.18**	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.10**	**3.08**	**0.04**	<0.01	<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	**0.2**	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**0.22**	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.07**	**0.96**	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**0.16**	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.27**	<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: WATER (Matrix: WATER)				Sample ID	0207_MW272_220416	0207_MW266_220416	0207_SW013_220416	0207_MW265_220416	0207_MW278_220416
				Sampling date / time	16-Apr-2022 08:50	16-Apr-2022 09:40	16-Apr-2022 10:12	16-Apr-2022 10:55	16-Apr-2022 11:26
Compound	CAS Number	LOR	Unit		EB2211261-031	EB2211261-032	EB2211261-034	EB2211261-035	EB2211261-036
					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**	**8.77**	**0.04**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.34**	**5.68**	**0.04**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.45**	**8.08**	**0.04**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**86.8**	**102**	**101**	**102**	**106**
13C8-PFOA	----	0.02	%		**95.7**	**98.5**	**97.1**	**99.8**	**98.7**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW262_220416	0207_SW010_220416	0207_MW285_220416	0207_SW028_220416	0207_MW264_220414
				Sampling date / time	16-Apr-2022 12:06	16-Apr-2022 12:31	16-Apr-2022 13:10	16-Apr-2022 13:45	14-Apr-2022 17:18
					EB2211261-037	EB2211261-039	EB2211261-040	EB2211261-042	EB2211261-043
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.05**	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.04**	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.26**	<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		**0.27**	**0.02**	<0.01	<0.01	<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	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.05**	<0.02	<0.02	<0.02	<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		**0.03**	<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: WATER (Matrix: WATER)				Sample ID	0207_MW262_220416	0207_SW010_220416	0207_MW285_220416	0207_SW028_220416	0207_MW264_220414
				Sampling date / time	16-Apr-2022 12:06	16-Apr-2022 12:31	16-Apr-2022 13:10	16-Apr-2022 13:45	14-Apr-2022 17:18
Compound	CAS Number	LOR	Unit		EB2211261-037	EB2211261-039	EB2211261-040	EB2211261-042	EB2211261-043
					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		**0.70**	**0.02**	<0.01	**0.01**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.53**	**0.02**	<0.01	**0.01**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.66**	**0.02**	<0.01	**0.01**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.8**	**85.6**	**103**	**94.4**	**109**
13C8-PFOA	----	0.02	%		**97.9**	**100**	**100**	**98.5**	**97.5**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_SW004_220414	0207_MW279_220415	0207_MW282_220415	0207_SW011_220415	0207_SW012_220415
				Sampling date / time	14-Apr-2022 17:25	15-Apr-2022 12:10	15-Apr-2022 12:50	15-Apr-2022 13:18	15-Apr-2022 13:56
					EB2211261-044	EB2211261-046	EB2211261-047	EB2211261-048	EB2211261-050
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.06**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.04**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.02	<0.02	**0.34**	<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		<0.02	<0.02	**0.86**	<0.01	<0.02
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		<0.02	<0.02	<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		<0.06	<0.06	<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		<0.06	<0.06	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.06	<0.06	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW004_220414	0207_MW279_220415	0207_MW282_220415	0207_SW011_220415	0207_SW012_220415
				Sampling date / time	14-Apr-2022 17:25	15-Apr-2022 12:10	15-Apr-2022 12:50	15-Apr-2022 13:18	15-Apr-2022 13:56
Compound	CAS Number	LOR	Unit		EB2211261-044	EB2211261-046	EB2211261-047	EB2211261-048	EB2211261-050
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.06	<0.06	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.06	<0.06	<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		<0.02	<0.02	**1.30**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.02	<0.02	**1.20**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.02	<0.02	**1.26**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.7**	**111**	**92.4**	**106**	**104**
13C8-PFOA	----	0.02	%		**107**	**97.4**	**102**	**103**	**106**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW257_220415	0207_MW276_220415	0207_MW255_220415	0207_MW275_220415	0207_MW274_220415
				Sampling date / time	15-Apr-2022 14:31	15-Apr-2022 15:10	15-Apr-2022 15:50	15-Apr-2022 16:50	15-Apr-2022 17:00
Compound	CAS Number	LOR	Unit		EB2211261-052	EB2211261-053	EB2211261-054	EB2211261-055	EB2211261-056
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**0.83**	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**1.00**	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	**7.78**	**0.02**	<0.02	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	**0.60**	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.03	**11.2**	**0.02**	<0.02	<0.02
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	**0.3**	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**0.34**	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	**1.67**	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**0.25**	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.55**	<0.01	<0.02	<0.02
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	<0.06	<0.06
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	<0.06	<0.06
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.06	<0.06

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW257_220415	0207_MW276_220415	0207_MW255_220415	0207_MW275_220415	0207_MW274_220415
				Sampling date / time	15-Apr-2022 14:31	15-Apr-2022 15:10	15-Apr-2022 15:50	15-Apr-2022 16:50	15-Apr-2022 17:00
					EB2211261-052	EB2211261-053	EB2211261-054	EB2211261-055	EB2211261-056
					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	<0.06	<0.06
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.06	<0.06
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		**0.02**	**24.5**	**0.04**	<0.02	<0.02
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	**19.0**	**0.04**	<0.02	<0.02
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.02**	**22.9**	**0.04**	<0.02	<0.02
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.0**	**108**	**103**	**104**	**110**
13C8-PFOA	----	0.02	%		**108**	**106**	**104**	**106**	**110**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_SW009_220418	0207_MW563_220420	0207_MW562_220420	0207_MW235_220420	0207_MW236_220420
				Sampling date / time	18-Apr-2022 11:07	20-Apr-2022 09:59	20-Apr-2022 12:54	20-Apr-2022 10:20	20-Apr-2022 10:40
					EB2211261-057	EB2211261-059	EB2211261-060	EB2211261-061	EB2211261-062
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.03**	<0.02	**3.30**	**1.81**	**0.66**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**2.37**	**1.80**	**0.46**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.18**	<0.07	**8.81**	**5.90**	**1.84**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.14	**0.10**	<0.06
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.59**	<0.02	**0.61**	**4.80**	**0.96**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	**0.9**	**0.5**	**0.4**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**0.22**	**1.57**	**0.77**	**0.31**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.05**	**0.04**	**4.49**	**3.10**	**1.02**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.43**	**0.22**	**0.06**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.02	<0.02	**0.55**	**0.18**	**0.23**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.06	<0.06	<0.06	<0.12	<0.06
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.06	<0.06	<0.06	<0.12	<0.06
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.06	<0.06	<0.06	<0.12	<0.06

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_SW009_220418	0207_MW563_220420	0207_MW562_220420	0207_MW235_220420	0207_MW236_220420
				Sampling date / time	18-Apr-2022 11:07	20-Apr-2022 09:59	20-Apr-2022 12:54	20-Apr-2022 10:20	20-Apr-2022 10:40
Compound	CAS Number	LOR	Unit		EB2211261-057	EB2211261-059	EB2211261-060	EB2211261-061	EB2211261-062
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.06	<0.06	<0.06	<0.12	<0.06
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.06	<0.06	<0.06	<0.12	<0.06
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.05	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<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		<0.05	<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		**0.85**	**0.26**	**23.0**	**19.2**	**5.94**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.77**	<0.02	**9.42**	**10.7**	**2.80**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.85**	**0.26**	**20.7**	**17.3**	**5.48**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**91.6**	**103**	**102**	**113**	**103**
13C8-PFOA	----	0.02	%		**107**	**105**	**108**	**105**	**111**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW252_220420	0207_MW233_220420	0207_MW206_220421	0207_QC300_220411	0207_QC301_220412
				Sampling date / time	20-Apr-2022 11:08	20-Apr-2022 14:44	21-Apr-2022 12:54	11-Apr-2022 00:00	12-Apr-2022 00:00
					EB2211261-063	EB2211261-064	EB2211261-065	EB2211261-066	EB2211261-067
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.30**	**0.16**	**0.54**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.20**	**0.12**	**0.57**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**1.25**	**0.63**	**4.11**	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.05**	<0.02	**0.38**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**4.20**	**0.22**	**5.08**	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.2	<0.1	**0.1**	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.15**	**0.04**	**0.24**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.37**	**0.13**	**0.97**	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.07**	**0.02**	**0.28**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.10**	**0.03**	**0.50**	<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		<0.05	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW252_220420	0207_MW233_220420	0207_MW206_220421	0207_QC300_220411	0207_QC301_220412
				Sampling date / time	20-Apr-2022 11:08	20-Apr-2022 14:44	21-Apr-2022 12:54	11-Apr-2022 00:00	12-Apr-2022 00:00
Compound	CAS Number	LOR	Unit		EB2211261-063	EB2211261-064	EB2211261-065	EB2211261-066	EB2211261-067
					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	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.12	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.05	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.05	<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		**6.69**	**1.35**	**12.8**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**5.45**	**0.85**	**9.19**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**6.44**	**1.23**	**11.8**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**119**	**113**	**102**	**112**	**96.0**
13C8-PFOA	----	0.02	%		**98.8**	**105**	**106**	**105**	**111**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_QC302_220413	0207_QC303_220414	0207_QC304_220415	0207_QC305_220416	0207_QC306_220417
				Sampling date / time	13-Apr-2022 00:00	14-Apr-2022 00:00	15-Apr-2022 00:00	16-Apr-2022 00:00	17-Apr-2022 00:00
Compound	CAS Number	LOR	Unit		EB2211261-068	EB2211261-069	EB2211261-070	EB2211261-071	EB2211261-072
					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		**0.02**	<0.01	<0.01	<0.01	<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	<0.02	<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: WATER (Matrix: WATER)				Sample ID	0207_QC302_220413	0207_QC303_220414	0207_QC304_220415	0207_QC305_220416	0207_QC306_220417
				Sampling date / time	13-Apr-2022 00:00	14-Apr-2022 00:00	15-Apr-2022 00:00	16-Apr-2022 00:00	17-Apr-2022 00:00
Compound	CAS Number	LOR	Unit		EB2211261-068	EB2211261-069	EB2211261-070	EB2211261-071	EB2211261-072
					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		**0.02**	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.02**	<0.01	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**104**	**112**	**118**	**118**	**128**
13C8-PFOA	----	0.02	%		**106**	**106**	**98.9**	**103**	**104**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_QC100_220413	0207_QC106_220417	0207_QC107_220417	0207_QC108_220418	0207_QC111_220419
				Sampling date / time	13-Apr-2022 00:00	17-Apr-2022 00:00	17-Apr-2022 00:00	18-Apr-2022 00:00	19-Apr-2022 00:00
					EB2211261-073	EB2211261-074	EB2211261-075	EB2211261-076	EB2211261-077
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.68**	**0.70**	**12.9**	**0.03**	**0.49**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**1.02**	**0.85**	**13.0**	**0.04**	**0.53**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**7.26**	**5.49**	**85.7**	**0.20**	**2.52**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**1.01**	**0.93**	**4.53**	<0.02	**0.03**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**18.0**	**17.7**	**50.8**	**0.12**	**0.11**
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		**6.2**	**1.1**	**3.4**	<0.1	**0.2**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**23.3**	**2.14**	**4.80**	<0.02	**0.27**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**12.7**	**3.67**	**18.3**	**0.05**	**0.98**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**14.3**	**2.02**	**2.62**	<0.02	**0.11**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**10.0**	**3.10**	**5.32**	<0.01	**0.08**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**2.97**	**0.76**	**0.06**	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		**0.03**	**0.03**	<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**	**0.03**	<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: WATER (Matrix: WATER)				Sample ID	0207_QC100_220413	0207_QC106_220417	0207_QC107_220417	0207_QC108_220418	0207_QC111_220419
				Sampling date / time	13-Apr-2022 00:00	17-Apr-2022 00:00	17-Apr-2022 00:00	18-Apr-2022 00:00	19-Apr-2022 00:00
Compound	CAS Number	LOR	Unit		EB2211261-073	EB2211261-074	EB2211261-075	EB2211261-076	EB2211261-077
					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		**6.47**	**1.68**	**0.61**	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		**0.40**	**0.21**	<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		**104**	**40.4**	**202**	**0.44**	**5.32**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**25.3**	**23.2**	**136**	**0.32**	**2.63**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**99.3**	**37.8**	**184**	**0.40**	**4.76**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**119**	**110**	**84.7**	**122**	**113**
13C8-PFOA	----	0.02	%		**105**	**102**	**110**	**111**	**99.7**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_QC112_220420	0207_QC113_220420	0207_QC307_220418	0207_QC308_220419	0207_QC309_220420
				Sampling date / time	20-Apr-2022 00:00	20-Apr-2022 00:00	18-Apr-2022 00:00	19-Apr-2022 00:00	20-Apr-2022 00:00
					EB2211261-078	EB2211261-079	EB2211261-080	EB2211261-081	EB2211261-082
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.28**	**0.16**	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.24**	**0.10**	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**1.30**	**0.66**	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.08**	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**4.05**	**0.22**	<0.01	<0.01	<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		**0.19**	**0.03**	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.34**	**0.13**	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.08**	**0.02**	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.12**	**0.03**	<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: WATER (Matrix: WATER)				Sample ID	0207_QC112_220420	0207_QC113_220420	0207_QC307_220418	0207_QC308_220419	0207_QC309_220420
				Sampling date / time	20-Apr-2022 00:00	20-Apr-2022 00:00	18-Apr-2022 00:00	19-Apr-2022 00:00	20-Apr-2022 00:00
Compound	CAS Number	LOR	Unit		EB2211261-078	EB2211261-079	EB2211261-080	EB2211261-081	EB2211261-082
					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		**6.78**	**1.35**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**5.35**	**0.88**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**6.46**	**1.25**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**124**	**120**	**118**	**116**	**111**
13C8-PFOA	----	0.02	%		**111**	**114**	**112**	**105**	**102**

Analytical Results

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

				Sample ID	0207_QC310_220421	0207_QC402_220411 ALS No. 140310	0207_QC104_220415	0207_QC105_220416	0207_QC109_220418
				Sampling date / time	21-Apr-2022 00:00	11-Apr-2022 00:00	14-Apr-2022 00:00	15-Apr-2022 00:00	16-Apr-2022 00:00
Compound	CAS Number	LOR	Unit		EB2211261-083	EB2211261-086	EB2211261-088	EB2211261-089	EB2211261-090
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.05**	**0.04**	**0.03**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.03**	**0.04**	**0.02**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.34**	**0.28**	**0.19**
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	**0.80**	**0.13**	**0.56**
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	**0.06**	**0.06**
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	**0.02**
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: WATER (Matrix: WATER)				Sample ID	0207_QC310_220421	0207_QC402_220411 ALS No. 140310	0207_QC104_220415	0207_QC105_220416	0207_QC109_220418
				Sampling date / time	21-Apr-2022 00:00	11-Apr-2022 00:00	14-Apr-2022 00:00	15-Apr-2022 00:00	16-Apr-2022 00:00
Compound	CAS Number	LOR	Unit		EB2211261-083	EB2211261-086	EB2211261-088	EB2211261-089	EB2211261-090
					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	**1.22**	**0.55**	**0.88**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**1.14**	**0.41**	**0.75**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**1.19**	**0.51**	**0.86**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**104**	**93.8**	**116**	**125**	**111**
13C8-PFOA	----	0.02	%		**101**	**95.5**	**100**	**102**	**103**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_QC403_220411 ALS No. 140309	0207_QC404_220411 ALS No. 140312	----	----	----
				Sampling date / time	18-Apr-2022 00:00	11-Apr-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2211261-092	EB2211261-093	--------	--------	--------
					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		<0.01	<0.01	----	----	----
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		<0.01	<0.01	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_QC403_220411 ALS No. 140309	0207_QC404_220411 ALS No. 140312	----	----	----
				Sampling date / time	18-Apr-2022 00:00	11-Apr-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2211261-092	EB2211261-093	--------	--------	--------
					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		<0.01	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**118**	**118**	----	----	----
13C8-PFOA	----	0.02	%		**102**	**105**	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211261-AA**	Page	: 1 of 23
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 09-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 93		
No. of samples analysed	: 93		

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]	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD
	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4304692)									
EB2211261-033	0207_SD102_220416	EA055: Moisture Content	----	0.1	%	38.0	38.2	0.3	0% - 20%
EB2211261-091	0207_QC110_220418	EA055: Moisture Content	----	0.1	%	45.3	46.4	2.3	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4304691)									
EB2211261-033	0207_SD102_220416	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0019	0.0010	57.9	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0003	<0.0002	40.0	No Limit
EB2211261-091	0207_QC110_220418	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0026	0.0023	13.9	0% - 50%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0004	<0.0005	22.2	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4304691)									
EB2211261-033	0207_SD102_220416	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4304691) - continued									
EB2211261-033	0207_SD102_220416	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EB2211261-091	0207_QC110_220418	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4304691)									
EB2211261-033	0207_SD102_220416	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2211261-091	0207_QC110_220418	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4304691)									
EB2211261-033	0207_SD102_220416	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2211261-091	0207_QC110_220418	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **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: 4309223)									
EB2211261-002	0207_MW189_220411	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.07	0.07	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.08	0.08	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: 4309232)									
EB2211261-026	0207_MW241_220419	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	1.38	1.40	0.8	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	3.71	3.83	3.1	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.13	0.15	9.7	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.15	0.17	8.6	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.07	0.06	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EB2211261-032	0207_MW266_220416	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	2.60	2.51	3.5	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	3.08	2.87	7.0	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.59	0.57	3.7	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.51	0.49	4.0	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.18	0.16	11.0	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: 4309243)									
EB2211261-094	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.09	0.11	12.4	0% - 50%

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: 4309243) - continued									
EB2211261-094	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.11	0.12	14.5	0% - 50%
		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: 4309255)									
EB2211261-046	0207_MW279_220415	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.02	<0.02	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
EB2211261-060	0207_MW562_220420	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	8.81	8.57	2.7	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.61	0.54	13.0	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	3.30	3.14	5.0	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	2.37	2.46	3.4	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.14	<0.15	6.9	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: 4309223)									
EB2211261-002	0207_MW189_220411	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: 4309232)									
EB2211261-026	0207_MW241_220419	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.11	0.12	9.2	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.21	0.23	8.6	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.05	0.05	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

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: 4309232) - continued									
EB2211261-026	0207_MW241_220419	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EB2211261-032	0207_MW266_220416	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.27	0.26	6.3	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.22	0.22	0.0	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.96	0.96	0.0	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.16	0.15	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	0.2	0.2	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4309243)									
EB2211261-094	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
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4309255)									
EB2211261-046	0207_MW279_220415	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.02	<0.02	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	<0.06	<0.06	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EB2211261-060	0207_MW562_220420	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.55	0.54	0.0	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	1.57	1.53	2.4	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	4.49	4.42	1.5	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: 4309255) - continued									
EB2211261-060	0207_MW562_220420	EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.43	0.44	0.0	0% - 50%
		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	<0.06	<0.06	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.9	0.8	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4309223)									
EB2211261-002	0207_MW189_220411	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: 4309232)									
EB2211261-026	0207_MW241_220419	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	<0.06	<0.06	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.06	<0.06	0.0	No Limit
EB2211261-032	0207_MW266_220416	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: 4309232) - continued									
EB2211261-032	0207_MW266_220416	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: 4309243)									
EB2211261-094	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4309255)									
EB2211261-046	0207_MW279_220415	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	<0.06	<0.06	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.06	<0.06	0.0	No Limit
EB2211261-060	0207_MW562_220420	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: 4309255) - continued									
EB2211261-060	0207_MW562_220420	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.06	<0.06	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.06	<0.06	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4309223)									
EB2211261-002	0207_MW189_220411	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: 4309232)									
EB2211261-026	0207_MW241_220419	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
EB2211261-032	0207_MW266_220416	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: 4309243)									
EB2211261-094	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

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: 4309243) - continued									
EB2211261-094	Anonymous	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: 4309255)									
EB2211261-046	0207_MW279_220415	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
EB2211261-060	0207_MW562_220420	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: 4309223)									
EB2211261-002	0207_MW189_220411	EP231X: Sum of PFAS	----	0.01	µg/L	0.15	0.15	0.0	0% - 50%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.15	0.15	0.0	0% - 50%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.15	0.15	0.0	0% - 50%
EP231P: PFAS Sums (QC Lot: 4309232)									
EB2211261-026	0207_MW241_220419	EP231X: Sum of PFAS	----	0.01	µg/L	5.87	6.07	3.4	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	5.09	5.23	2.7	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	5.65	5.84	3.3	0% - 20%
EB2211261-032	0207_MW266_220416	EP231X: Sum of PFAS	----	0.01	µg/L	8.77	8.39	4.4	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	5.68	5.38	5.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	8.08	7.74	4.3	0% - 20%
EP231P: PFAS Sums (QC Lot: 4309243)									
EB2211261-094	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.22	0.25	12.8	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.20	0.23	14.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.22	0.25	12.8	0% - 20%
EP231P: PFAS Sums (QC Lot: 4309255)									
EB2211261-046	0207_MW279_220415	EP231X: Sum of PFAS	----	0.01	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 (%)*
EP231P: PFAS Sums (QC Lot: 4309255) - continued									
EB2211261-046	0207_MW279_220415	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.02	<0.02	0.0	No Limit
EB2211261-060	0207_MW562_220420	EP231X: Sum of PFAS	----	0.01	µg/L	23.0	22.4	2.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	9.42	9.11	3.3	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	20.7	20.0	3.3	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: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4304691)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	91.8	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00117 mg/kg	86.8	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	86.9	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	86.1	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	88.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	86.2	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4304691)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	79.4	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.0	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.8	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.2	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.2	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	72.0	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	71.6	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.8	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	88.8	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4304691)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.3	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	76.9	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	84.6	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	90.2	61.9	137
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.6	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4304691)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	73.9	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	86.7	65.0	137

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4304691) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	87.5	54.8	124

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
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309223)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	109	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	98.4	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	103	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	86.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	89.4	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309232)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	75.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	72.5	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	71.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	# 64.3	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	71.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	69.9	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309243)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	99.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	100	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	93.3	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	102	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	91.1	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309255)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	86.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	91.4	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	91.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	92.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	134	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309260)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	76.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	79.7	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	80.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	87.0	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	85.8	65.0	140

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
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309260) - continued								
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	73.6	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309223)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	106	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	105	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	109	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	103	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	106	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	106	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309232)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	73.7	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	75.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	74.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	74.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	74.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	73.2	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	71.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	74.4	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	78.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	70.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	77.9	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309243)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	86.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	89.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	84.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	75.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	72.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	67.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	97.7	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309255)								

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: 4309255) - continued								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	101	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	87.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	92.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	96.2	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	98.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	99.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	93.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	82.9	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309260)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	86.7	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	82.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	75.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	75.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	86.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	71.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	72.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	81.6	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	75.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	68.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	82.1	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309223)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	106	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	107	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	97.8	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	105	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	97.2	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309232)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	67.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	72.1	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	64.0	60.5	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
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309232) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	70.4	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	71.7	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	72.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	66.2	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309243)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	99.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	91.0	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	88.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	78.2	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	91.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	81.6	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309255)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	97.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	97.5	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	88.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	91.4	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	86.9	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	91.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	104	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309260)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	103	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	97.5	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	71.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	80.4	68.3	134

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: 4309260) - continued								
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	91.0	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	71.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	61.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309223)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	112	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	107	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.3	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309232)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	63.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	65.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	75.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	65.8	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309243)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	87.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	109	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	98.3	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	105	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309255)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	95.8	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	114	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	130	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309260)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	75.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	68.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	89.6	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	89.8	64.2	133
EP231P: PFAS Sums (QCLot: 4309223)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 4309232)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----

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
EP231P: PFAS Sums (QCLot: 4309232) - continued								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 4309243)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 4309255)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 4309260)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4304691)							
EB2211261-038	0207_SD037_220416	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	108	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	103	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	100.0	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	102	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	92.6	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	100	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4304691)							
EB2211261-038	0207_SD037_220416	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	94.6	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	83.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	90.8	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	92.8	71.0	131

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4304691) - continued							
EB2211261-038	0207_SD037_220416	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	112	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	96.0	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	86.8	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	92.0	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	90.8	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	99.6	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	104	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4304691)							
EB2211261-038	0207_SD037_220416	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	95.2	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	113	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	89.7	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	93.2	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	110	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4304691)							
EB2211261-038	0207_SD037_220416	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	85.0	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	127	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	114	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	103	70.0	130

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: 4309223)							
EB2211261-007	0207_MW230_220417	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	108	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	112	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	123	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	114	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	105	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309232)							
EB2211261-026	0207_MW241_220419	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	94.7	72.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309232) - continued							
EB2211261-026	0207_MW241_220419	EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	95.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	91.3	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	87.4	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	67.2	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	81.5	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309243)							
EB2211261-094	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	85.2	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	82.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	86.9	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	118	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	128	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	120	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309255)							
EB2211261-046	0207_MW279_220415	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	86.6	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	87.2	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.0	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	83.8	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	84.5	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	84.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309223)							
EB2211261-007	0207_MW230_220417	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	105	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	# Not Determined	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	# Not Determined	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	# Not Determined	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	101	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	106	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	102	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	109	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	109	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	104	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309232)							
EB2211261-026	0207_MW241_220419	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	91.8	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	88.6	72.0	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: 4309232) - continued							
EB2211261-026	0207_MW241_220419	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	88.5	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	79.2	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	80.8	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	86.2	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	88.8	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	84.0	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	93.2	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	81.0	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	86.6	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309243)							
EB2211261-094	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	85.3	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	81.3	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	93.8	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	98.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	86.3	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.9	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	74.3	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	71.9	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	74.8	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	69.0	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	91.3	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309255)							
EB2211261-046	0207_MW279_220415	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	84.7	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	82.4	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	87.6	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	80.2	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	81.8	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	90.8	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	82.0	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	97.4	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	94.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309223)							
EB2211261-007	0207_MW230_220417	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	110	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	113	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	108	70.0	130

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: 4309223) - continued							
EB2211261-007	0207_MW230_220417	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	104	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	104	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	102	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	102	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309232)							
EB2211261-026	0207_MW241_220419	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	85.6	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	98.4	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	87.0	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	86.2	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	89.2	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	93.8	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	92.2	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309243)							
EB2211261-094	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	75.4	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	80.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.8	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	95.4	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	73.4	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.8	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.2	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309255)							
EB2211261-046	0207_MW279_220415	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	82.2	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	106	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	83.0	70.0	130

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: 4309255) - continued							
EB2211261-046	0207_MW279_220415	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	91.2	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	96.2	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	87.0	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	76.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309223)							
EB2211261-007	0207_MW230_220417	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	114	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	82.9	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	121	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	119	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309232)							
EB2211261-026	0207_MW241_220419	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	84.0	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	82.2	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	96.9	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	94.4	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309243)							
EB2211261-094	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	75.6	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	88.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	77.1	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	86.1	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309255)							
EB2211261-046	0207_MW279_220415	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.2	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	93.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	82.5	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	88.8	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2211261**	Page	: 1 of 17
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 09-May-2022
Sampler	: [redacted]	No. of samples received	: 95
Order number	: 60612563 2.1	No. of samples analysed	: 94

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : 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
Laboratory Control Spike (LCS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	QC-4309232-002	----	**Perfluoroheptane sulfonic acid (PFHpS)**	375-92-8	64.3 %	69.0-134%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EB2211261--007	0207_MW230_220417	**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	EB2211261--007	0207_MW230_220417	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EB2211261--007	0207_MW230_220417	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EB2211261--007	0207_MW230_220417	**Perfluoroheptanoic acid (PFHpA)**	375-85-9	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EB2211261--007	0207_MW230_220417	**Perfluorooctanoic acid (PFOA)**	335-67-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / **Container** / Client Sample ID(s)	*Extraction / Preparation*			*Analysis*		
	Date extracted	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EA055: Moisture Content (Dried @ 105-110°C)						
HDPE Soil Jar						
0207_QC400_220411 - ALS No. 030226, 0207_QC401_220411 - ALS No. 030250	----	----	----	26-Apr-2022	25-Apr-2022	**1**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	6	83	7.23	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	4	83	4.82	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
0207_QC400_220411 - ALS No. 030226,	0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**----**	----	----	**26-Apr-2022**	25-Apr-2022	×
HDPE Soil Jar (EA055)								
0207_SD038_220414,	0207_QC103_220414	**14-Apr-2022**	**----**	----	----	**26-Apr-2022**	28-Apr-2022	✓
HDPE Soil Jar (EA055)								
0207_SD036_220415,	0207_SD105_220415	**15-Apr-2022**	**----**	----	----	**26-Apr-2022**	29-Apr-2022	✓
HDPE Soil Jar (EA055)								
0207_SD102_220416, 0207_SD070_220416	0207_SD037_220416,	**16-Apr-2022**	**----**	----	----	**26-Apr-2022**	30-Apr-2022	✓
HDPE Soil Jar (EA055)								
0207_SD013_220418,	0207_QC110_220418	**18-Apr-2022**	**----**	----	----	**26-Apr-2022**	02-May-2022	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0207_QC400_220411 - ALS No. 030226,	0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**27-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD038_220414,	0207_QC103_220414	**14-Apr-2022**	**27-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD036_220415,	0207_SD105_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD102_220416, 0207_SD070_220416	0207_SD037_220416,	**16-Apr-2022**	**27-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD013_220418,	0207_QC110_220418	**18-Apr-2022**	**27-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X) 0207_QC400_220411 - ALS No. 030226,	0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**27-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD038_220414,	0207_QC103_220414	**14-Apr-2022**	**27-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD036_220415,	0207_SD105_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD102_220416, 0207_SD070_220416	0207_SD037_220416,	**16-Apr-2022**	**27-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD013_220418,	0207_QC110_220418	**18-Apr-2022**	**27-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X) 0207_QC400_220411 - ALS No. 030226,	0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**27-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD038_220414,	0207_QC103_220414	**14-Apr-2022**	**27-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD036_220415,	0207_SD105_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD102_220416, 0207_SD070_220416	0207_SD037_220416,	**16-Apr-2022**	**27-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD013_220418,	0207_QC110_220418	**18-Apr-2022**	**27-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X) 0207_QC400_220411 - ALS No. 030226,	0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**27-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD038_220414,	0207_QC103_220414	**14-Apr-2022**	**27-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD036_220415,	0207_SD105_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD102_220416, 0207_SD070_220416	0207_SD037_220416,	**16-Apr-2022**	**27-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD013_220418,	0207_QC110_220418	**18-Apr-2022**	**27-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) 0207_QC400_220411 - ALS No. 030226, 0207_QC401_220411 - ALS No. 030250	**11-Apr-2022**	**27-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD038_220414, 0207_QC103_220414	**14-Apr-2022**	**27-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD036_220415, 0207_SD105_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD102_220416, 0207_SD037_220416, 0207_SD070_220416	**16-Apr-2022**	**27-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X) 0207_SD013_220418, 0207_QC110_220418	**18-Apr-2022**	**27-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	06-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

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)								
0207_MW187_220411,	0207_MW189_220411	**11-Apr-2022**	**04-May-2022**	08-Oct-2022	✓	**04-May-2022**	08-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC300_220411,	0207_QC402_220411 - ALS No. 140310,	**11-Apr-2022**	**29-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	08-Oct-2022	✓
0207_QC404_220411 - ALS No. 140312								
HDPE (no PTFE) (EP231X)								
0207_QC301_220412,	0207_MW132_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**03-May-2022**	09-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC302_220413		**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW229_220413,	0207_MW223_220413	**13-Apr-2022**	**04-May-2022**	10-Oct-2022	✓	**04-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC100_220413		**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC303_220414		**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW205_220420,	0207_MW264_220414	**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**04-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_SW004_220414,	0207_QC104_220415	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC304_220415		**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW279_220415,	0207_MW282_220415,	**15-Apr-2022**	**29-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
0207_SW011_220415,	0207_SW012_220415,							
0207_MW257_220415,	0207_MW276_220415,							
0207_MW255_220415,	0207_MW275_220415,							
0207_MW274_220415,	0207_QC105_220416							
HDPE (no PTFE) (EP231X)								
0207_QC305_220416		**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW280_220414,	0207_MW273_220416,	**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**04-May-2022**	13-Oct-2022	✓
0207_MW272_220416,	0207_MW266_220416,							
0207_SW013_220416,	0207_MW265_220416,							
0207_MW278_220416,	0207_MW262_220416,							
0207_SW010_220416,	0207_MW285_220416,							
0207_SW028_220416								
HDPE (no PTFE) (EP231X)								
0207_QC109_220418		**16-Apr-2022**	**29-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW173_220417		**17-Apr-2022**	**03-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
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								
0207_MW174_220417, 0207_MW230_220417, 0207_MW232_220417, 0207_MW193_220417, 0207_MW207_220417, 0207_MW201_220417, 0207_MW299_220417, 0207_MW167_220417,	0207_MW178_220417, 0207_MW222_220417, 0207_MW221_220417, 0207_MW198_220417, 0207_MW202_220417, 0207_MW203_220417, 0207_MW300_220417, 0207_MW172_220417	**17-Apr-2022**	**04-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC306_220417, 0207_QC107_220417	0207_QC106_220417,	**17-Apr-2022**	**29-Apr-2022**	14-Oct-2022	✓	**03-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW245_220418, 0207_MW179_220418	0207_MW242_220418,	**18-Apr-2022**	**03-May-2022**	15-Oct-2022	✓	**04-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_SW009_220418, 0207_QC307_220418,	0207_QC108_220418, 0207_QC403_220411 - ALS No. 140309	**18-Apr-2022**	**29-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW249_220419,	0207_MW241_220419	**19-Apr-2022**	**03-May-2022**	16-Oct-2022	✓	**04-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC111_220419,	0207_QC308_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**03-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW204_220420		**20-Apr-2022**	**03-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW563_220420, 0207_MW235_220420, 0207_MW252_220420, 0207_QC112_220420, 0207_QC309_220420	0207_MW562_220420, 0207_MW236_220420, 0207_MW233_220420, 0207_QC113_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**03-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW206_220421,	0207_QC310_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**03-May-2022**	18-Oct-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
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0207_MW187_220411,	0207_MW189_220411	**11-Apr-2022**	**04-May-2022**	08-Oct-2022	✓	**04-May-2022**	08-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC300_220411,	0207_QC402_220411 - ALS No. 140310,	**11-Apr-2022**	**29-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	08-Oct-2022	✓
0207_QC404_220411 - ALS No. 140312								
HDPE (no PTFE) (EP231X)								
0207_QC301_220412,	0207_MW132_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**03-May-2022**	09-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC302_220413		**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW229_220413,	0207_MW223_220413	**13-Apr-2022**	**04-May-2022**	10-Oct-2022	✓	**04-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC100_220413		**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC303_220414		**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW205_220420,	0207_MW264_220414	**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**04-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_SW004_220414,	0207_QC104_220415	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC304_220415		**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW279_220415,	0207_MW282_220415,	**15-Apr-2022**	**29-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
0207_SW011_220415,	0207_SW012_220415,							
0207_MW257_220415,	0207_MW276_220415,							
0207_MW255_220415,	0207_MW275_220415,							
0207_MW274_220415,	0207_QC105_220416							
HDPE (no PTFE) (EP231X)								
0207_QC305_220416		**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW280_220414,	0207_MW273_220416,	**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**04-May-2022**	13-Oct-2022	✓
0207_MW272_220416,	0207_MW266_220416,							
0207_SW013_220416,	0207_MW265_220416,							
0207_MW278_220416,	0207_MW262_220416,							
0207_SW010_220416,	0207_MW285_220416,							
0207_SW028_220416								
HDPE (no PTFE) (EP231X)								
0207_QC109_220418		**16-Apr-2022**	**29-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW173_220417		**17-Apr-2022**	**03-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
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
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
0207_MW174_220417, 0207_MW230_220417, 0207_MW232_220417, 0207_MW193_220417, 0207_MW207_220417, 0207_MW201_220417, 0207_MW299_220417, 0207_MW167_220417,	0207_MW178_220417, 0207_MW222_220417, 0207_MW221_220417, 0207_MW198_220417, 0207_MW202_220417, 0207_MW203_220417, 0207_MW300_220417, 0207_MW172_220417	**17-Apr-2022**	**04-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC306_220417, 0207_QC107_220417	0207_QC106_220417,	**17-Apr-2022**	**29-Apr-2022**	14-Oct-2022	✓	**03-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW245_220418, 0207_MW179_220418	0207_MW242_220418,	**18-Apr-2022**	**03-May-2022**	15-Oct-2022	✓	**04-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_SW009_220418, 0207_QC307_220418,	0207_QC108_220418, 0207_QC403_220411 - ALS No. 140309	**18-Apr-2022**	**29-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW249_220419,	0207_MW241_220419	**19-Apr-2022**	**03-May-2022**	16-Oct-2022	✓	**04-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC111_220419,	0207_QC308_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**03-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW204_220420		**20-Apr-2022**	**03-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW563_220420, 0207_MW235_220420, 0207_MW252_220420, 0207_QC112_220420, 0207_QC309_220420	0207_MW562_220420, 0207_MW236_220420, 0207_MW233_220420, 0207_QC113_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**03-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW206_220421,	0207_QC310_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**03-May-2022**	18-Oct-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)								
0207_MW187_220411,	0207_MW189_220411	**11-Apr-2022**	**04-May-2022**	08-Oct-2022	✓	**04-May-2022**	08-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC300_220411,	0207_QC402_220411 - ALS No. 140310,	**11-Apr-2022**	**29-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	08-Oct-2022	✓
0207_QC404_220411 - ALS No. 140312								
HDPE (no PTFE) (EP231X)								
0207_QC301_220412,	0207_MW132_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**03-May-2022**	09-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC302_220413		**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW229_220413,	0207_MW223_220413	**13-Apr-2022**	**04-May-2022**	10-Oct-2022	✓	**04-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC100_220413		**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC303_220414		**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW205_220420,	0207_MW264_220414	**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**04-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_SW004_220414,	0207_QC104_220415	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC304_220415		**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW279_220415,	0207_MW282_220415,	**15-Apr-2022**	**29-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
0207_SW011_220415,	0207_SW012_220415,							
0207_MW257_220415,	0207_MW276_220415,							
0207_MW255_220415,	0207_MW275_220415,							
0207_MW274_220415,	0207_QC105_220416							
HDPE (no PTFE) (EP231X)								
0207_QC305_220416		**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW280_220414,	0207_MW273_220416,	**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**04-May-2022**	13-Oct-2022	✓
0207_MW272_220416,	0207_MW266_220416,							
0207_SW013_220416,	0207_MW265_220416,							
0207_MW278_220416,	0207_MW262_220416,							
0207_SW010_220416,	0207_MW285_220416,							
0207_SW028_220416								
HDPE (no PTFE) (EP231X)								
0207_QC109_220418		**16-Apr-2022**	**29-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW173_220417		**17-Apr-2022**	**03-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
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
EP231C: Perfluoroalkyl Sulfonamides - Continued								
0207_MW174_220417, 0207_MW230_220417, 0207_MW232_220417, 0207_MW193_220417, 0207_MW207_220417, 0207_MW201_220417, 0207_MW299_220417, 0207_MW167_220417,	0207_MW178_220417, 0207_MW222_220417, 0207_MW221_220417, 0207_MW198_220417, 0207_MW202_220417, 0207_MW203_220417, 0207_MW300_220417, 0207_MW172_220417	**17-Apr-2022**	**04-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC306_220417, 0207_QC107_220417	0207_QC106_220417,	**17-Apr-2022**	**29-Apr-2022**	14-Oct-2022	✓	**03-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW245_220418, 0207_MW179_220418	0207_MW242_220418,	**18-Apr-2022**	**03-May-2022**	15-Oct-2022	✓	**04-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_SW009_220418, 0207_QC307_220418,	0207_QC108_220418, 0207_QC403_220411 - ALS No. 140309	**18-Apr-2022**	**29-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW249_220419,	0207_MW241_220419	**19-Apr-2022**	**03-May-2022**	16-Oct-2022	✓	**04-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC111_220419,	0207_QC308_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**03-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW204_220420		**20-Apr-2022**	**03-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW563_220420, 0207_MW235_220420, 0207_MW252_220420, 0207_QC112_220420, 0207_QC309_220420	0207_MW562_220420, 0207_MW236_220420, 0207_MW233_220420, 0207_QC113_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**03-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW206_220421,	0207_QC310_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**03-May-2022**	18-Oct-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)								
0207_MW187_220411,	0207_MW189_220411	**11-Apr-2022**	**04-May-2022**	08-Oct-2022	✓	**04-May-2022**	08-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC300_220411,	0207_QC402_220411 - ALS No. 140310,	**11-Apr-2022**	**29-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	08-Oct-2022	✓
0207_QC404_220411 - ALS No. 140312								
HDPE (no PTFE) (EP231X)								
0207_QC301_220412,	0207_MW132_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**03-May-2022**	09-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC302_220413		**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW229_220413,	0207_MW223_220413	**13-Apr-2022**	**04-May-2022**	10-Oct-2022	✓	**04-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC100_220413		**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC303_220414		**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW205_220420,	0207_MW264_220414	**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**04-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_SW004_220414,	0207_QC104_220415	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC304_220415		**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW279_220415,	0207_MW282_220415,	**15-Apr-2022**	**29-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
0207_SW011_220415,	0207_SW012_220415,							
0207_MW257_220415,	0207_MW276_220415,							
0207_MW255_220415,	0207_MW275_220415,							
0207_MW274_220415,	0207_QC105_220416							
HDPE (no PTFE) (EP231X)								
0207_QC305_220416		**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW280_220414,	0207_MW273_220416,	**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**04-May-2022**	13-Oct-2022	✓
0207_MW272_220416,	0207_MW266_220416,							
0207_SW013_220416,	0207_MW265_220416,							
0207_MW278_220416,	0207_MW262_220416,							
0207_SW010_220416,	0207_MW285_220416,							
0207_SW028_220416								
HDPE (no PTFE) (EP231X)								
0207_QC109_220418		**16-Apr-2022**	**29-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW173_220417		**17-Apr-2022**	**03-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
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
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued								
0207_MW174_220417, 0207_MW230_220417, 0207_MW232_220417, 0207_MW193_220417, 0207_MW207_220417, 0207_MW201_220417, 0207_MW299_220417, 0207_MW167_220417,	0207_MW178_220417, 0207_MW222_220417, 0207_MW221_220417, 0207_MW198_220417, 0207_MW202_220417, 0207_MW203_220417, 0207_MW300_220417, 0207_MW172_220417	**17-Apr-2022**	**04-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC306_220417, 0207_QC107_220417	0207_QC106_220417,	**17-Apr-2022**	**29-Apr-2022**	14-Oct-2022	✓	**03-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW245_220418, 0207_MW179_220418	0207_MW242_220418,	**18-Apr-2022**	**03-May-2022**	15-Oct-2022	✓	**04-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_SW009_220418, 0207_QC307_220418,	0207_QC108_220418, 0207_QC403_220411 - ALS No. 140309	**18-Apr-2022**	**29-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW249_220419,	0207_MW241_220419	**19-Apr-2022**	**03-May-2022**	16-Oct-2022	✓	**04-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC111_220419,	0207_QC308_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**03-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW204_220420		**20-Apr-2022**	**03-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW563_220420, 0207_MW235_220420, 0207_MW252_220420, 0207_QC112_220420, 0207_QC309_220420	0207_MW562_220420, 0207_MW236_220420, 0207_MW233_220420, 0207_QC113_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**03-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW206_220421,	0207_QC310_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**03-May-2022**	18-Oct-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)								
0207_MW187_220411,	0207_MW189_220411	**11-Apr-2022**	**04-May-2022**	08-Oct-2022	✓	**04-May-2022**	08-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC300_220411,	0207_QC402_220411 - ALS No. 140310,	**11-Apr-2022**	**29-Apr-2022**	08-Oct-2022	✓	**03-May-2022**	08-Oct-2022	✓
0207_QC404_220411 - ALS No. 140312								
HDPE (no PTFE) (EP231X)								
0207_QC301_220412,	0207_MW132_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**03-May-2022**	09-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC302_220413		**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW229_220413,	0207_MW223_220413	**13-Apr-2022**	**04-May-2022**	10-Oct-2022	✓	**04-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC100_220413		**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC303_220414		**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW205_220420,	0207_MW264_220414	**14-Apr-2022**	**03-May-2022**	11-Oct-2022	✓	**04-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_SW004_220414,	0207_QC104_220415	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**03-May-2022**	11-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_QC304_220415		**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW279_220415,	0207_MW282_220415,	**15-Apr-2022**	**29-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
0207_SW011_220415,	0207_SW012_220415,							
0207_MW257_220415,	0207_MW276_220415,							
0207_MW255_220415,	0207_MW275_220415,							
0207_MW274_220415,	0207_QC105_220416							
HDPE (no PTFE) (EP231X)								
0207_QC305_220416		**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW280_220414,	0207_MW273_220416,	**16-Apr-2022**	**03-May-2022**	13-Oct-2022	✓	**04-May-2022**	13-Oct-2022	✓
0207_MW272_220416,	0207_MW266_220416,							
0207_SW013_220416,	0207_MW265_220416,							
0207_MW278_220416,	0207_MW262_220416,							
0207_SW010_220416,	0207_MW285_220416,							
0207_SW028_220416								
HDPE (no PTFE) (EP231X)								
0207_QC109_220418		**16-Apr-2022**	**29-Apr-2022**	13-Oct-2022	✓	**03-May-2022**	13-Oct-2022	✓
HDPE (no PTFE) (EP231X)								
0207_MW173_220417		**17-Apr-2022**	**03-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
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
EP231P: PFAS Sums - Continued								
0207_MW174_220417, 0207_MW230_220417, 0207_MW232_220417, 0207_MW193_220417, 0207_MW207_220417, 0207_MW201_220417, 0207_MW299_220417, 0207_MW167_220417,	0207_MW178_220417, 0207_MW222_220417, 0207_MW221_220417, 0207_MW198_220417, 0207_MW202_220417, 0207_MW203_220417, 0207_MW300_220417, 0207_MW172_220417	**17-Apr-2022**	**04-May-2022**	14-Oct-2022	✓	**04-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC306_220417, 0207_QC107_220417	0207_QC106_220417,	**17-Apr-2022**	**29-Apr-2022**	14-Oct-2022	✓	**03-May-2022**	14-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW245_220418, 0207_MW179_220418	0207_MW242_220418,	**18-Apr-2022**	**03-May-2022**	15-Oct-2022	✓	**04-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_SW009_220418, 0207_QC307_220418,	0207_QC108_220418, 0207_QC403_220411 - ALS No. 140309	**18-Apr-2022**	**29-Apr-2022**	15-Oct-2022	✓	**03-May-2022**	15-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW249_220419,	0207_MW241_220419	**19-Apr-2022**	**03-May-2022**	16-Oct-2022	✓	**04-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_QC111_220419,	0207_QC308_220419	**19-Apr-2022**	**29-Apr-2022**	16-Oct-2022	✓	**03-May-2022**	16-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW204_220420		**20-Apr-2022**	**03-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW563_220420, 0207_MW235_220420, 0207_MW252_220420, 0207_QC112_220420, 0207_QC309_220420	0207_MW562_220420, 0207_MW236_220420, 0207_MW233_220420, 0207_QC113_220420,	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**03-May-2022**	17-Oct-2022	✓
HDPE (no PTFE) (EP231X) 0207_MW206_220421,	0207_QC310_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**03-May-2022**	18-Oct-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: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	6	83	7.23	10.00	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	5	83	6.02	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	5	83	6.02	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	83	4.82	5.00	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
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
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211274**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211274-001	12-Apr-2022 08:37	0207_MW056_220412	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211274**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022 17:10
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW056_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 08:37	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211274-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.07**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.04**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.20**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.07**	----	----	----	----
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		**0.03**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW056_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 08:37	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211274-001	--------	--------	--------	--------
					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		**0.41**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.27**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.37**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**111**	----	----	----	----
13C8-PFOA	----	0.02	%		**97.3**	----	----	----	----

Surrogate Control Limits

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

QUALITY CONTROL REPORT

Work Order	: **EB2211274**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311468)									
EB2211301-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.28	0.26	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.13	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.04	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: 4311468)									
EB2211301-001	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	0.05	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4311468)									
EB2211301-001	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

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: 4311468) - continued									
EB2211301-001	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: 4311468)									
EB2211301-001	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
		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: 4311468)									
EB2211301-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.55	0.52	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.41	0.39	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.50	0.48	4.1	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: 4311468)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311468)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	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	103	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	110	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311468)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.1	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311468)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	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: 4311468) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231P: PFAS Sums (QCLot: 4311468)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211274**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: [redacted]
Contact	: [redacted]	Telephone	: +[redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW056_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW056_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW056_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW056_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW056_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-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	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211278**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211278-001	12-Apr-2022 09:25	0207_MW149_220412	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211278**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022 17:57
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW149_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 09:25	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211278-001	--------	--------	--------	--------
					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: WATER (Matrix: WATER)				Sample ID	0207_MW149_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 09:25	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211278-001	--------	--------	--------	--------
					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		<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	%		**95.2**	----	----	----	----
13C8-PFOA	----	0.02	%		**100**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211278**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: [redacted]
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: +[redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311468)									
EB2211301-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.28	0.26	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.13	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.04	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: 4311468)									
EB2211301-001	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	0.05	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4311468)									
EB2211301-001	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

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: 4311468) - continued									
EB2211301-001	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: 4311468)									
EB2211301-001	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
		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: 4311468)									
EB2211301-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.55	0.52	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.41	0.39	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.50	0.48	4.1	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: 4311468)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311468)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	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	103	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	110	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311468)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.1	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311468)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	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: 4311468) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231P: PFAS Sums (QCLot: 4311468)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211278**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW149_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW149_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW149_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW149_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW149_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-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	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211288**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: +[redacted]	Telephone	: [redacted]
Facsimile	: +[redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211288-001	12-Apr-2022 10:30	0207_MW019_220412	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211288**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: +[redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022 17:57
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW019_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 10:30	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211288-001	--------	--------	--------	--------
					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		**0.06**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW019_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 10:30	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211288-001	--------	--------	--------	--------
					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		**0.08**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.08**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.08**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**108**	----	----	----	----
13C8-PFOA	----	0.02	%		**107**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211288**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311468)									
EB2211301-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.28	0.26	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.13	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.04	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: 4311468)									
EB2211301-001	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	0.05	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4311468)									
EB2211301-001	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

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: 4311468) - continued									
EB2211301-001	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: 4311468)									
EB2211301-001	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
		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: 4311468)									
EB2211301-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.55	0.52	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.41	0.39	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.50	0.48	4.1	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: 4311468)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311468)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	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	103	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	110	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311468)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.1	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311468)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	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: 4311468) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231P: PFAS Sums (QCLot: 4311468)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211288**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW019_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW019_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW019_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW019_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW019_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-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	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211290**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: +[redacted]
Facsimile	: [redacted]	Facsimile	: +[redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Intact.
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211290-001	12-Apr-2022 11:24	0207_MW021_220412	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211290**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022 17:58
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW021_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 11:24	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211290-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.23**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.24**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**1.91**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.27**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**4.42**	----	----	----	----
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		**0.05**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.29**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.05**	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.13**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW021_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 11:24	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211290-001	--------	--------	--------	--------
					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		**7.59**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**6.33**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**7.08**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.6**	----	----	----	----
13C8-PFOA	----	0.02	%		**106**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211290**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311468)									
EB2211301-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.28	0.26	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.13	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.04	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: 4311468)									
EB2211301-001	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	0.05	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4311468)									
EB2211301-001	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

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: 4311468) - continued									
EB2211301-001	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: 4311468)									
EB2211301-001	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
		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: 4311468)									
EB2211301-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.55	0.52	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.41	0.39	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.50	0.48	4.1	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: 4311468)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311468)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	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	103	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	110	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311468)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.1	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311468)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	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: 4311468) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231P: PFAS Sums (QCLot: 4311468)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211290**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW021_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW021_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW021_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW021_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW021_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-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	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211294**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 0207_MW021_220412 - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 4 / 4

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
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211294-001	20-Apr-2022 16:16	0207_MW122_220420	✓
EB2211294-002	20-Apr-2022 16:24	0207_MW157_220420	✓
EB2211294-003	20-Apr-2022 16:37	0207_MW114_220420	✓
EB2211294-004	20-Apr-2022 16:53	0207_MW118_220420	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211294**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: +[redacted]	Telephone	: +[redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022 12:54
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 4		
No. of samples analysed	: 4		

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]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW122_220420	0207_MW157_220420	0207_MW114_220420	0207_MW118_220420	----
				Sampling date / time	20-Apr-2022 16:16	20-Apr-2022 16:24	20-Apr-2022 16:37	20-Apr-2022 16:53	----
Compound	CAS Number	LOR	Unit		EB2211294-001	EB2211294-002	EB2211294-003	EB2211294-004	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.17**	**0.58**	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.18**	**0.67**	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.99**	**3.82**	<0.01	<0.01	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.05**	**0.46**	<0.02	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.97**	**6.54**	<0.01	<0.01	----
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		**0.07**	**0.18**	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.27**	**0.85**	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.04**	**0.13**	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.07**	**0.30**	<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	0207_MW122_220420	0207_MW157_220420	0207_MW114_220420	0207_MW118_220420	----
				Sampling date / time	20-Apr-2022 16:16	20-Apr-2022 16:24	20-Apr-2022 16:37	20-Apr-2022 16:53	----
Compound	CAS Number	LOR	Unit		EB2211294-001	EB2211294-002	EB2211294-003	EB2211294-004	--------
					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		**2.81**	**13.6**	<0.01	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.96**	**10.4**	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**2.58**	**12.5**	<0.01	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**109**	**102**	**96.4**	**95.8**	----
13C8-PFOA	----	0.02	%		**99.5**	**103**	**105**	**110**	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211294**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 4		
No. of samples analysed	: 4		

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]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311468)									
EB2211301-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.28	0.26	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.13	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.04	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: 4311468)									
EB2211301-001	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	0.05	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4311468)									
EB2211301-001	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

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: 4311468) - continued									
EB2211301-001	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: 4311468)									
EB2211301-001	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
		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: 4311468)									
EB2211301-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.55	0.52	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.41	0.39	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.50	0.48	4.1	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: 4311468)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311468)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	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	103	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	110	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311468)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.1	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311468)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	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: 4311468) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231P: PFAS Sums (QCLot: 4311468)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211294**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]	No. of samples received	: 4
Order number	: 60612563 2.1	No. of samples analysed	: 4

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	1	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: 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)							
0207_MW122_220420, 0207_MW157_220420, 0207_MW114_220420, 0207_MW118_220420	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**29-Apr-2022**	17-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW122_220420, 0207_MW157_220420, 0207_MW114_220420, 0207_MW118_220420	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**29-Apr-2022**	17-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_MW122_220420, 0207_MW157_220420, 0207_MW114_220420, 0207_MW118_220420	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**29-Apr-2022**	17-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW122_220420, 0207_MW157_220420, 0207_MW114_220420, 0207_MW118_220420	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**29-Apr-2022**	17-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0207_MW122_220420, 0207_MW157_220420, 0207_MW114_220420, 0207_MW118_220420	**20-Apr-2022**	**29-Apr-2022**	17-Oct-2022	✓	**29-Apr-2022**	17-Oct-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	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211297**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.9°C, 2.0°C, 1.7°C, 3.1°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 3 / 3

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
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211297-001	14-Apr-2022 10:45	0207_MW293_220414	✓
EB2211297-002	14-Apr-2022 11:05	0207_MW292_220414	✓
EB2211297-003	14-Apr-2022 00:00	0207_QC102_220414	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211297**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR JAMES PEACHEY	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: +[redacted]	Telephone	: +[redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022 17:58
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: The LOR of PFOS for sample '0207_MW293_220414' (EB2211297-001) has been raised due to sample matrix interferences.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW293_220414	0207_MW292_220414	0207_QC102_220414	----	----
				Sampling date / time	14-Apr-2022 10:45	14-Apr-2022 11:05	14-Apr-2022 00:00	----	----
Compound	CAS Number	LOR	Unit		EB2211297-001	EB2211297-002	EB2211297-003	--------	--------
					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	**0.18**	**0.18**	----	----
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		<0.02	**0.16**	**0.16**	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW293_220414	0207_MW292_220414	0207_QC102_220414	----	----
				Sampling date / time	14-Apr-2022 10:45	14-Apr-2022 11:05	14-Apr-2022 00:00	----	----
Compound	CAS Number	LOR	Unit		EB2211297-001	EB2211297-002	EB2211297-003	--------	--------
					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	**0.34**	**0.34**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.34**	**0.34**	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.34**	**0.34**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.4**	**101**	**94.5**	----	----
13C8-PFOA	----	0.02	%		**104**	**105**	**99.5**	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211297**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311468)									
EB2211301-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.28	0.26	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.13	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.04	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: 4311468)									
EB2211301-001	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	0.05	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4311468)									
EB2211301-001	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

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: 4311468) - continued									
EB2211301-001	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: 4311468)									
EB2211301-001	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
		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: 4311468)									
EB2211301-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.55	0.52	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.41	0.39	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.50	0.48	4.1	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: 4311468)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311468)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	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	103	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	110	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311468)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.1	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311468)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	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: 4311468) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231P: PFAS Sums (QCLot: 4311468)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211297**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]	No. of samples received	: 3
Order number	: 60612563 2.1	No. of samples analysed	: 3

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **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	1	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: 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)								
0207_MW293_220414, 0207_QC102_220414	0207_MW292_220414,	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0207_MW293_220414, 0207_QC102_220414	0207_MW292_220414,	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0207_MW293_220414, 0207_QC102_220414	0207_MW292_220414,	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0207_MW293_220414, 0207_QC102_220414	0207_MW292_220414,	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0207_MW293_220414, 0207_QC102_220414	0207_MW292_220414,	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-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	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211301**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 0207_MW021_220412 - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211301-001	12-Apr-2022 14:08	0207_MW113_220412	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211301**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: +[redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022 17:11
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW113_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 14:08	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211301-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.05**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.28**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.13**	----	----	----	----
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		**0.05**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW113_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 14:08	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211301-001	--------	--------	--------	--------
					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		**0.55**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.41**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.50**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	----	----	----	----
13C8-PFOA	----	0.02	%		**109**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211301**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311468)									
EB2211301-001	0207_MW113_220412	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.28	0.26	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.13	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.04	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: 4311468)									
EB2211301-001	0207_MW113_220412	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	0.05	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4311468)									
EB2211301-001	0207_MW113_220412	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: 4311468) - continued									
EB2211301-001	0207_MW113_220412	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: 4311468)									
EB2211301-001	0207_MW113_220412	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: 4311468)									
EB2211301-001	0207_MW113_220412	EP231X: Sum of PFAS	----	0.01	µg/L	0.55	0.52	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.41	0.39	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.50	0.48	4.1	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: 4311468)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311468)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	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	103	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	110	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311468)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.1	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311468)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	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: 4311468) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231P: PFAS Sums (QCLot: 4311468)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

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

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2211301**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW113_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW113_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW113_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW113_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW113_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-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	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211303**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: +[redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211303-001	12-Apr-2022 16:20	0207_MW022_220412	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211303**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: +[redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022 17:58
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW022_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 16:20	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211303-001	--------	--------	--------	--------
					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		**0.03**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.29**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.03**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.53**	----	----	----	----
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		**0.03**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW022_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 16:20	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211303-001	--------	--------	--------	--------
					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		**0.95**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.82**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.89**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**108**	----	----	----	----
13C8-PFOA	----	0.02	%		**107**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211303**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311468)									
EB2211301-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.28	0.26	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.13	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.04	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: 4311468)									
EB2211301-001	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	0.05	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4311468)									
EB2211301-001	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

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: 4311468) - continued									
EB2211301-001	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: 4311468)									
EB2211301-001	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
		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: 4311468)									
EB2211301-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.55	0.52	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.41	0.39	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.50	0.48	4.1	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: 4311468)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311468)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	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	103	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	110	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311468)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.1	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311468)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	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: 4311468) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231P: PFAS Sums (QCLot: 4311468)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211303**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW022_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW022_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW022_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW022_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW022_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-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	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211304**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: +[redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211304-001	14-Apr-2022 09:40	0207_MW151_220414	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211304**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022 18:02
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW151_220414	----	----	----	----
				Sampling date / time	14-Apr-2022 09:40	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211304-001	--------	--------	--------	--------
					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: WATER (Matrix: WATER)				Sample ID	0207_MW151_220414	----	----	----	----
				Sampling date / time	14-Apr-2022 09:40	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211304-001	--------	--------	--------	--------
					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		<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	%		**99.7**	----	----	----	----
13C8-PFOA	----	0.02	%		**107**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211304**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: +[redacted]	Telephone	: +[redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311468)									
EB2211301-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.28	0.26	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.13	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.04	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: 4311468)									
EB2211301-001	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	0.05	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4311468)									
EB2211301-001	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

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: 4311468) - continued									
EB2211301-001	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: 4311468)									
EB2211301-001	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
		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: 4311468)									
EB2211301-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.55	0.52	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.41	0.39	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.50	0.48	4.1	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: 4311468)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311468)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	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	103	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	110	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311468)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.1	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311468)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	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: 4311468) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231P: PFAS Sums (QCLot: 4311468)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211304**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW151_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW151_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW151_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW151_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW151_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-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	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211307**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: +[redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	:		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	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
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211307-001	21-Apr-2022 08:52	0207_MW288_220421	✓
EB2211307-002	21-Apr-2022 09:03	0207_MW289_220421	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211307**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022 17:59
Sampler	: [redacted]		
Site	:		
Quote number	: SY/139/19 V3_QLD		
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]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW288_220421	0207_MW289_220421	----	----	----
				Sampling date / time	21-Apr-2022 08:52	21-Apr-2022 09:03	----	----	----
Compound	CAS Number	LOR	Unit		EB2211307-001	EB2211307-002	--------	--------	--------
					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		<0.01	<0.01	----	----	----
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		<0.01	<0.01	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW288_220421	0207_MW289_220421	----	----	----
				Sampling date / time	21-Apr-2022 08:52	21-Apr-2022 09:03	----	----	----
Compound	CAS Number	LOR	Unit		EB2211307-001	EB2211307-002	--------	--------	--------
					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		<0.01	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**104**	**103**	----	----	----
13C8-PFOA	----	0.02	%		**106**	**110**	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211307**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 03-May-2022
Sampler	: [redacted]		
Site	:		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

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

This Quality Control Report contains the following information:

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

Signatories

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]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311468)									
EB2211301-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.28	0.26	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.13	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.04	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: 4311468)									
EB2211301-001	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	0.05	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4311468)									
EB2211301-001	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

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: 4311468) - continued									
EB2211301-001	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: 4311468)									
EB2211301-001	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
		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: 4311468)									
EB2211301-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.55	0.52	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.41	0.39	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.50	0.48	4.1	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: 4311468)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311468)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	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	103	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	110	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311468)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	109	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.1	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311468)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	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: 4311468) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231P: PFAS Sums (QCLot: 4311468)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211307**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	:	Issue Date	: 03-May-2022
Sampler	: [redacted]	No. of samples received	: 2
Order number	: 60612563 2.1	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 / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: 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)							
0207_MW288_220421, 0207_MW289_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW288_220421, 0207_MW289_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_MW288_220421, 0207_MW289_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW288_220421, 0207_MW289_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0207_MW288_220421, 0207_MW289_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-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	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211310**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 28-Apr-2022
Client Requested Due Date	: 05-May-2022	Scheduled Reporting Date	: **05-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 2.9, 3.1°C
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 15 / 15

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please be advised there was a sample ID discrepancy with sample "0207_QC101_220413" (ALS #15) with one 20mL PFAS sample container labelled "0207_QC101_220407" the second 20mL PFAs sample container was labelled as per the Chain of Custody. As the sample containers were transported in sets ALS has assumed both containers to be the same sample and will be reported as per the Chain of Custody. If this is incorrect or for any further information please contact Client Services at ALSEnviro.Brisbane@alsglobal.com.**
- **28/04/2022: SRN has been resent to acknowledge change in IDs for samples -011, -012, -013, -014. For any further information regarding these adjustments please contact client services at ALSEnviro.Brisbane@alsglobal.com.**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EB2211310-008	13-Apr-2022 14:45	0207_SD032_220413	✓	✓
EB2211310-009	13-Apr-2022 13:55	0207_SD017_220413	✓	✓
EB2211310-012	15-Apr-2022 08:33	0207_SD18_A_220415	✓	✓
EB2211310-013	15-Apr-2022 08:37	0207_SD18_B_220415	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211310-001	13-Apr-2022 09:55	0207_MW295_220413	✓
EB2211310-002	13-Apr-2022 11:35	0207_MW267_220413	✓
EB2211310-003	13-Apr-2022 11:50	0207_MW269_220413	✓
EB2211310-004	13-Apr-2022 12:25	0207_MW268_220413	✓
EB2211310-005	13-Apr-2022 13:15	0207_MW271_220413	✓
EB2211310-006	13-Apr-2022 13:45	0207_MW270_220413	✓
EB2211310-007	13-Apr-2022 14:45	0207_SW032_220413	✓
EB2211310-010	13-Apr-2022 13:55	0207_SW057_220413	✓
EB2211310-011	15-Apr-2022 08:42	0207_SW056_220415	✓
EB2211310-014	15-Apr-2022 08:07	0207_MW294_220415	✓
EB2211310-015	13-Apr-2022 00:00	0207_QC101_220413	✓

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	

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 - 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 - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211310**	Page	: 1 of 11
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 12-May-2022 11:13
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 15		
No. of samples analysed	: 15		

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]	Assistant Laboratory Manager	Brisbane Inorganics, Stafford, QLD
	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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.
- **Amendment (12/05/2022): This report has been amended as a result of a request to change sample identification numbers (IDs) received from James Peachey on 12/05/2022, for samples ALS Sample #s -012 and -013. All analysis results are as per the previous report.**
- EP231X PFAS: The LOR of PFDS for sample '0207_SD18_B_220415' (EB2211310-013) has been raised due to sample matrix interferences.
- EP231X PFAS: The LOR of 8:2 FTS for sample '0207_SD017_220413' (EB2211310-009) has been raised due to sample matrix interferences.
- EP231X PFAS: The LOR of PFHpS for sample '0207_MW294_220415' (EB2211310-014) has been raised due to sample matrix interferences.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	0207_SD032_220413	0207_SD017_220413	0207_SD018_A_220415	0207_SD018_B_220415	----
			Sampling date / time	13-Apr-2022 14:45	13-Apr-2022 13:55	15-Apr-2022 08:33	15-Apr-2022 08:37	----
Compound	CAS Number	LOR	Unit	EB2211310-008	EB2211310-009	EB2211310-012	EB2211310-013	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**41.2**	**35.3**	**40.2**	**18.2**	**----**
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	**0.0082**	**0.0007**	**0.0051**	**----**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	**0.0009**	<0.0002	<0.0005	**----**
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	**----**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0002**	**----**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	**0.0004**	<0.0002	**0.0003**	**----**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	**0.0012**	<0.0002	**0.0004**	**----**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	**0.0013**	<0.0002	**0.0004**	**----**
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	**0.0010**	<0.0002	<0.0002	**----**
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	**0.0002**	<0.0002	<0.0002	**----**
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	**----**
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**----**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0207_SD032_220413	0207_SD017_220413	0207_SD018_A_220415	0207_SD018_B_220415	----
				Sampling date / time	13-Apr-2022 14:45	13-Apr-2022 13:55	15-Apr-2022 08:33	15-Apr-2022 08:37	----
Compound	CAS Number	LOR	Unit		EB2211310-008	EB2211310-009	EB2211310-012	EB2211310-013	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0006	<0.0005	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	**0.0132**	**0.0007**	**0.0064**	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	**0.0082**	**0.0007**	**0.0051**	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	**0.0082**	**0.0007**	**0.0053**	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**112**	**102**	**118**	**106**	----
13C8-PFOA	----	0.0002	%		**108**	**107**	**112**	**96.5**	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW295_220413	0207_MW267_220413	0207_MW269_220413	0207_MW268_220413	0207_MW271_220413
				Sampling date / time	13-Apr-2022 09:55	13-Apr-2022 11:35	13-Apr-2022 11:50	13-Apr-2022 12:25	13-Apr-2022 13:15
					EB2211310-001	EB2211310-002	EB2211310-003	EB2211310-004	EB2211310-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**0.11**	<0.02	**0.04**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**0.04**	<0.02	**0.05**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**0.22**	**0.03**	**0.39**	<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	**0.25**	**0.05**	**0.15**	<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	**0.05**	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	**0.11**	<0.02	**0.07**	<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	**0.02**	<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: **WATER**
(Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW295_220413	0207_MW267_220413	0207_MW269_220413	0207_MW268_220413	0207_MW271_220413
				Sampling date / time	13-Apr-2022 09:55	13-Apr-2022 11:35	13-Apr-2022 11:50	13-Apr-2022 12:25	13-Apr-2022 13:15
					EB2211310-001	EB2211310-002	EB2211310-003	EB2211310-004	EB2211310-005
					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	<0.05
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	**0.80**	**0.08**	**0.71**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.47**	**0.08**	**0.54**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.76**	**0.08**	**0.66**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.9**	**101**	**94.5**	**102**	**113**
13C8-PFOA	----	0.02	%		**107**	**109**	**101**	**102**	**105**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW270_220413	0207_SW032_220413	0207_SW057_220413	0207_SW056_220415	0207_MW294_220415
				Sampling date / time	13-Apr-2022 13:45	13-Apr-2022 14:45	13-Apr-2022 13:55	15-Apr-2022 08:42	15-Apr-2022 08:07
					EB2211310-006	EB2211310-007	EB2211310-010	EB2211310-011	EB2211310-014
					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	**0.06**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.06**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.10**	<0.01	**0.58**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.05
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.55**	<0.01	**1.08**
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	**0.3**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	**0.04**	<0.02	**0.34**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	**0.04**	<0.02	**0.32**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.02**	<0.02	**0.16**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	**0.04**	<0.01	**0.15**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	**0.03**	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	**0.03**	<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: WATER (Matrix: WATER)				Sample ID	0207_MW270_220413	0207_SW032_220413	0207_SW057_220413	0207_SW056_220415	0207_MW294_220415
				Sampling date / time	13-Apr-2022 13:45	13-Apr-2022 14:45	13-Apr-2022 13:55	15-Apr-2022 08:42	15-Apr-2022 08:07
Compound	CAS Number	LOR	Unit		EB2211310-006	EB2211310-007	EB2211310-010	EB2211310-011	EB2211310-014
					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	**0.85**	<0.01	**3.05**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.65**	<0.01	**1.66**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.79**	<0.01	**2.99**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**108**	**112**	**104**	**116**	**120**
13C8-PFOA	----	0.02	%		**95.4**	**104**	**106**	**99.1**	**106**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_QC101_220413	----	----	----	----
				Sampling date / time	13-Apr-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211310-015	--------	--------	--------	--------
					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: WATER (Matrix: WATER)				Sample ID	0207_QC101_220413	----	----	----	----
				Sampling date / time	13-Apr-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211310-015	--------	--------	--------	--------
					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	%		**104**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211310**	Page	: 1 of 9
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 12-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 15		
No. of samples analysed	: 15		

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]	Assistant Laboratory Manager	Brisbane Inorganics, Stafford, QLD
	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4304692)									
EB2211261-033	Anonymous	EA055: Moisture Content	----	0.1	%	38.0	38.2	0.3	0% - 20%
EB2211261-091	Anonymous	EA055: Moisture Content	----	0.1	%	45.3	46.4	2.3	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4304691)									
EB2211261-033	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0019	0.0010	57.9	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0003	<0.0002	40.0	No Limit
EB2211261-091	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0026	0.0023	13.9	0% - 50%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0004	<0.0005	22.2	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4304691)									
EB2211261-033	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4304691) - continued									
EB2211261-033	Anonymous	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EB2211261-091	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4304691)									
EB2211261-033	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2211261-091	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4304691)									
EB2211261-033	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2211261-091	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

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: 4309231)									
EB2211310-005	0207_MW271_220413	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: 4309231)									
EB2211310-005	0207_MW271_220413	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: 4309231)									
EB2211310-005	0207_MW271_220413	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	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: 4309231) - continued									
EB2211310-005	0207_MW271_220413	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: 4309231)									
EB2211310-005	0207_MW271_220413	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: 4309231)									
EB2211310-005	0207_MW271_220413	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4304691)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	91.8	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00117 mg/kg	86.8	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	86.9	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	86.1	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	88.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	86.2	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4304691)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	79.4	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.0	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.8	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.2	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.2	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	72.0	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	71.6	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.8	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	88.8	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4304691)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.3	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	76.9	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	84.6	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	90.2	61.9	137
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.6	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4304691)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	73.9	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	86.7	65.0	137

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4304691) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	87.5	54.8	124

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
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4309231)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	93.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	86.3	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	90.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	93.7	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	86.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	90.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4309231)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	88.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	88.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.8	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	83.4	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	95.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	82.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	95.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.4	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	90.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4309231)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	82.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	132	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	85.9	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	93.8	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	83.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	83.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4309231)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	79.0	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140

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: 4309231) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	104	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	102	64.2	133
EP231P: PFAS Sums (QCLot: 4309231)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4304691)							
EB2211261-038	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	108	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	103	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	100.0	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	102	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	92.6	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	100	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4304691)							
EB2211261-038	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	94.6	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	83.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	90.8	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	92.8	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	112	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	96.0	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	86.8	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	92.0	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	90.8	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	99.6	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	104	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4304691)							
EB2211261-038	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	95.2	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	110	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4304691) - continued							
EB2211261-038	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	113	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	89.7	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	93.2	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	110	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4304691)							
EB2211261-038	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	85.0	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	127	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	114	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	103	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2211310**	Page	: 1 of 6
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 12-May-2022
Sampler	: [redacted]	No. of samples received	: 15
Order number	: 60612563 2.1	No. of samples analysed	: 15

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	1	11	9.09	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / ***Container*** / Client Sample ID(s)		***Sample Date***	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
0207_SD032_220413,	0207_SD017_220413	**13-Apr-2022**	**----**	----	----	**26-Apr-2022**	27-Apr-2022	✓
HDPE Soil Jar (EA055)								
0207_SD018_A_220415,	0207_SD018_B_220415	**15-Apr-2022**	**----**	----	----	**26-Apr-2022**	29-Apr-2022	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0207_SD032_220413,	0207_SD017_220413	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD018_A_220415,	0207_SD018_B_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
0207_SD032_220413,	0207_SD017_220413	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD018_A_220415,	0207_SD018_B_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
0207_SD032_220413,	0207_SD017_220413	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD018_A_220415,	0207_SD018_B_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0207_SD032_220413,	0207_SD017_220413	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD018_A_220415,	0207_SD018_B_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
0207_SD032_220413,	0207_SD017_220413	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
HDPE Soil Jar (EP231X)								
0207_SD018_A_220415,	0207_SD018_B_220415	**15-Apr-2022**	**27-Apr-2022**	12-Oct-2022	✓	**03-May-2022**	06-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
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0207_MW295_220413,	0207_MW267_220413,	**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
0207_MW269_220413,	0207_MW268_220413,							
0207_MW271_220413,	0207_MW270_220413,							
0207_SW032_220413,	0207_SW057_220413,							
0207_QC101_220413								
HDPE (no PTFE) (EP231X)								
0207_SW056_220415,	0207_MW294_220415	**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0207_MW295_220413,	0207_MW267_220413,	**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
0207_MW269_220413,	0207_MW268_220413,							
0207_MW271_220413,	0207_MW270_220413,							
0207_SW032_220413,	0207_SW057_220413,							
0207_QC101_220413								
HDPE (no PTFE) (EP231X)								
0207_SW056_220415,	0207_MW294_220415	**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0207_MW295_220413,	0207_MW267_220413,	**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
0207_MW269_220413,	0207_MW268_220413,							
0207_MW271_220413,	0207_MW270_220413,							
0207_SW032_220413,	0207_SW057_220413,							
0207_QC101_220413								
HDPE (no PTFE) (EP231X)								
0207_SW056_220415,	0207_MW294_220415	**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-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)								
0207_MW295_220413,	0207_MW267_220413,	**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
0207_MW269_220413,	0207_MW268_220413,							
0207_MW271_220413,	0207_MW270_220413,							
0207_SW032_220413,	0207_SW057_220413,							
0207_QC101_220413								
HDPE (no PTFE) (EP231X)								
0207_SW056_220415,	0207_MW294_220415	**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-2022	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0207_MW295_220413,	0207_MW267_220413,	**13-Apr-2022**	**03-May-2022**	10-Oct-2022	✓	**03-May-2022**	10-Oct-2022	✓
0207_MW269_220413,	0207_MW268_220413,							
0207_MW271_220413,	0207_MW270_220413,							
0207_SW032_220413,	0207_SW057_220413,							
0207_QC101_220413								
HDPE (no PTFE) (EP231X)								
0207_SW056_220415,	0207_MW294_220415	**15-Apr-2022**	**03-May-2022**	12-Oct-2022	✓	**03-May-2022**	12-Oct-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: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	11	**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
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
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
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211311**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	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
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211311-001	21-Apr-2022 07:19	0207_MW290_220421	✓
EB2211311-002	21-Apr-2022 07:38	0207_MW291_220421	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211311**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022 12:53
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
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]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: The LOR of PFOS for sample '0207_MW290_220421' (EB2211311-001) has been raised due to the presence of sample matrix interference.
- 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: WATER (Matrix: WATER)				Sample ID	0207_MW290_220421	0207_MW291_220421	----	----	----
				Sampling date / time	21-Apr-2022 07:19	21-Apr-2022 07:38	----	----	----
Compound	CAS Number	LOR	Unit		EB2211311-001	EB2211311-002	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.21**	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.19**	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.42**	**0.02**	----	----	----
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		<0.03	**0.01**	----	----	----
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		**0.05**	<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: WATER (Matrix: WATER)				Sample ID	0207_MW290_220421	0207_MW291_220421	----	----	----
				Sampling date / time	21-Apr-2022 07:19	21-Apr-2022 07:38	----	----	----
Compound	CAS Number	LOR	Unit		EB2211311-001	EB2211311-002	--------	--------	--------
					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		**0.87**	**0.03**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.42**	**0.03**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.68**	**0.03**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**93.1**	**105**	----	----	----
13C8-PFOA	----	0.02	%		**100**	**98.2**	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211311**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR JAMES PEACHEY	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

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

This Quality Control Report contains the following information:

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

Signatories

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]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311475)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	114	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	123	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	109	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	124	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	108	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	116	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311475)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	108	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	115	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	128	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	116	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	117	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	114	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311475)								
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	105	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	122	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	116	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	116	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	114	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	124	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311475)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	74.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	118	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: 4311475) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	119	64.2	133
EP231P: PFAS Sums (QCLot: 4311475)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211311**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]	No. of samples received	: 2
Order number	: 60612563 2.1	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 / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	10	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)							
0207_MW290_220421, 0207_MW291_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW290_220421, 0207_MW291_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_MW290_220421, 0207_MW291_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW290_220421, 0207_MW291_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0207_MW290_220421, 0207_MW291_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-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	10	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	10	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211314**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: +61-7-3243 7218
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211314-001	14-Apr-2022 08:10	0207_MW134_220414	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211314**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022 12:53
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW134_220414	----	----	----	----
				Sampling date / time	14-Apr-2022 08:10	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211314-001	--------	--------	--------	--------
					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		**0.12**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.10**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW134_220414	----	----	----	----
				Sampling date / time	14-Apr-2022 08:10	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211314-001	--------	--------	--------	--------
					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		**0.24**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.22**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.24**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	----	----	----	----
13C8-PFOA	----	0.02	%		**110**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211314**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311475)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	114	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	123	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	109	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	124	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	108	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	116	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311475)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	108	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	115	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	128	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	116	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	117	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	114	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311475)								
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	105	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	122	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	116	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	116	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	114	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	124	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311475)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	74.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	118	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: 4311475) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	119	64.2	133
EP231P: PFAS Sums (QCLot: 4311475)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211314**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW134_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW134_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW134_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW134_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW134_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-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	10	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	10	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211316**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211316-001	14-Apr-2022 12:46	0207_MW281_220414	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211316**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022 12:52
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW281_220414	----	----	----	----
				Sampling date / time	14-Apr-2022 12:46	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211316-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.27**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.27**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**1.38**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.13**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**1.98**	----	----	----	----
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		**0.07**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.29**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.08**	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.20**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW281_220414	----	----	----	----
				Sampling date / time	14-Apr-2022 12:46	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211316-001	--------	--------	--------	--------
					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		**4.67**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**3.36**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**4.27**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.7**	----	----	----	----
13C8-PFOA	----	0.02	%		**105**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211316**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311475)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	114	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	123	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	109	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	124	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	108	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	116	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311475)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	108	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	115	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	128	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	116	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	117	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	114	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311475)								
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	105	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	122	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	116	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	116	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	114	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	124	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311475)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	74.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	118	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: 4311475) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	119	64.2	133
EP231P: PFAS Sums (QCLot: 4311475)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211316**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW281_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW281_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW281_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW281_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW281_220414	**14-Apr-2022**	**29-Apr-2022**	11-Oct-2022	✓	**29-Apr-2022**	11-Oct-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	10	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	10	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211317**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 3.1, 2.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211317-001	21-Apr-2022 10:21	0207_MW018_220421	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211317**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022 12:23
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: Whole bottle extraction was not possible for sample '0207_MW018_220421' (EB2211317-001). Sample required dilution prior to extraction due to matrix interference (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: WATER (Matrix: WATER)				Sample ID	0207_MW018_220421	----	----	----	----
				Sampling date / time	21-Apr-2022 10:21	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211317-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.83**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.98**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**6.19**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.67**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**17.9**	----	----	----	----
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		**0.2**	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.28**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.46**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.24**	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.73**	----	----	----	----
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		<0.06	----	----	----	----
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		<0.06	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.06	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW018_220421	----	----	----	----
				Sampling date / time	21-Apr-2022 10:21	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211317-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.06	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.06	----	----	----	----
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		**29.5**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**24.1**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**27.8**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**106**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211317**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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: 4311475)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	114	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	123	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	109	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	124	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	108	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	116	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311475)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	108	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	115	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	128	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	116	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	117	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	114	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311475)								
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	105	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	122	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	116	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	116	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	114	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	124	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311475)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	74.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	118	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: 4311475) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	119	64.2	133
EP231P: PFAS Sums (QCLot: 4311475)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

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

- **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	: **EB2211317**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	10	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) 0207_MW018_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW018_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW018_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW018_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW018_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-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	10	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	10	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EB2211320**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 2.9, 3.1°C - Ice present
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211320-001	12-Apr-2022 14:55	0207_MW147_220412	✓

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	

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 - 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 - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211320**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022 12:52
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: WATER (Matrix: WATER)				Sample ID	0207_MW147_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 14:55	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211320-001	--------	--------	--------	--------
					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: WATER (Matrix: WATER)				Sample ID	0207_MW147_220412	----	----	----	----
				Sampling date / time	12-Apr-2022 14:55	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211320-001	--------	--------	--------	--------
					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		<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	%		**95.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**106**	----	----	----	----

Surrogate Control Limits

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211320**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]t	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4311475)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	114	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	123	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	109	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	124	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	108	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	116	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311475)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	108	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	115	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	128	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	116	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	117	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	114	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311475)								
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	105	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	122	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	116	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	116	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	114	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	124	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311475)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	74.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	118	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: 4311475) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	119	64.2	133
EP231P: PFAS Sums (QCLot: 4311475)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **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	: **EB2211320**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW147_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW147_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW147_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW147_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW147_220412	**12-Apr-2022**	**29-Apr-2022**	09-Oct-2022	✓	**29-Apr-2022**	09-Oct-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	10	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	10	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211323**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 2.9, 3.1°C - Ice present
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 4 / 4

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
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EB2211323-004	13-Apr-2022 00:00	0207_SD045_220413	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211323-001	13-Apr-2022 16:25	0207_MW003_220413	✓
EB2211323-002	13-Apr-2022 16:45	0207_MW283_220413	✓
EB2211323-003	13-Apr-2022 17:05	0207_SW059_220413	✓

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	

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 - 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 - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211323**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022 16:26
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 4		
No. of samples analysed	: 4		

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]	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: SOIL (Matrix: SOIL)			Sample ID	0207_SD045_220413	----	----	----	----
			Sampling date / time	13-Apr-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2211323-004	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**42.3**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0005**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0207_SD045_220413	----	----	----	----
				Sampling date / time	13-Apr-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211323-004	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0005**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0005**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0005**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**108**	----	----	----	----
13C8-PFOA	----	0.0002	%		**105**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW003_220413	0207_MW283_220413	0207_SW059_220413	----	----
				Sampling date / time	13-Apr-2022 16:25	13-Apr-2022 16:45	13-Apr-2022 17:05	----	----
Compound	CAS Number	LOR	Unit		EB2211323-001	EB2211323-002	EB2211323-003	--------	--------
					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	**0.02**	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW003_220413	0207_MW283_220413	0207_SW059_220413	----	----
				Sampling date / time	13-Apr-2022 16:25	13-Apr-2022 16:45	13-Apr-2022 17:05	----	----
Compound	CAS Number	LOR	Unit		EB2211323-001	EB2211323-002	EB2211323-003	--------	--------
					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	**0.03**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.03**	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.03**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**93.3**	**98.5**	**106**	----	----
13C8-PFOA	----	0.02	%		**112**	**103**	**109**	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211323**	Page	: 1 of 8
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	[redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 4		
No. of samples analysed	: 4		

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]	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4304692)									
EB2211261-033	Anonymous	EA055: Moisture Content	----	0.1	%	38.0	38.2	0.3	0% - 20%
EB2211261-091	Anonymous	EA055: Moisture Content	----	0.1	%	45.3	46.4	2.3	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4304691)									
EB2211261-033	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0019	0.0010	57.9	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0003	<0.0002	40.0	No Limit
EB2211261-091	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0026	0.0023	13.9	0% - 50%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0004	<0.0005	22.2	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4304691)									
EB2211261-033	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4304691) - continued									
EB2211261-033	Anonymous	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EB2211261-091	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4304691)									
EB2211261-033	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2211261-091	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4304691)									
EB2211261-033	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2211261-091	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4304691)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	91.8	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00117 mg/kg	86.8	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	86.9	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	86.1	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	88.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	86.2	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4304691)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	79.4	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.0	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.8	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.2	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.2	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	72.0	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	71.6	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.8	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	88.8	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4304691)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.3	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	76.9	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	84.6	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	90.2	61.9	137
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.6	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4304691)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	73.9	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	86.7	65.0	137

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4304691) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	87.5	54.8	124

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
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4311475)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	114	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	123	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	109	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	124	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	108	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	116	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311475)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	108	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	115	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	128	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	116	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	117	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	114	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311475)								
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	105	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	122	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	116	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	116	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	114	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	124	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311475)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	74.4	64.0	140

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: 4311475) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	118	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	119	64.2	133
EP231P: PFAS Sums (QCLot: 4311475)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4304691)							
EB2211261-038	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	108	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	103	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	100.0	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	102	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	92.6	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	100	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4304691)							
EB2211261-038	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	94.6	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	83.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	90.8	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	92.8	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	112	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	96.0	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	86.8	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	92.0	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	90.8	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	99.6	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	104	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4304691)							
EB2211261-038	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	95.2	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	110	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4304691) - continued							
EB2211261-038	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	113	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	89.7	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	93.2	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	110	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4304691)							
EB2211261-038	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	85.0	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	127	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	114	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	103	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2211323**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]	No. of samples received	: 4
Order number	: 60612563 2.1	No. of samples analysed	: 4

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	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055)							
0207_SD045_220413	**13-Apr-2022**	**----**	----	----	**26-Apr-2022**	27-Apr-2022	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0207_SD045_220413	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
0207_SD045_220413	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
0207_SD045_220413	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0207_SD045_220413	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0207_SD045_220413	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**03-May-2022**	06-Jun-2022	✓

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

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)								
0207_MW003_220413, 0207_SW059_220413	0207_MW283_220413,	**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**29-Apr-2022**	10-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0207_MW003_220413, 0207_SW059_220413	0207_MW283_220413,	**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**29-Apr-2022**	10-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0207_MW003_220413, 0207_SW059_220413	0207_MW283_220413,	**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**29-Apr-2022**	10-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0207_MW003_220413, 0207_SW059_220413	0207_MW283_220413,	**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**29-Apr-2022**	10-Oct-2022	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0207_MW003_220413, 0207_SW059_220413	0207_MW283_220413,	**13-Apr-2022**	**29-Apr-2022**	10-Oct-2022	✓	**29-Apr-2022**	10-Oct-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: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	10	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	10	**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
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
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
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2211324**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Apr-2022 14:16	Issue Date	: 26-Apr-2022
Client Requested Due Date	: 04-May-2022	Scheduled Reporting Date	: **04-May-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.0, 1.7, 2.9, 3.1°C - Ice present
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2211324-001	21-Apr-2022 11:50	0207_MW032_220421	✓

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	

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 - 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 - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2211324**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: +[redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022 14:16
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022 12:36
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS 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: The LOR of PFDS for sample '0207_MW032_220421' (EB2211324-001) has been raised due to sample matrix interferences.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0207_MW032_220421	----	----	----	----
				Sampling date / time	21-Apr-2022 11:50	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211324-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.25**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.34**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**2.19**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.12**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**3.99**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.03	----	----	----	----
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		**0.06**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.23**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.05**	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.15**	----	----	----	----
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: WATER (Matrix: WATER)				Sample ID	0207_MW032_220421	----	----	----	----
				Sampling date / time	21-Apr-2022 11:50	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2211324-001	--------	--------	--------	--------
					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		**7.38**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**6.18**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**6.92**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.0**	----	----	----	----
13C8-PFOA	----	0.02	%		**106**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2211324**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4311475)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	114	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	123	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	109	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	124	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	108	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	116	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4311475)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	108	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	115	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	128	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	116	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	117	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	114	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4311475)								
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	105	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	122	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	116	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	116	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	114	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	124	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4311475)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	74.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	118	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: 4311475) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	119	64.2	133
EP231P: PFAS Sums (QCLot: 4311475)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **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	: **EB2211324**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: 60612563 2.1 QLD_0207_PFASOMP	Date Samples Received	: 22-Apr-2022
Site	: ----	Issue Date	: 04-May-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563 2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, 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	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW032_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW032_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW032_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW032_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-2022	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW032_220421	**21-Apr-2022**	**29-Apr-2022**	18-Oct-2022	✓	**29-Apr-2022**	18-Oct-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	10	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	10	**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.

Australian Government
Department of Industry, Science, Energy and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

Fax:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: [redacted]

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

Fax:

SAMPLE DETAILS

NMI Job Name: **AECO06/220324**

Total No. of Samples: **2**

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N22/005156	31-MAR-2022	0207_QC261_220318	WATER 18/3/22
N22/005157	31-MAR-2022	0207_QC262_220318	SD 18/3/22

SAMPLE RECEIVED CONDITION

Date samples received: 24-MAR-2022

Sample received in good order: Yes

NMI Quotation no. provided:

Client purchase order number: 60612563_2_1

Temperature of samples: Chilled

Comments: Sample reference for Water amended by client

Mode of Delivery: Courier

Additional Terms and Conditions

Incomplete / unclear information about samples or required testing will delay the start of the analysis work

If you require your Purchase Order (PO) number to be included on our invoice, please provide the number during sample submission and before the completion of work to avoid unnecessary delays and/or additional processing/handling fees.

The lodgement of an order or receipt of samples for NMI services referenced in this Sample Receipt Notification constitutes an acceptence of the current version of NMI Terms and Conditions or other applicable Terms referenced in the NMI Quotation. NMI Terms and Conditions are available on the web at https://www.industry.gov.au/client-services/testing-and-analysis-services/chemical-and-biological-analysis-services-terms-and-conditions

REPORT OF ANALYSIS

Report No. RN1347346

Client	: [redacted]	**Job No.**	: AECO06/220324
	[redacted]	**Quote No.**	: QT-02018
	[redacted]	**Order No.**	: 60612563_2_1
		Date Received	: 24-MAR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: QLD_0207_PFASOMP		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/005157	0207_QC262_220318	SED 18/3/22

Lab Reg No.		N22/005157				
Date Sampled		18-MAR-2022				
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	mg/kg	<0.002				NR70
PFPeA (2706-90-3)	mg/kg	<0.002				NR70
PFHxA (307-24-4)	mg/kg	<0.001				NR70
PFHpA (375-85-9)	mg/kg	<0.001				NR70
PFOA (335-67-1)	mg/kg	<0.001				NR70
PFNA (375-95-1)	mg/kg	<0.001				NR70
PFDA (335-76-2)	mg/kg	<0.001				NR70
PFUdA (2058-94-8)	mg/kg	<0.002				NR70
PFDoA (307-55-1)	mg/kg	<0.002				NR70
PFTrDA (72629-94-8)	mg/kg	<0.002				NR70
PFTeDA (376-06-7)	mg/kg	<0.002				NR70
PFHxDA (67905-19-5)	mg/kg	<0.002				NR70
PFODA (16517-11-6)	mg/kg	<0.005				NR70
FOUEA (70887-84-2)	mg/kg	<0.001				NR70
PFBS (375-73-5)	mg/kg	<0.001				NR70
PFPeS (2706-91-4)	mg/kg	<0.001				NR70
PFHxS (355-46-4)	mg/kg	0.0012				NR70
PFHpS (375-92-8)	mg/kg	<0.001				NR70
PFOS (1763-23-1)	mg/kg	0.030				NR70
PFNS (68259-12-1)	mg/kg	<0.001				NR70
PFDS (335-77-3)	mg/kg	<0.001				NR70
PFOSA (754-91-6)	mg/kg	<0.001				NR70
N-MeFOSA (31506-32-8)	mg/kg	<0.002				NR70
N-EtFOSA (4151-50-2)	mg/kg	<0.002				NR70
N-MeFOSAA (2355-31-9)	mg/kg	<0.002				NR70
N-EtFOSAA(2991-50-6)	mg/kg	<0.002				NR70
N-MeFOSE (24448-09-7)	mg/kg	<0.005				NR70
N-EtFOSE (1691-99-2)	mg/kg	<0.005				NR70
4:2 FTS (757124-72-4)	mg/kg	<0.001				NR70
6:2 FTS (27619-97-2)	mg/kg	<0.001				NR70

REPORT OF ANALYSIS

Lab Reg No.		N22/005157				
Date Sampled		18-MAR-2022				
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
8:2 FTS (39108-34-4)	mg/kg	<0.001				NR70
10:2 FTS (120226-60-0)	mg/kg	<0.002				NR70
8:2 diPAP (678-41-1)	mg/kg	<0.002				NR70
PFBA (Surrogate Recovery)	%	111				NR70
PFPeA (Surrogate Recovery)	%	122				NR70
PFHxA (Surrogate Recovery)	%	101				NR70
PFHpA (Surrogate Recovery)	%	100				NR70
PFOA (Surrogate Recovery)	%	83				NR70
PFNA (Surrogate Recovery)	%	126				NR70
PFDA (Surrogate Recovery)	%	75				NR70
PFUdA (Surrogate Recovery)	%	150				NR70
PFDoA (Surrogate Recovery)	%	36				NR70
PFTeDA (Surrogate Recovery)	%	101				NR70
PFHxDA (Surrogate Recovery)	%	71				NR70
FOUEA (Surrogate Recovery)	%	56				NR70
PFBS (Surrogate Recovery)	%	94				NR70
PFHxS (Surrogate Recovery)	%	104				NR70
PFOS (Surrogate Recovery)	%	115				NR70
PFOSA (Surrogate Recovery)	%	76				NR70
N-MeFOSA (Surrogate Recovery)	%	89				NR70
N-EtFOSA (Surrogate Recovery)	%	73				NR70
N-MeFOSAA (Surrogate Recovery)	%	67				NR70
N-EtFOSAA (Surrogate Recovery)	%	106				NR70
N-MeFOSE (Surrogate Recovery)	%	110				NR70
N-EtFOSE (Surrogate Recovery)	%	107				NR70
4:2 FTS (Surrogate Recovery)	%	70				NR70
6:2 FTS (Surrogate Recovery)	%	72				NR70
8:2 FTS (Surrogate Recovery)	%	75				NR70
8:2 diPAP (Surrogate Recovery)	%	95				NR70
Dates						
Date extracted		28-MAR-2022				
Date analysed		28-MAR-2022				

N22/005157
PFOS and PFHxS are quantified using a combined branched and linear standard,
linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô

REPORT OF ANALYSIS

Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

31-MAR-2022

Lab Reg No.		N22/005157				
Date Sampled		18-MAR-2022				
	Units					Method
Trace Elements						
Total Solids	%	64.0				NT2_49
Dates						
Date extracted		25-MAR-2022				
Date analysed		28-MAR-2022				

[redacted]

31-MAR-2022

All results are expressed on a dry weight basis.

REPORT OF ANALYSIS

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220324
	LEVEL 8	**Quote No.**	: QT-02018
	540 WICKHAM STREET	**Order No.**	: 60612563_2_1
		Date Received	: 24-MAR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: QLD_0207_PFASOMP		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/005156	0207_QC261_220318	WATER 18/3/22

Lab Reg No.			N22/005156				
Date Sampled			18-MAR-2022				
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
PFBA (375-22-4)		ug/L	<0.05				NR70
PFPeA (2706-90-3)		ug/L	<0.02				NR70
PFHxA (307-24-4)		ug/L	<0.01				NR70
PFHpA (375-85-9)		ug/L	<0.01				NR70
PFOA (335-67-1)		ug/L	<0.01				NR70
PFNA (375-95-1)		ug/L	<0.01				NR70
PFDA (335-76-2)		ug/L	<0.01				NR70
PFUdA (2058-94-8)		ug/L	<0.01				NR70
PFDoA (307-55-1)		ug/L	<0.01				NR70
PFTrDA (72629-94-8)		ug/L	<0.02				NR70
PFTeDA (376-06-7)		ug/L	<0.02				NR70
PFHxDA (67905-19-5)		ug/L	<0.02				NR70
PFODA (16517-11-6)		ug/L	<0.05				NR70
FOUEA (70887-84-2)		ug/L	<0.01				NR70
PFDS (335-77-3)		ug/L	<0.01				NR70
PFPeS (2706-91-4)		ug/L	<0.01				NR70
PFHxS (355-46-4)		ug/L	0.017				NR70
PFHpS (375-92-8)		ug/L	<0.01				NR70
PFOS (1763-23-1)		ug/L	0.14				NR70
PFNS (68259-12-1)		ug/L	<0.01				NR70
PFBS (375-73-5)		ug/L	<0.01				NR70
PFOSA (754-91-6)		ug/L	<0.01				NR70
N-MeFOSA (31506-32-8)		ug/L	<0.02				NR70
N-EtFOSA (4151-50-2)		ug/L	<0.02				NR70
N-MeFOSAA (2355-31-9)		ug/L	<0.01				NR70
N-EtFOSAA(2991-50-6)		ug/L	<0.01				NR70
N-MeFOSE (24448-09-7)		ug/L	<0.05				NR70
N-EtFOSE (1691-99-2)		ug/L	<0.05				NR70
4:2 FTS (757124-72-4)		ug/L	<0.01				NR70
6:2 FTS (27619-97-2)		ug/L	<0.01				NR70

REPORT OF ANALYSIS

Lab Reg No.			N22/005156				
Date Sampled			18-MAR-2022				
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
8:2 FTS (39108-34-4)		ug/L	<0.01				NR70
10:2 FTS (120226-60-0)		ug/L	<0.01				NR70
8:2 diPAP (678-41-1)		ug/L	<0.02				NR70
PFBA (Surrogate Recovery)		%	103				NR70
PFPeA (Surrogate Recovery)		%	122				NR70
PFHxA (Surrogate Recovery)		%	116				NR70
PFHpA (Surrogate Recovery)		%	129				NR70
PFOA (Surrogate Recovery)		%	113				NR70
PFNA (Surrogate Recovery)		%	72				NR70
PFDA (Surrogate Recovery)		%	60				NR70
PFUdA (Surrogate Recovery)		%	32				NR70
PFDoA (Surrogate Recovery)		%	34				NR70
PFTeDA (Surrogate Recovery)		%	69				NR70
PFHxDA (Surrogate Recovery)		%	147				NR70
FOUEA (Surrogate Recovery)		%	95				NR70
PFBS (Surrogate Recovery)		%	118				NR70
PFHxS (Surrogate Recovery)		%	117				NR70
PFOS (Surrogate Recovery)		%	83				NR70
PFOSA (Surrogate Recovery)		%	49				NR70
N-MeFOSA (Surrogate Recovery)		%	41				NR70
N-EtFOSA (Surrogate Recovery)		%	35				NR70
N-MeFOSAA (Surrogate Recovery)		%	55				NR70
N-EtFOSAA (Surrogate Recovery)		%	62				NR70
N-MeFOSE (Surrogate Recovery)		%	42				NR70
N-EtFOSE (Surrogate Recovery)		%	45				NR70
4:2 FTS (Surrogate Recovery)		%	109				NR70
6:2 FTS (Surrogate Recovery)		%	99				NR70
8:2 FTS (Surrogate Recovery)		%	69				NR70
8:2 diPAP (Surrogate Recovery)		%	74				NR70
Dates							
Date extracted			30-MAR-2022				
Date analysed			30-MAR-2022				

N22/005156
PFOS and PFHxS are quantified using a combined branched and linear standard,
linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô

REPORT OF ANALYSIS

Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

31-MAR-2022

ACCREDITED FOR TECHNICAL COMPETENCE

Accredited for compliance with ISO/IEC 17025 - Testing.
This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

This Report supersedes reports: *RN1347344*

Measurement Uncertainty is available upon request.
Chemical Accreditation 198: [redacted]

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/220324 **Sample Matrix:** Solid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
PFBA (375-22-4)	NR70	0.002	<0.002	NA	NA	NA	102	NA
PFPeA (2706-90-3)	NR70	0.002	<0.002	NA	NA	NA	89	NA
PFHxA (307-24-4)	NR70	0.001	<0.001	NA	NA	NA	85	NA
PFHpA (375-85-9)	NR70	0.001	<0.001	NA	NA	NA	100	NA
PFOA (335-67-1)	NR70	0.001	<0.001	NA	NA	NA	97	NA
PFNA (375-95-1)	NR70	0.001	<0.001	NA	NA	NA	54	NA
PFDA (335-76-2)	NR70	0.001	<0.001	NA	NA	NA	148	NA
PFUdA (2058-94-8)	NR70	0.002	<0.002	NA	NA	NA	144	NA
PFDoA (307-55-1)	NR70	0.002	<0.002	NA	NA	NA	144	NA
PFTrDA (72629-94-8)	NR70	0.002	<0.002	NA	NA	NA	56	NA
PFTeDA (376-06-7)	NR70	0.002	<0.002	NA	NA	NA	62	NA
PFHxDA (67905-19-5)	NR70	0.002	<0.002	NA	NA	NA	87	NA
PFODA (16517-11-6)	NR70	0.005	<0.005	NA	NA	NA	145	NA
FOUEA (70887-84-2)	NR70	0.001	<0.001	NA	NA	NA	143	NA
PFBS (375-73-5)	NR70	0.001	<0.001	NA	NA	NA	85	NA
PFPeS (2706-91-4)	NR70	0.001	<0.001	NA	NA	NA	101	NA
PFHxS (355-46-4)	NR70	0.001	<0.001	NA	NA	NA	92	NA
PFHpS (375-92-8)	NR70	0.001	<0.001	NA	NA	NA	102	NA
PFOS (1763-23-1)	NR70	0.002	<0.002	NA	NA	NA	107	NA
PFNS (68259-12-1)	NR70	0.001	<0.001	NA	NA	NA	101	NA
PFDS (335-77-3)	NR70	0.001	<0.001	NA	NA	NA	96	NA
PFOSA (754-91-6)	NR70	0.001	<0.001	NA	NA	NA	93	NA
N-MeFOSA (31506-32-8)	NR70	0.002	<0.002	NA	NA	NA	93	NA
N-EtFOSA (4151-50-2)	NR70	0.002	<0.002	NA	NA	NA	107	NA
N-MeFOSAA (2355-31-9)	NR70	0.002	<0.002	NA	NA	NA	91	NA
N-EtFOSAA(2991-50-6)	NR70	0.002	<0.002	NA	NA	NA	93	NA
N-MeFOSE (24448-09-7)	NR70	0.005	<0.005	NA	NA	NA	147	NA
N-EtFOSE (1691-99-2)	NR70	0.005	<0.005	NA	NA	NA	53	NA
4:2 FTS (757124-72-4)	NR70	0.001	<0.001	NA	NA	NA	86	NA
6:2 FTS (27619-97-2)	NR70	0.001	<0.001	NA	NA	NA	96	NA
8:2 FTS (39108-34-4)	NR70	0.001	<0.001	NA	NA	NA	94	NA
10:2 FTS (120226-60-0)	NR70	0.002	<0.002	NA	NA	NA	93	NA
8:2 diPAP (678-41-1)	NR70	0.002	<0.002	NA	NA	NA	92	NA

Results expressed in percentage (%) or mg/kg wherever appropriate.
Acceptable Spike recovery is 50-150%.
Maximum acceptable RPDs on spikes and duplicates is 40%.
'NA ' = Not Applicable.
RPD= Relative Percentage Difference.

Signed: [redacted]

Date:

[redacted]

National Measurement Institute

Australian Government
Department of Industry, Science, Energy and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

Fax:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: [redacted]

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

Fax:

SAMPLE DETAILS

NMI Job Name: AECO06/220426

Total No. of Samples: 12

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N22/007586	5-MAY-2022	0207_QC200_220413	WATER 13-APR-2022
N22/007587	5-MAY-2022	0207_QC203_220414	SOIL 14-APR-2022
N22/007588	5-MAY-2022	0207_QC204_220415	WATER 15-APR-2022
N22/007589	5-MAY-2022	0207_QC205_220416	WATER 16-APR-2022
N22/007590	5-MAY-2022	0207_QC206_220417	WATER 17-APR-2022
N22/007591	5-MAY-2022	0207_QC207_220417	WATER 17-APR-2022
N22/007592	5-MAY-2022	0207_QC208_220418	WATER 18-APR-2022
N22/007593	5-MAY-2022	0207_QC209_220418	WATER 18-APR-2022
N22/007594	5-MAY-2022	0207_QC210_220418	SOIL 18-APR-2022
N22/007595	5-MAY-2022	0207_QC211_220419	WATER 19-APR-2022
N22/007596	5-MAY-2022	0207_QC212_220420	WATER 20-APR-2022

SAMPLE RECEIVED CONDITION

Date samples received:	26-APR-2022
Sample received in good order:	Yes
NMI Quotation no. provided:	QLD_0207_PFASOMP
Client purchase order number:	60612563_2_1
Temperature of samples:	Chilled
Comments:	
Mode of Delivery:	Courier

Additional Terms and Conditions

Incomplete / unclear information about samples or required testing will delay the start of the analysis work

If you require your Purchase Order (PO) number to be included on our invoice, please provide the number during sample submission and before the completion of work to avoid unnecessary delays and/or additional processing/handling fees.

The lodgement of an order or receipt of samples for NMI services referenced in this Sample Receipt Notification constitutes an acceptence of the current version of NMI Terms and Conditions or other applicable Terms referenced in the NMI Quotation. NMI Terms and Conditions are available on the web at https://www.industry.gov.au/client-services/testing-and-analysis-services/chemical-and-biological-analysis-services-terms-and-conditions

REPORT OF ANALYSIS

Report No. RN1350696

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426
	[redacted]	**Quote No.**	: QT-02018
	[redacted]	**Order No.**	: 60612563_2_1
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: 60612563 2.1		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007587	0207_QC203_220414	SOIL 14-APR-2022
N22/007594	0207_QC210_220418	SOIL 18-APR-2022

Lab Reg No.		N22/007587	N22/007594			
Date Sampled		14-APR-2022	18-APR-2022			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	mg/kg	<0.002	<0.002			NR70
PFPeA (2706-90-3)	mg/kg	<0.002	<0.002			NR70
PFHxA (307-24-4)	mg/kg	<0.001	<0.001			NR70
PFHpA (375-85-9)	mg/kg	<0.001	<0.001			NR70
PFOA (335-67-1)	mg/kg	<0.001	<0.001			NR70
PFNA (375-95-1)	mg/kg	<0.001	<0.001			NR70
PFDA (335-76-2)	mg/kg	<0.001	<0.001			NR70
PFUdA (2058-94-8)	mg/kg	<0.002	<0.002			NR70
PFDoA (307-55-1)	mg/kg	<0.002	<0.002			NR70
PFTrDA (72629-94-8)	mg/kg	<0.002	<0.002			NR70
PFTeDA (376-06-7)	mg/kg	<0.002	<0.002			NR70
PFHxDA (67905-19-5)	mg/kg	<0.002	<0.002			NR70
PFODA (16517-11-6)	mg/kg	<0.005	<0.005			NR70
FOUEA (70887-84-2)	mg/kg	<0.001	<0.001			NR70
PFBS (375-73-5)	mg/kg	<0.001	<0.001			NR70
PFPeS (2706-91-4)	mg/kg	<0.001	<0.001			NR70
PFHxS (355-46-4)	mg/kg	<0.001	<0.001			NR70
PFHpS (375-92-8)	mg/kg	<0.001	<0.001			NR70
PFOS (1763-23-1)	mg/kg	<0.002	0.0064			NR70
PFNS (68259-12-1)	mg/kg	<0.001	<0.001			NR70
PFDS (335-77-3)	mg/kg	<0.001	<0.001			NR70
PFOSA (754-91-6)	mg/kg	<0.001	<0.001			NR70
N-MeFOSA (31506-32-8)	mg/kg	<0.002	<0.002			NR70
N-EtFOSA (4151-50-2)	mg/kg	<0.002	<0.002			NR70
N-MeFOSAA (2355-31-9)	mg/kg	<0.002	<0.002			NR70
N-EtFOSAA(2991-50-6)	mg/kg	<0.002	<0.002			NR70
N-MeFOSE (24448-09-7)	mg/kg	<0.005	<0.005			NR70
N-EtFOSE (1691-99-2)	mg/kg	<0.005	<0.005			NR70
4:2 FTS (757124-72-4)	mg/kg	<0.001	<0.001			NR70

REPORT OF ANALYSIS

Lab Reg No.		N22/007587	N22/007594			
Date Sampled		14-APR-2022	18-APR-2022			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
6:2 FTS (27619-97-2)	mg/kg	<0.001	<0.001			NR70
8:2 FTS (39108-34-4)	mg/kg	<0.001	<0.001			NR70
10:2 FTS (120226-60-0)	mg/kg	<0.002	<0.002			NR70
8:2 diPAP (678-41-1)	mg/kg	<0.002	<0.002			NR70
PFBA (Surrogate Recovery)	%	107	109			NR70
PFPeA (Surrogate Recovery)	%	108	117			NR70
PFHxA (Surrogate Recovery)	%	123	116			NR70
PFHpA (Surrogate Recovery)	%	104	102			NR70
PFOA (Surrogate Recovery)	%	99	116			NR70
PFNA (Surrogate Recovery)	%	117	66			NR70
PFDA (Surrogate Recovery)	%	143	81			NR70
PFUdA (Surrogate Recovery)	%	100	72			NR70
PFDoA (Surrogate Recovery)	%	111	80			NR70
PFTeDA (Surrogate Recovery)	%	59	26			NR70
PFHxDA (Surrogate Recovery)	%	109	52			NR70
FOUEA (Surrogate Recovery)	%	113	53			NR70
PFBS (Surrogate Recovery)	%	95	104			NR70
PFHxS (Surrogate Recovery)	%	102	105			NR70
PFOS (Surrogate Recovery)	%	111	111			NR70
PFOSA (Surrogate Recovery)	%	107	71			NR70
N-MeFOSA (Surrogate Recovery)	%	105	109			NR70
N-EtFOSA (Surrogate Recovery)	%	95	99			NR70
N-MeFOSAA (Surrogate Recovery)	%	93	60			NR70
N-EtFOSAA (Surrogate Recovery)	%	102	80			NR70
N-MeFOSE (Surrogate Recovery)	%	104	121			NR70
N-EtFOSE (Surrogate Recovery)	%	104	91			NR70
4:2 FTS (Surrogate Recovery)	%	93	98			NR70
6:2 FTS (Surrogate Recovery)	%	102	97			NR70
8:2 FTS (Surrogate Recovery)	%	100	69			NR70
8:2 diPAP (Surrogate Recovery)	%	134	76			NR70
Dates						
Date extracted		2-MAY-2022	2-MAY-2022			
Date analysed		3-MAY-2022	3-MAY-2022			

N22/007587
and
N22/007594

PFOS and PFHxS are quantified using a combined branched and linear standard,

linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô
Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

05-MAY-2022

Lab Reg No.		N22/007587	N22/007594			
Date Sampled		**14-APR-2022**	**18-APR-2022**			
	Units					**Method**
Trace Elements						
Total Solids	%	59.5	57.1			NT2_49
Dates						
Date extracted		2-MAY-2022	2-MAY-2022			
Date analysed		5-MAY-2022	5-MAY-2022			

[redacted]

05-MAY-2022

All results are expressed on a dry weight basis.

REPORT OF ANALYSIS

Report No. RN1350696

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426
	[redacted]	**Quote No.**	: QT-02018
	[redacted]	**Order No.**	: 60612563_2_1
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: 60612563 2.1		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007586	0207_QC200_220413	WATER 13-APR-2022
N22/007588	0207_QC204_220415	WATER 15-APR-2022
N22/007589	0207_QC205_220416	WATER 16-APR-2022
N22/007590	0207_QC206_220417	WATER 17-APR-2022

Lab Reg No.			N22/007586	N22/007588	N22/007589	N22/007590	
Date Sampled			13-APR-2022	15-APR-2022	16-APR-2022	17-APR-2022	
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
PFBA (375-22-4)		ug/L	4.7	<0.05	<0.05	1.2	NR70
PFPeA (2706-90-3)		ug/L	22	<0.02	0.026	1.6	NR70
PFHxA (307-24-4)		ug/L	14	<0.01	0.070	3.7	NR70
PFHpA (375-85-9)		ug/L	15	<0.01	0.011	1.6	NR70
PFOA (335-67-1)		ug/L	5.1	<0.01	<0.01	3.0	NR70
PFNA (375-95-1)		ug/L	3.2	<0.01	<0.01	1.2	NR70
PFDA (335-76-2)		ug/L	0.013	<0.01	<0.01	0.039	NR70
PFUdA (2058-94-8)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFDoA (307-55-1)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFTrDA (72629-94-8)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFTeDA (376-06-7)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFHxDA (67905-19-5)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFODA (16517-11-6)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70
FOUEA (70887-84-2)		ug/L	0.029	<0.01	<0.01	0.012	NR70
PFDS (335-77-3)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFPeS (2706-91-4)		ug/L	0.78	0.038	0.040	0.71	NR70
PFHxS (355-46-4)		ug/L	5.4	0.35	0.25	4.6	NR70
PFHpS (375-92-8)		ug/L	0.82	<0.01	<0.01	0.70	NR70
PFOS (1763-23-1)		ug/L	15	0.75	0.065	12	NR70
PFNS (68259-12-1)		ug/L	0.014	<0.01	<0.01	<0.01	NR70
PFBS (375-73-5)		ug/L	0.71	0.050	0.038	0.73	NR70
PFOSA (754-91-6)		ug/L	0.024	<0.01	<0.01	0.013	NR70
N-MeFOSA (31506-32-8)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
N-EtFOSA (4151-50-2)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
N-MeFOSAA (2355-31-9)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-EtFOSAA(2991-50-6)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-MeFOSE (24448-09-7)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70

REPORT OF ANALYSIS

Lab Reg No.			N22/007586	N22/007588	N22/007589	N22/007590	
Date Sampled			13-APR-2022	15-APR-2022	16-APR-2022	17-APR-2022	
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
N-EtFOSE (1691-99-2)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70
4:2 FTS (757124-72-4)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
6:2 FTS (27619-97-2)		ug/L	5.7	<0.01	<0.01	1.8	NR70
8:2 FTS (39108-34-4)		ug/L	0.41	<0.01	<0.01	0.27	NR70
10:2 FTS (120226-60-0)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
8:2 diPAP (678-41-1)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFBA (Surrogate Recovery)		%	113	106	100	100	NR70
PFPeA (Surrogate Recovery)		%	96	127	116	95	NR70
PFHxA (Surrogate Recovery)		%	88	126	93	88	NR70
PFHpA (Surrogate Recovery)		%	63	126	93	96	NR70
PFOA (Surrogate Recovery)		%	92	148	82	118	NR70
PFNA (Surrogate Recovery)		%	164	58	94	36	NR70
PFDA (Surrogate Recovery)		%	100	71	89	63	NR70
PFUdA (Surrogate Recovery)		%	122	96	100	79	NR70
PFDoA (Surrogate Recovery)		%	77	68	91	43	NR70
PFTeDA (Surrogate Recovery)		%	117	35	116	43	NR70
PFHxDA (Surrogate Recovery)		%	138	99	67	176	NR70
FOUEA (Surrogate Recovery)		%	183	101	81	104	NR70
PFBS (Surrogate Recovery)		%	150	127	90	125	NR70
PFHxS (Surrogate Recovery)		%	89	132	89	95	NR70
PFOS (Surrogate Recovery)		%	98	109	103	111	NR70
PFOSA (Surrogate Recovery)		%	70	59	86	57	NR70
N-MeFOSA (Surrogate Recovery)		%	137	86	75	118	NR70
N-EtFOSA (Surrogate Recovery)		%	115	68	60	96	NR70
N-MeFOSAA (Surrogate Recovery)		%	72	51	87	57	NR70
N-EtFOSAA (Surrogate Recovery)		%	75	53	94	61	NR70
N-MeFOSE (Surrogate Recovery)		%	93	82	84	77	NR70
N-EtFOSE (Surrogate Recovery)		%	169	137	100	182	NR70
4:2 FTS (Surrogate Recovery)		%	120	141	84	103	NR70
6:2 FTS (Surrogate Recovery)		%	215	127	79	116	NR70
8:2 FTS (Surrogate Recovery)		%	162	76	97	65	NR70
8:2 diPAP (Surrogate Recovery)		%	92	71	120	71	NR70
Dates							
Date extracted			28-APR-2022	28-APR-2022	28-APR-2022	28-APR-2022	
Date analysed			28-APR-2022	28-APR-2022	28-APR-2022	28-APR-2022	

N22/007586
to
N22/007597

PFOS and PFHxS are quantified using a combined branched and linear standard,
linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô
High PFAS surrogate recoveries accepted - results corrected for recovery.
Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

05-MAY-2022

REPORT OF ANALYSIS

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426
	[redacted]	**Quote No.**	: QT-02018
	[redacted]	**Order No.**	: 60612563_2_1
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: 60612563 2.1		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007591	0207_QC207_220417	WATER 17-APR-2022
N22/007592	0207_QC208_220418	WATER 18-APR-2022
N22/007593	0207_QC209_220418	WATER 18-APR-2022
N22/007595	0207_QC211_220419	WATER 19-APR-2022

Lab Reg No.			N22/007591	N22/007592	N22/007593	N22/007595	
Date Sampled			17-APR-2022	18-APR-2022	18-APR-2022	19-APR-2022	
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
PFBA (375-22-4)		ug/L	2.5	<0.05	<0.05	0.22	NR70
PFPeA (2706-90-3)		ug/L	3.8	<0.02	0.025	0.22	NR70
PFHxA (307-24-4)		ug/L	18	0.046	0.054	0.84	NR70
PFHpA (375-85-9)		ug/L	4.0	<0.01	<0.01	0.090	NR70
PFOA (335-67-1)		ug/L	4.3	<0.01	<0.01	0.060	NR70
PFNA (375-95-1)		ug/L	0.041	<0.01	<0.01	<0.01	NR70
PFDA (335-76-2)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFUdA (2058-94-8)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFDoA (307-55-1)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFTrDA (72629-94-8)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFTeDA (376-06-7)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFHxDA (67905-19-5)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFODA (16517-11-6)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70
FOUEA (70887-84-2)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFDS (335-77-3)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFPeS (2706-91-4)		ug/L	12	0.033	0.023	0.52	NR70
PFHxS (355-46-4)		ug/L	79	0.21	0.18	2.1	NR70
PFHpS (375-92-8)		ug/L	4.4	<0.01	<0.01	0.021	NR70
PFOS (1763-23-1)		ug/L	40	0.38	0.52	0.082	NR70
PFNS (68259-12-1)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFBS (375-73-5)		ug/L	13	0.031	0.029	0.48	NR70
PFOSA (754-91-6)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-MeFOSA (31506-32-8)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
N-EtFOSA (4151-50-2)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
N-MeFOSAA (2355-31-9)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-EtFOSAA(2991-50-6)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-MeFOSE (24448-09-7)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70

REPORT OF ANALYSIS

Lab Reg No.			N22/007591	N22/007592	N22/007593	N22/007595	
Date Sampled			17-APR-2022	18-APR-2022	18-APR-2022	19-APR-2022	
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
N-EtFOSE (1691-99-2)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70
4:2 FTS (757124-72-4)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
6:2 FTS (27619-97-2)		ug/L	0.50	<0.01	<0.01	<0.01	NR70
8:2 FTS (39108-34-4)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
10:2 FTS (120226-60-0)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
8:2 diPAP (678-41-1)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFBA (Surrogate Recovery)		%	102	103	126	104	NR70
PFPeA (Surrogate Recovery)		%	107	119	161	118	NR70
PFHxA (Surrogate Recovery)		%	122	133	91	72	NR70
PFHpA (Surrogate Recovery)		%	126	117	95	84	NR70
PFOA (Surrogate Recovery)		%	143	93	86	98	NR70
PFNA (Surrogate Recovery)		%	38	104	86	95	NR70
PFDA (Surrogate Recovery)		%	140	106	70	114	NR70
PFUdA (Surrogate Recovery)		%	80	129	67	102	NR70
PFDoA (Surrogate Recovery)		%	63	84	59	93	NR70
PFTeDA (Surrogate Recovery)		%	101	73	35	51	NR70
PFHxDA (Surrogate Recovery)		%	143	76	104	56	NR70
FOUEA (Surrogate Recovery)		%	189	71	96	82	NR70
PFBS (Surrogate Recovery)		%	133	95	86	80	NR70
PFHxS (Surrogate Recovery)		%	74	99	90	71	NR70
PFOS (Surrogate Recovery)		%	107	108	99	101	NR70
PFOSA (Surrogate Recovery)		%	79	76	48	74	NR70
N-MeFOSA (Surrogate Recovery)		%	177	80	58	61	NR70
N-EtFOSA (Surrogate Recovery)		%	145	64	43	49	NR70
N-MeFOSAA (Surrogate Recovery)		%	77	75	40	74	NR70
N-EtFOSAA (Surrogate Recovery)		%	81	80	40	76	NR70
N-MeFOSE (Surrogate Recovery)		%	157	56	48	61	NR70
N-EtFOSE (Surrogate Recovery)		%	187	98	44	54	NR70
4:2 FTS (Surrogate Recovery)		%	90	88	143	79	NR70
6:2 FTS (Surrogate Recovery)		%	104	89	104	74	NR70
8:2 FTS (Surrogate Recovery)		%	88	88	66	83	NR70
8:2 diPAP (Surrogate Recovery)		%	99	98	60	89	NR70
Dates							
Date extracted			28-APR-2022	28-APR-2022	28-APR-2022	28-APR-2022	
Date analysed			28-APR-2022	28-APR-2022	28-APR-2022	28-APR-2022	

REPORT OF ANALYSIS

Lab Reg No.			N22/007591	N22/007592	N22/007593	N22/007595	
Date Sampled			17-APR-2022	18-APR-2022	18-APR-2022	19-APR-2022	
		Units					Method

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05-MAY-2022

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REPORT OF ANALYSIS

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426
	[redacted]	**Quote No.**	: QT-02018
	[redacted]	**Order No.**	: 60612563_2_1
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: 60612563 2.1		
Your Client Services Manager	: [redacted]	**Phone**	[redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007596	0207_QC212_220420	WATER 20-APR-2022
N22/007597	0207_QC213_220420	WATER 20-APR-2022

Lab Reg No.			N22/007596	N22/007597			
Date Sampled			20-APR-2022	20-APR-2022			
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
PFBA (375-22-4)		ug/L	0.18	0.056			NR70
PFPeA (2706-90-3)		ug/L	0.16	0.035			NR70
PFHxA (307-24-4)		ug/L	0.36	0.092			NR70
PFHpA (375-85-9)		ug/L	0.070	0.013			NR70
PFOA (335-67-1)		ug/L	0.12	0.014			NR70
PFNA (375-95-1)		ug/L	<0.01	<0.01			NR70
PFDA (335-76-2)		ug/L	<0.01	<0.01			NR70
PFUdA (2058-94-8)		ug/L	<0.01	<0.01			NR70
PFDoA (307-55-1)		ug/L	<0.01	<0.01			NR70
PFTrDA (72629-94-8)		ug/L	<0.02	<0.02			NR70
PFTeDA (376-06-7)		ug/L	<0.02	<0.02			NR70
PFHxDA (67905-19-5)		ug/L	<0.02	<0.02			NR70
PFODA (16517-11-6)		ug/L	<0.05	<0.05			NR70
FOUEA (70887-84-2)		ug/L	<0.01	<0.01			NR70
PFDS (335-77-3)		ug/L	<0.01	<0.01			NR70
PFPeS (2706-91-4)		ug/L	0.25	0.12			NR70
PFHxS (355-46-4)		ug/L	1.3	0.64			NR70
PFHpS (375-92-8)		ug/L	0.051	<0.01			NR70
PFOS (1763-23-1)		ug/L	3.4	0.17			NR70
PFNS (68259-12-1)		ug/L	<0.01	<0.01			NR70
PFBS (375-73-5)		ug/L	0.32	0.16			NR70
PFOSA (754-91-6)		ug/L	<0.01	<0.01			NR70
N-MeFOSA (31506-32-8)		ug/L	<0.02	<0.02			NR70
N-EtFOSA (4151-50-2)		ug/L	<0.02	<0.02			NR70
N-MeFOSAA (2355-31-9)		ug/L	<0.01	<0.01			NR70
N-EtFOSAA(2991-50-6)		ug/L	<0.01	<0.01			NR70
N-MeFOSE (24448-09-7)		ug/L	<0.05	<0.05			NR70
N-EtFOSE (1691-99-2)		ug/L	<0.05	<0.05			NR70
4:2 FTS (757124-72-4)		ug/L	<0.01	<0.01			NR70

REPORT OF ANALYSIS

Lab Reg No.			N22/007596	N22/007597			
Date Sampled			20-APR-2022	20-APR-2022			
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
6:2 FTS (27619-97-2)		ug/L	<0.01	<0.01			NR70
8:2 FTS (39108-34-4)		ug/L	<0.01	<0.01			NR70
10:2 FTS (120226-60-0)		ug/L	<0.01	<0.01			NR70
8:2 diPAP (678-41-1)		ug/L	<0.02	<0.02			NR70
PFBA (Surrogate Recovery)		%	105	111			NR70
PFPeA (Surrogate Recovery)		%	123	119			NR70
PFHxA (Surrogate Recovery)		%	86	102			NR70
PFHpA (Surrogate Recovery)		%	81	89			NR70
PFOA (Surrogate Recovery)		%	95	113			NR70
PFNA (Surrogate Recovery)		%	93	73			NR70
PFDA (Surrogate Recovery)		%	82	84			NR70
PFUdA (Surrogate Recovery)		%	111	115			NR70
PFDoA (Surrogate Recovery)		%	80	33			NR70
PFTeDA (Surrogate Recovery)		%	54	60			NR70
PFHxDA (Surrogate Recovery)		%	65	96			NR70
FOUEA (Surrogate Recovery)		%	88	108			NR70
PFBS (Surrogate Recovery)		%	88	97			NR70
PFHxS (Surrogate Recovery)		%	88	100			NR70
PFOS (Surrogate Recovery)		%	115	107			NR70
PFOSA (Surrogate Recovery)		%	83	53			NR70
N-MeFOSA (Surrogate Recovery)		%	60	83			NR70
N-EtFOSA (Surrogate Recovery)		%	47	69			NR70
N-MeFOSAA (Surrogate Recovery)		%	68	52			NR70
N-EtFOSAA (Surrogate Recovery)		%	67	56			NR70
N-MeFOSE (Surrogate Recovery)		%	46	76			NR70
N-EtFOSE (Surrogate Recovery)		%	57	125			NR70
4:2 FTS (Surrogate Recovery)		%	104	94			NR70
6:2 FTS (Surrogate Recovery)		%	91	95			NR70
8:2 FTS (Surrogate Recovery)		%	104	66			NR70
8:2 diPAP (Surrogate Recovery)		%	100	71			NR70
Dates							
Date extracted			28-APR-2022	28-APR-2022			
Date analysed			28-APR-2022	28-APR-2022			

[redacted]

05-MAY-2022

[redacted]

REPORT OF ANALYSIS

This Report supersedes reports: *RN1350685*

Measurement Uncertainty is available upon request.

[redacted]

REPORT OF ANALYSIS

Report No. RN1350926

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426
	[redacted]	**Quote No.**	: QT-02018
	[redacted]	**Order No.**	:
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: QLD_0207_PFASOMP		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007587	0207_QC203_220414	SOIL 14-APR-2022
N22/007594	0207_QC210_220418	SOIL 18-APR-2022

Lab Reg No.		N22/007587	N22/007594			
Date Sampled		14-APR-2022	18-APR-2022			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	mg/kg	<0.002	<0.002			NR70
PFPeA (2706-90-3)	mg/kg	<0.002	<0.002			NR70
PFHxA (307-24-4)	mg/kg	<0.001	<0.001			NR70
PFHpA (375-85-9)	mg/kg	<0.001	<0.001			NR70
PFOA (335-67-1)	mg/kg	<0.001	<0.001			NR70
PFNA (375-95-1)	mg/kg	<0.001	<0.001			NR70
PFDA (335-76-2)	mg/kg	<0.001	<0.001			NR70
PFUdA (2058-94-8)	mg/kg	<0.002	<0.002			NR70
PFDoA (307-55-1)	mg/kg	<0.002	<0.002			NR70
PFTrDA (72629-94-8)	mg/kg	<0.002	<0.002			NR70
PFTeDA (376-06-7)	mg/kg	<0.002	<0.002			NR70
PFHxDA (67905-19-5)	mg/kg	<0.002	<0.002			NR70
PFODA (16517-11-6)	mg/kg	<0.005	<0.005			NR70
FOUEA (70887-84-2)	mg/kg	<0.001	<0.001			NR70
PFBS (375-73-5)	mg/kg	<0.001	<0.001			NR70
PFPeS (2706-91-4)	mg/kg	<0.001	<0.001			NR70
PFHxS (355-46-4)	mg/kg	<0.001	<0.001			NR70
PFHpS (375-92-8)	mg/kg	<0.001	<0.001			NR70
PFOS (1763-23-1)	mg/kg	<0.002	0.0064			NR70
PFNS (68259-12-1)	mg/kg	<0.001	<0.001			NR70
PFDS (335-77-3)	mg/kg	<0.001	<0.001			NR70
PFOSA (754-91-6)	mg/kg	<0.001	<0.001			NR70
N-MeFOSA (31506-32-8)	mg/kg	<0.002	<0.002			NR70
N-EtFOSA (4151-50-2)	mg/kg	<0.002	<0.002			NR70
N-MeFOSAA (2355-31-9)	mg/kg	<0.002	<0.002			NR70
N-EtFOSAA(2991-50-6)	mg/kg	<0.002	<0.002			NR70
N-MeFOSE (24448-09-7)	mg/kg	<0.005	<0.005			NR70
N-EtFOSE (1691-99-2)	mg/kg	<0.005	<0.005			NR70
4:2 FTS (757124-72-4)	mg/kg	<0.001	<0.001			NR70

REPORT OF ANALYSIS

Lab Reg No.		N22/007587	N22/007594			
Date Sampled		14-APR-2022	18-APR-2022			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
6:2 FTS (27619-97-2)	mg/kg	<0.001	<0.001			NR70
8:2 FTS (39108-34-4)	mg/kg	<0.001	<0.001			NR70
10:2 FTS (120226-60-0)	mg/kg	<0.002	<0.002			NR70
8:2 diPAP (678-41-1)	mg/kg	<0.002	<0.002			NR70
PFBA (Surrogate Recovery)	%	107	109			NR70
PFPeA (Surrogate Recovery)	%	108	117			NR70
PFHxA (Surrogate Recovery)	%	123	116			NR70
PFHpA (Surrogate Recovery)	%	104	102			NR70
PFOA (Surrogate Recovery)	%	99	116			NR70
PFNA (Surrogate Recovery)	%	117	66			NR70
PFDA (Surrogate Recovery)	%	143	81			NR70
PFUdA (Surrogate Recovery)	%	100	72			NR70
PFDoA (Surrogate Recovery)	%	111	80			NR70
PFTeDA (Surrogate Recovery)	%	59	26			NR70
PFHxDA (Surrogate Recovery)	%	109	52			NR70
FOUEA (Surrogate Recovery)	%	113	53			NR70
PFBS (Surrogate Recovery)	%	95	104			NR70
PFHxS (Surrogate Recovery)	%	102	105			NR70
PFOS (Surrogate Recovery)	%	111	111			NR70
PFOSA (Surrogate Recovery)	%	107	71			NR70
N-MeFOSA (Surrogate Recovery)	%	105	109			NR70
N-EtFOSA (Surrogate Recovery)	%	95	99			NR70
N-MeFOSAA (Surrogate Recovery)	%	93	60			NR70
N-EtFOSAA (Surrogate Recovery)	%	102	80			NR70
N-MeFOSE (Surrogate Recovery)	%	104	121			NR70
N-EtFOSE (Surrogate Recovery)	%	104	91			NR70
4:2 FTS (Surrogate Recovery)	%	93	98			NR70
6:2 FTS (Surrogate Recovery)	%	102	97			NR70
8:2 FTS (Surrogate Recovery)	%	100	69			NR70
8:2 diPAP (Surrogate Recovery)	%	134	76			NR70
Dates						
Date extracted		2-MAY-2022	2-MAY-2022			
Date analysed		3-MAY-2022	3-MAY-2022			

N22/007587
and
N22/007594

PFOS and PFHxS are quantified using a combined branched and linear standard,

linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô
Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

09-MAY-2022

Lab Reg No.		N22/007587	N22/007594			
Date Sampled		**14-APR-2022**	**18-APR-2022**			
	Units					**Method**
Trace Elements						
Total Solids	%	59.5	57.1			NT2_49
Dates						
Date extracted		2-MAY-2022	2-MAY-2022			
Date analysed		5-MAY-2022	5-MAY-2022			

[redacted]

09-MAY-2022

All results are expressed on a dry weight basis.

REPORT OF ANALYSIS

Report No. RN1350926

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426
	[redacted]	**Quote No.**	: QT-02018
		Order No.	:
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: QLD_0207_PFASOMP		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007586	0207_QC200_220413	WATER 13-APR-2022
N22/007588	0207_QC204_220415	WATER 15-APR-2022
N22/007589	0207_QC205_220416	WATER 16-APR-2022
N22/007590	0207_QC206_220417	WATER 17-APR-2022

Lab Reg No.			N22/007586	N22/007588	N22/007589	N22/007590	
Date Sampled			13-APR-2022	15-APR-2022	16-APR-2022	17-APR-2022	
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
PFBA (375-22-4)		ug/L	4.7	<0.05	<0.05	1.2	NR70
PFPeA (2706-90-3)		ug/L	22	<0.02	0.026	1.6	NR70
PFHxA (307-24-4)		ug/L	14	<0.01	0.070	3.7	NR70
PFHpA (375-85-9)		ug/L	15	<0.01	0.011	1.6	NR70
PFOA (335-67-1)		ug/L	5.1	<0.01	<0.01	3.0	NR70
PFNA (375-95-1)		ug/L	3.2	<0.01	<0.01	1.2	NR70
PFDA (335-76-2)		ug/L	0.013	<0.01	<0.01	0.039	NR70
PFUdA (2058-94-8)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFDoA (307-55-1)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFTrDA (72629-94-8)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFTeDA (376-06-7)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFHxDA (67905-19-5)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFODA (16517-11-6)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70
FOUEA (70887-84-2)		ug/L	0.029	<0.01	<0.01	0.012	NR70
PFDS (335-77-3)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFPeS (2706-91-4)		ug/L	0.78	0.038	0.040	0.71	NR70
PFHxS (355-46-4)		ug/L	5.4	0.35	0.25	4.6	NR70
PFHpS (375-92-8)		ug/L	0.82	<0.01	<0.01	0.70	NR70
PFOS (1763-23-1)		ug/L	15	0.75	0.065	12	NR70
PFNS (68259-12-1)		ug/L	0.014	<0.01	<0.01	<0.01	NR70
PFBS (375-73-5)		ug/L	0.71	0.050	0.038	0.73	NR70
PFOSA (754-91-6)		ug/L	0.024	<0.01	<0.01	0.013	NR70
N-MeFOSA (31506-32-8)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
N-EtFOSA (4151-50-2)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
N-MeFOSAA (2355-31-9)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-EtFOSAA(2991-50-6)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-MeFOSE (24448-09-7)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70

REPORT OF ANALYSIS

Lab Reg No.			N22/007586	N22/007588	N22/007589	N22/007590	
Date Sampled			13-APR-2022	15-APR-2022	16-APR-2022	17-APR-2022	
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
N-EtFOSE (1691-99-2)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70
4:2 FTS (757124-72-4)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
6:2 FTS (27619-97-2)		ug/L	5.7	<0.01	<0.01	1.8	NR70
8:2 FTS (39108-34-4)		ug/L	0.41	<0.01	<0.01	0.27	NR70
10:2 FTS (120226-60-0)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
8:2 diPAP (678-41-1)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFBA (Surrogate Recovery)		%	113	106	100	100	NR70
PFPeA (Surrogate Recovery)		%	96	127	116	95	NR70
PFHxA (Surrogate Recovery)		%	88	126	93	88	NR70
PFHpA (Surrogate Recovery)		%	63	126	93	96	NR70
PFOA (Surrogate Recovery)		%	92	148	82	118	NR70
PFNA (Surrogate Recovery)		%	164	58	94	36	NR70
PFDA (Surrogate Recovery)		%	100	71	89	63	NR70
PFUdA (Surrogate Recovery)		%	122	96	100	79	NR70
PFDoA (Surrogate Recovery)		%	77	68	91	43	NR70
PFTeDA (Surrogate Recovery)		%	117	35	116	43	NR70
PFHxDA (Surrogate Recovery)		%	138	99	67	176	NR70
FOUEA (Surrogate Recovery)		%	183	101	81	104	NR70
PFBS (Surrogate Recovery)		%	150	127	90	125	NR70
PFHxS (Surrogate Recovery)		%	89	132	89	95	NR70
PFOS (Surrogate Recovery)		%	98	109	103	111	NR70
PFOSA (Surrogate Recovery)		%	70	59	86	57	NR70
N-MeFOSA (Surrogate Recovery)		%	137	86	75	118	NR70
N-EtFOSA (Surrogate Recovery)		%	115	68	60	96	NR70
N-MeFOSAA (Surrogate Recovery)		%	72	51	87	57	NR70
N-EtFOSAA (Surrogate Recovery)		%	75	53	94	61	NR70
N-MeFOSE (Surrogate Recovery)		%	93	82	84	77	NR70
N-EtFOSE (Surrogate Recovery)		%	169	137	100	182	NR70
4:2 FTS (Surrogate Recovery)		%	120	141	84	103	NR70
6:2 FTS (Surrogate Recovery)		%	215	127	79	116	NR70
8:2 FTS (Surrogate Recovery)		%	162	76	97	65	NR70
8:2 diPAP (Surrogate Recovery)		%	92	71	120	71	NR70
Dates							
Date extracted			28-APR-2022	28-APR-2022	28-APR-2022	28-APR-2022	
Date analysed			28-APR-2022	28-APR-2022	28-APR-2022	28-APR-2022	

N22/007586
to
N22/007597

PFOS and PFHxS are quantified using a combined branched and linear standard,
linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô
High PFAS surrogate recoveries accepted - results corrected for recovery.
Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

09-MAY-2022

REPORT OF ANALYSIS

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426
	[redacted]	**Quote No.**	: QT-02018
	[redacted]	**Order No.**	:
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: QLD_0207_PFASOMP		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007591	0207_QC207_220417	WATER 17-APR-2022
N22/007592	0207_QC208_220418	WATER 18-APR-2022
N22/007593	0207_QC209_220418	WATER 18-APR-2022
N22/007595	0207_QC211_220419	WATER 19-APR-2022

Lab Reg No.			N22/007591	N22/007592	N22/007593	N22/007595	
Date Sampled			17-APR-2022	18-APR-2022	18-APR-2022	19-APR-2022	
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
PFBA (375-22-4)		ug/L	2.5	<0.05	<0.05	0.22	NR70
PFPeA (2706-90-3)		ug/L	3.8	<0.02	0.025	0.22	NR70
PFHxA (307-24-4)		ug/L	18	0.046	0.054	0.84	NR70
PFHpA (375-85-9)		ug/L	4.0	<0.01	<0.01	0.090	NR70
PFOA (335-67-1)		ug/L	4.3	<0.01	<0.01	0.060	NR70
PFNA (375-95-1)		ug/L	0.041	<0.01	<0.01	<0.01	NR70
PFDA (335-76-2)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFUdA (2058-94-8)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFDoA (307-55-1)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFTrDA (72629-94-8)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFTeDA (376-06-7)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFHxDA (67905-19-5)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFODA (16517-11-6)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70
FOUEA (70887-84-2)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFDS (335-77-3)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFPeS (2706-91-4)		ug/L	12	0.033	0.023	0.52	NR70
PFHxS (355-46-4)		ug/L	79	0.21	0.18	2.1	NR70
PFHpS (375-92-8)		ug/L	4.4	<0.01	<0.01	0.021	NR70
PFOS (1763-23-1)		ug/L	40	0.38	0.52	0.082	NR70
PFNS (68259-12-1)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFBS (375-73-5)		ug/L	13	0.031	0.029	0.48	NR70
PFOSA (754-91-6)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-MeFOSA (31506-32-8)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
N-EtFOSA (4151-50-2)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
N-MeFOSAA (2355-31-9)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-EtFOSAA(2991-50-6)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
N-MeFOSE (24448-09-7)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70

REPORT OF ANALYSIS

Lab Reg No.			N22/007591	N22/007592	N22/007593	N22/007595	
Date Sampled			17-APR-2022	18-APR-2022	18-APR-2022	19-APR-2022	
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
N-EtFOSE (1691-99-2)		ug/L	<0.05	<0.05	<0.05	<0.05	NR70
4:2 FTS (757124-72-4)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
6:2 FTS (27619-97-2)		ug/L	0.50	<0.01	<0.01	<0.01	NR70
8:2 FTS (39108-34-4)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
10:2 FTS (120226-60-0)		ug/L	<0.01	<0.01	<0.01	<0.01	NR70
8:2 diPAP (678-41-1)		ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFBA (Surrogate Recovery)		%	102	103	126	104	NR70
PFPeA (Surrogate Recovery)		%	107	119	161	118	NR70
PFHxA (Surrogate Recovery)		%	122	133	91	72	NR70
PFHpA (Surrogate Recovery)		%	126	117	95	84	NR70
PFOA (Surrogate Recovery)		%	143	93	86	98	NR70
PFNA (Surrogate Recovery)		%	38	104	86	95	NR70
PFDA (Surrogate Recovery)		%	140	106	70	114	NR70
PFUdA (Surrogate Recovery)		%	80	129	67	102	NR70
PFDoA (Surrogate Recovery)		%	63	84	59	93	NR70
PFTeDA (Surrogate Recovery)		%	101	73	35	51	NR70
PFHxDA (Surrogate Recovery)		%	143	76	104	56	NR70
FOUEA (Surrogate Recovery)		%	189	71	96	82	NR70
PFBS (Surrogate Recovery)		%	133	95	86	80	NR70
PFHxS (Surrogate Recovery)		%	74	99	90	71	NR70
PFOS (Surrogate Recovery)		%	107	108	99	101	NR70
PFOSA (Surrogate Recovery)		%	79	76	48	74	NR70
N-MeFOSA (Surrogate Recovery)		%	177	80	58	61	NR70
N-EtFOSA (Surrogate Recovery)		%	145	64	43	49	NR70
N-MeFOSAA (Surrogate Recovery)		%	77	75	40	74	NR70
N-EtFOSAA (Surrogate Recovery)		%	81	80	40	76	NR70
N-MeFOSE (Surrogate Recovery)		%	157	56	48	61	NR70
N-EtFOSE (Surrogate Recovery)		%	187	98	44	54	NR70
4:2 FTS (Surrogate Recovery)		%	90	88	143	79	NR70
6:2 FTS (Surrogate Recovery)		%	104	89	104	74	NR70
8:2 FTS (Surrogate Recovery)		%	88	88	66	83	NR70
8:2 diPAP (Surrogate Recovery)		%	99	98	60	89	NR70
Dates							
Date extracted			28-APR-2022	28-APR-2022	28-APR-2022	28-APR-2022	
Date analysed			28-APR-2022	28-APR-2022	28-APR-2022	28-APR-2022	

REPORT OF ANALYSIS

Lab Reg No.			N22/007591	N22/007592	N22/007593	N22/007595	
Date Sampled			17-APR-2022	18-APR-2022	18-APR-2022	19-APR-2022	
		Units					Method

[redacted]

09-MAY-2022

REPORT OF ANALYSIS

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426
	[redacted]	**Quote No.**	: QT-02018
	[redacted]	**Order No.**	:
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: QLD_0207_PFASOMP		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007596	0207_QC212_220420	WATER 20-APR-2022
N22/007597	0207_QC213_220420	WATER 20-APR-2022

Lab Reg No.			N22/007596	N22/007597			
Date Sampled			20-APR-2022	20-APR-2022			
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
PFBA (375-22-4)		ug/L	0.18	0.056			NR70
PFPeA (2706-90-3)		ug/L	0.16	0.035			NR70
PFHxA (307-24-4)		ug/L	0.36	0.092			NR70
PFHpA (375-85-9)		ug/L	0.070	0.013			NR70
PFOA (335-67-1)		ug/L	0.12	0.014			NR70
PFNA (375-95-1)		ug/L	<0.01	<0.01			NR70
PFDA (335-76-2)		ug/L	<0.01	<0.01			NR70
PFUdA (2058-94-8)		ug/L	<0.01	<0.01			NR70
PFDoA (307-55-1)		ug/L	<0.01	<0.01			NR70
PFTrDA (72629-94-8)		ug/L	<0.02	<0.02			NR70
PFTeDA (376-06-7)		ug/L	<0.02	<0.02			NR70
PFHxDA (67905-19-5)		ug/L	<0.02	<0.02			NR70
PFODA (16517-11-6)		ug/L	<0.05	<0.05			NR70
FOUEA (70887-84-2)		ug/L	<0.01	<0.01			NR70
PFDS (335-77-3)		ug/L	<0.01	<0.01			NR70
PFPeS (2706-91-4)		ug/L	0.25	0.12			NR70
PFHxS (355-46-4)		ug/L	1.3	0.64			NR70
PFHpS (375-92-8)		ug/L	0.051	<0.01			NR70
PFOS (1763-23-1)		ug/L	3.4	0.17			NR70
PFNS (68259-12-1)		ug/L	<0.01	<0.01			NR70
PFBS (375-73-5)		ug/L	0.32	0.16			NR70
PFOSA (754-91-6)		ug/L	<0.01	<0.01			NR70
N-MeFOSA (31506-32-8)		ug/L	<0.02	<0.02			NR70
N-EtFOSA (4151-50-2)		ug/L	<0.02	<0.02			NR70
N-MeFOSAA (2355-31-9)		ug/L	<0.01	<0.01			NR70
N-EtFOSAA(2991-50-6)		ug/L	<0.01	<0.01			NR70
N-MeFOSE (24448-09-7)		ug/L	<0.05	<0.05			NR70
N-EtFOSE (1691-99-2)		ug/L	<0.05	<0.05			NR70
4:2 FTS (757124-72-4)		ug/L	<0.01	<0.01			NR70

REPORT OF ANALYSIS

Lab Reg No.			N22/007596	N22/007597			
Date Sampled			20-APR-2022	20-APR-2022			
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
6:2 FTS (27619-97-2)		ug/L	<0.01	<0.01			NR70
8:2 FTS (39108-34-4)		ug/L	<0.01	<0.01			NR70
10:2 FTS (120226-60-0)		ug/L	<0.01	<0.01			NR70
8:2 diPAP (678-41-1)		ug/L	<0.02	<0.02			NR70
PFBA (Surrogate Recovery)		%	105	111			NR70
PFPeA (Surrogate Recovery)		%	123	119			NR70
PFHxA (Surrogate Recovery)		%	86	102			NR70
PFHpA (Surrogate Recovery)		%	81	89			NR70
PFOA (Surrogate Recovery)		%	95	113			NR70
PFNA (Surrogate Recovery)		%	93	73			NR70
PFDA (Surrogate Recovery)		%	82	84			NR70
PFUdA (Surrogate Recovery)		%	111	115			NR70
PFDoA (Surrogate Recovery)		%	80	33			NR70
PFTeDA (Surrogate Recovery)		%	54	60			NR70
PFHxDA (Surrogate Recovery)		%	65	96			NR70
FOUEA (Surrogate Recovery)		%	88	108			NR70
PFBS (Surrogate Recovery)		%	88	97			NR70
PFHxS (Surrogate Recovery)		%	88	100			NR70
PFOS (Surrogate Recovery)		%	115	107			NR70
PFOSA (Surrogate Recovery)		%	83	53			NR70
N-MeFOSA (Surrogate Recovery)		%	60	83			NR70
N-EtFOSA (Surrogate Recovery)		%	47	69			NR70
N-MeFOSAA (Surrogate Recovery)		%	68	52			NR70
N-EtFOSAA (Surrogate Recovery)		%	67	56			NR70
N-MeFOSE (Surrogate Recovery)		%	46	76			NR70
N-EtFOSE (Surrogate Recovery)		%	57	125			NR70
4:2 FTS (Surrogate Recovery)		%	104	94			NR70
6:2 FTS (Surrogate Recovery)		%	91	95			NR70
8:2 FTS (Surrogate Recovery)		%	104	66			NR70
8:2 diPAP (Surrogate Recovery)		%	100	71			NR70
Dates							
Date extracted			28-APR-2022	28-APR-2022			
Date analysed			28-APR-2022	28-APR-2022			

[redacted]

09-MAY-2022

[redacted]

REPORT OF ANALYSIS

This Report supersedes reports: *RN1350685*
RN1350696

Measurement Uncertainty is available upon request.

[redacted]

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/220426 **Sample Matrix:** Liquid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		ug/L	ug/L	ug/L	ug/L	%	%	%
PFBA (375-22-4)	NR70	0.05	<0.05	NA	NA	NA	150	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	143	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	149	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	149	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	80	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	131	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	111	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	149	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	68	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	150	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	142	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	150	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	149	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	150	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	113	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	133	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	150	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	150	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	58	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	52	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	149	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	147	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	149	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	96	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	96	NA

Results expressed in percentage (%) or ug/L wherever appropriate.
Acceptable Spike recovery is 50-150%.
Maximum acceptable RPDs on spikes and duplicates is 40%.
'NA ' = Not Applicable.
RPD= Relative Percentage Difference.

Signed: [redacted]

Date:

[redacted]

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/220426 **Sample Matrix:** Solid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
PFBA (375-22-4)	NR70	0.002	<0.002	NA	NA	NA	99	NA
PFPeA (2706-90-3)	NR70	0.002	<0.002	NA	NA	NA	96	NA
PFHxA (307-24-4)	NR70	0.001	<0.001	NA	NA	NA	91	NA
PFHpA (375-85-9)	NR70	0.001	<0.001	NA	NA	NA	97	NA
PFOA (335-67-1)	NR70	0.001	<0.001	NA	NA	NA	106	NA
PFNA (375-95-1)	NR70	0.001	<0.001	NA	NA	NA	124	NA
PFDA (335-76-2)	NR70	0.001	<0.001	NA	NA	NA	109	NA
PFUdA (2058-94-8)	NR70	0.002	<0.002	NA	NA	NA	76	NA
PFDoA (307-55-1)	NR70	0.002	<0.002	NA	NA	NA	136	NA
PFTrDA (72629-94-8)	NR70	0.002	<0.002	NA	NA	NA	140	NA
PFTeDA (376-06-7)	NR70	0.002	<0.002	NA	NA	NA	108	NA
PFHxDA (67905-19-5)	NR70	0.002	<0.002	NA	NA	NA	123	NA
PFODA (16517-11-6)	NR70	0.005	<0.005	NA	NA	NA	82	NA
FOUEA (70887-84-2)	NR70	0.001	<0.001	NA	NA	NA	85	NA
PFBS (375-73-5)	NR70	0.001	<0.001	NA	NA	NA	104	NA
PFPeS (2706-91-4)	NR70	0.001	<0.001	NA	NA	NA	113	NA
PFHxS (355-46-4)	NR70	0.001	<0.001	NA	NA	NA	97	NA
PFHpS (375-92-8)	NR70	0.001	<0.001	NA	NA	NA	100	NA
PFOS (1763-23-1)	NR70	0.002	<0.002	NA	NA	NA	95	NA
PFNS (68259-12-1)	NR70	0.001	<0.001	NA	NA	NA	96	NA
PFDS (335-77-3)	NR70	0.001	<0.001	NA	NA	NA	92	NA
PFOSA (754-91-6)	NR70	0.001	<0.001	NA	NA	NA	101	NA
N-MeFOSA (31506-32-8)	NR70	0.002	<0.002	NA	NA	NA	100	NA
N-EtFOSA (4151-50-2)	NR70	0.002	<0.002	NA	NA	NA	105	NA
N-MeFOSAA (2355-31-9)	NR70	0.002	<0.002	NA	NA	NA	100	NA
N-EtFOSAA(2991-50-6)	NR70	0.002	<0.002	NA	NA	NA	105	NA
N-MeFOSE (24448-09-7)	NR70	0.005	<0.005	NA	NA	NA	106	NA
N-EtFOSE (1691-99-2)	NR70	0.005	<0.005	NA	NA	NA	66	NA
4:2 FTS (757124-72-4)	NR70	0.001	<0.001	NA	NA	NA	101	NA
6:2 FTS (27619-97-2)	NR70	0.001	<0.001	NA	NA	NA	107	NA
8:2 FTS (39108-34-4)	NR70	0.001	<0.001	NA	NA	NA	102	NA
10:2 FTS (120226-60-0)	NR70	0.002	<0.002	NA	NA	NA	93	NA
8:2 diPAP (678-41-1)	NR70	0.002	<0.002	NA	NA	NA	79	NA

Results expressed in percentage (%) or mg/kg wherever appropriate.
Acceptable Spike recovery is 50-150%.
Maximum acceptable RPDs on spikes and duplicates is 40%.
'NA ' = Not Applicable.
RPD= Relative Percentage Difference.

Signed: [redacted]

Date:

[redacted]

National Measurement Institute

Australian Government
Department of Industry, Science, Energy and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

Fax:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: [redacted]

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

Fax:

SAMPLE DETAILS

NMI Job Name: **AECO06/220426/1**

Total No. of Samples: **1**

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N22/007582	3-MAY-2022	0207_QC201_220413	WATER 13-APR-2022

SAMPLE RECEIVED CONDITION

Date samples received:	26-APR-2022
Sample received in good order:	Yes
NMI Quotation no. provided:	QLD_0207_PFASOMP
Client purchase order number:	60612563_2_1
Temperature of samples:	Chilled
Comments:	
Mode of Delivery:	Courier

Additional Terms and Conditions

Incomplete / unclear information about samples or required testing will delay the start of the analysis work

If you require your Purchase Order (PO) number to be included on our invoice, please provide the number during sample submission and before the completion of work to avoid unnecessary delays and/or additional processing/handling fees.

The lodgement of an order or receipt of samples for NMI services referenced in this Sample Receipt Notification constitutes an acceptence of the current version of NMI Terms and Conditions or other applicable Terms referenced in the NMI Quotation. NMI Terms and Conditions are available on the web at https://www.industry.gov.au/client-services/testing-and-analysis-services/chemical-and-biological-analysis-services-terms-and-conditions

REPORT OF ANALYSIS

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426/1
	[redacted]	**Quote No.**	: QT-02018
		Order No.	:
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: 60612563 2.1		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007582	0207_QC201_220413	WATER 13-APR-2022

Lab Reg No.		N22/007582				
Date Sampled		13-APR-2022				
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05				NR70
PFPeA (2706-90-3)	ug/L	<0.02				NR70
PFHxA (307-24-4)	ug/L	<0.01				NR70
PFHpA (375-85-9)	ug/L	<0.01				NR70
PFOA (335-67-1)	ug/L	<0.01				NR70
PFNA (375-95-1)	ug/L	<0.01				NR70
PFDA (335-76-2)	ug/L	<0.01				NR70
PFUdA (2058-94-8)	ug/L	<0.01				NR70
PFDoA (307-55-1)	ug/L	<0.01				NR70
PFTrDA (72629-94-8)	ug/L	<0.02				NR70
PFTeDA (376-06-7)	ug/L	<0.02				NR70
PFHxDA (67905-19-5)	ug/L	<0.02				NR70
PFODA (16517-11-6)	ug/L	<0.05				NR70
FOUEA (70887-84-2)	ug/L	<0.02				NR70
PFDS (335-77-3)	ug/L	<0.01				NR70
PFPeS (2706-91-4)	ug/L	<0.01				NR70
PFHxS (355-46-4)	ug/L	<0.01				NR70
PFHpS (375-92-8)	ug/L	<0.01				NR70
PFOS (1763-23-1)	ug/L	<0.02				NR70
PFNS (68259-12-1)	ug/L	<0.01				NR70
PFBS (375-73-5)	ug/L	<0.01				NR70
PFOSA (754-91-6)	ug/L	<0.01				NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02				NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02				NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01				NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01				NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05				NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05				NR70
4:2 FTS (757124-72-4)	ug/L	<0.01				NR70
6:2 FTS (27619-97-2)	ug/L	0.034				NR70

REPORT OF ANALYSIS

Lab Reg No.		N22/007582				
Date Sampled		13-APR-2022				
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
8:2 FTS (39108-34-4)	ug/L	<0.01				NR70
10:2 FTS (120226-60-0)	ug/L	<0.01				NR70
8:2 diPAP (678-41-1)	ug/L	<0.02				NR70
PFBA (Surrogate Recovery)	%	107				NR70
PFPeA (Surrogate Recovery)	%	176				NR70
PFHxA (Surrogate Recovery)	%	102				NR70
PFHpA (Surrogate Recovery)	%	85				NR70
PFOA (Surrogate Recovery)	%	85				NR70
PFNA (Surrogate Recovery)	%	76				NR70
PFDA (Surrogate Recovery)	%	98				NR70
PFUdA (Surrogate Recovery)	%	117				NR70
PFDoA (Surrogate Recovery)	%	43				NR70
PFTeDA (Surrogate Recovery)	%	55				NR70
PFHxDA (Surrogate Recovery)	%	56				NR70
FOUEA (Surrogate Recovery)	%	84				NR70
PFBS (Surrogate Recovery)	%	80				NR70
PFHxS (Surrogate Recovery)	%	83				NR70
PFOS (Surrogate Recovery)	%	110				NR70
PFOSA (Surrogate Recovery)	%	68				NR70
N-MeFOSA (Surrogate Recovery)	%	63				NR70
N-EtFOSA (Surrogate Recovery)	%	46				NR70
N-MeFOSAA (Surrogate Recovery)	%	63				NR70
N-EtFOSAA (Surrogate Recovery)	%	64				NR70
N-MeFOSE (Surrogate Recovery)	%	51				NR70
N-EtFOSE (Surrogate Recovery)	%	75				NR70
4:2 FTS (Surrogate Recovery)	%	130				NR70
6:2 FTS (Surrogate Recovery)	%	92				NR70
8:2 FTS (Surrogate Recovery)	%	88				NR70
8:2 diPAP (Surrogate Recovery)	%	85				NR70
Dates						
Date extracted		27-APR-2022				
Date analysed		28-APR-2022				

N22/007582
PFOS and PFHxS are quantified using a combined branched and linear standard,
linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô

REPORT OF ANALYSIS

High PFAS surrogate recoveries accepted - results corrected for recovery.
Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

LOR raised for FOUEA due to matrix interferences.

[redacted]

03-MAY-2022

NATA
ACCREDITED FOR
TECHNICAL
COMPETENCE

Accredited for compliance with ISO/IEC 17025 - Testing.
This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

This Report supersedes reports: *RN1350392*

Measurement Uncertainty is available upon request.
Chemical Accreditation 198: 105 Delhi Road, North Ryde, NSW, 2113

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/220426/1 **Sample Matrix:** Liquid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		ug/L	ug/L	ug/L	ug/L	%	%	%
PFBA (375-22-4)	NR70	0.05	<0.05	NA	NA	NA	150	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	143	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	149	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	149	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	80	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	131	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	111	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	149	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	68	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	150	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	142	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	150	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	149	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	150	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	113	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	133	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	150	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	150	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	58	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	52	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	149	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	147	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	149	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	96	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	96	NA

Results expressed in percentage (%) or ug/L wherever appropriate.
Acceptable Spike recovery is 50-150%.
Maximum acceptable RPDs on spikes and duplicates is 40%.
'NA ' = Not Applicable.
RPD= Relative Percentage Difference.

Signed:

Date:

[redacted]

Australian Government
Department of Industry, Science, Energy and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email:

Telephone:

Fax:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: [redacted]

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

Fax:

SAMPLE DETAILS

NMI Job Name: **AECO06/220426/2**

Total No. of Samples: **1**

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N22/007583	3-MAY-2022	0207_QC202_220414	WATER 14-APR-2022

SAMPLE RECEIVED CONDITION

Date samples received:	26-APR-2022
Sample received in good order:	Yes
NMI Quotation no. provided:	QLD_0207_PFASOMP
Client purchase order number:	60612563_2_1
Temperature of samples:	Chilled
Comments:	
Mode of Delivery:	Courier

Additional Terms and Conditions

Incomplete / unclear information about samples or required testing will delay the start of the analysis work

If you require your Purchase Order (PO) number to be included on our invoice, please provide the number during sample submission and before the completion of work to avoid unnecessary delays and/or additional processing/handling fees.

The lodgement of an order or receipt of samples for NMI services referenced in this Sample Receipt Notification constitutes an acceptence of the current version of NMI Terms and Conditions or other applicable Terms referenced in the NMI Quotation. NMI Terms and Conditions are available on the web at https://www.industry.gov.au/client-services/testing-and-analysis-services/chemical-and-biological-analysis-services-terms-and-conditions

REPORT OF ANALYSIS

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426/2
	LEVEL 8	**Quote No.**	: QT-02018
	540 WICKHAM STREET	**Order No.**	: 60612563_2_1
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: 60612563 2.1		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007583	0207_QC202_220414	WATER 14-APR-2022

Lab Reg No.		N22/007583				
Date Sampled		14-APR-2022				
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05				NR70
PFPeA (2706-90-3)	ug/L	<0.02				NR70
PFHxA (307-24-4)	ug/L	0.017				NR70
PFHpA (375-85-9)	ug/L	<0.01				NR70
PFOA (335-67-1)	ug/L	<0.01				NR70
PFNA (375-95-1)	ug/L	<0.01				NR70
PFDA (335-76-2)	ug/L	<0.01				NR70
PFUdA (2058-94-8)	ug/L	<0.01				NR70
PFDoA (307-55-1)	ug/L	<0.01				NR70
PFTrDA (72629-94-8)	ug/L	<0.02				NR70
PFTeDA (376-06-7)	ug/L	<0.02				NR70
PFHxDA (67905-19-5)	ug/L	<0.02				NR70
PFODA (16517-11-6)	ug/L	<0.05				NR70
FOUEA (70887-84-2)	ug/L	<0.01				NR70
PFDS (335-77-3)	ug/L	<0.01				NR70
PFPeS (2706-91-4)	ug/L	0.012				NR70
PFHxS (355-46-4)	ug/L	0.15				NR70
PFHpS (375-92-8)	ug/L	<0.01				NR70
PFOS (1763-23-1)	ug/L	0.11				NR70
PFNS (68259-12-1)	ug/L	<0.01				NR70
PFBS (375-73-5)	ug/L	<0.01				NR70
PFOSA (754-91-6)	ug/L	<0.01				NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02				NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02				NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01				NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01				NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05				NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05				NR70
4:2 FTS (757124-72-4)	ug/L	<0.01				NR70
6:2 FTS (27619-97-2)	ug/L	<0.01				NR70

REPORT OF ANALYSIS

Lab Reg No.		N22/007583				
Date Sampled		14-APR-2022				
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
8:2 FTS (39108-34-4)	ug/L	<0.01				NR70
10:2 FTS (120226-60-0)	ug/L	<0.01				NR70
8:2 diPAP (678-41-1)	ug/L	<0.02				NR70
PFBA (Surrogate Recovery)	%	125				NR70
PFPeA (Surrogate Recovery)	%	122				NR70
PFHxA (Surrogate Recovery)	%	107				NR70
PFHpA (Surrogate Recovery)	%	110				NR70
PFOA (Surrogate Recovery)	%	118				NR70
PFNA (Surrogate Recovery)	%	55				NR70
PFDA (Surrogate Recovery)	%	62				NR70
PFUdA (Surrogate Recovery)	%	83				NR70
PFDoA (Surrogate Recovery)	%	45				NR70
PFTeDA (Surrogate Recovery)	%	48				NR70
PFHxDA (Surrogate Recovery)	%	74				NR70
FOUEA (Surrogate Recovery)	%	87				NR70
PFBS (Surrogate Recovery)	%	111				NR70
PFHxS (Surrogate Recovery)	%	112				NR70
PFOS (Surrogate Recovery)	%	121				NR70
PFOSA (Surrogate Recovery)	%	44				NR70
N-MeFOSA (Surrogate Recovery)	%	71				NR70
N-EtFOSA (Surrogate Recovery)	%	51				NR70
N-MeFOSAA (Surrogate Recovery)	%	37				NR70
N-EtFOSAA (Surrogate Recovery)	%	36				NR70
N-MeFOSE (Surrogate Recovery)	%	82				NR70
N-EtFOSE (Surrogate Recovery)	%	79				NR70
4:2 FTS (Surrogate Recovery)	%	101				NR70
6:2 FTS (Surrogate Recovery)	%	90				NR70
8:2 FTS (Surrogate Recovery)	%	49				NR70
8:2 diPAP (Surrogate Recovery)	%	47				NR70
Dates						
Date extracted		27-APR-2022				
Date analysed		28-APR-2022				

N22/007583
PFOS and PFHxS are quantified using a combined branched and linear standard,
linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô

REPORT OF ANALYSIS

Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

03-MAY-2022

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This Report supersedes reports: *RN1350394*

[redacted]

REPORT OF ANALYSIS

Report No. RN1350929

Client	: AECOM AUSTRALIA PTY LTD [redacted]	**Job No.**	: AECO06/220426/2
		Quote No.	: QT-02018
		Order No.	: 60612563_2_1
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: QLD_0207_PFASOMP		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007583	0207_QC202_220414	WATER 14-APR-2022

Lab Reg No.		N22/007583				
Date Sampled		14-APR-2022				
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05				NR70
PFPeA (2706-90-3)	ug/L	<0.02				NR70
PFHxA (307-24-4)	ug/L	0.017				NR70
PFHpA (375-85-9)	ug/L	<0.01				NR70
PFOA (335-67-1)	ug/L	<0.01				NR70
PFNA (375-95-1)	ug/L	<0.01				NR70
PFDA (335-76-2)	ug/L	<0.01				NR70
PFUdA (2058-94-8)	ug/L	<0.01				NR70
PFDoA (307-55-1)	ug/L	<0.01				NR70
PFTrDA (72629-94-8)	ug/L	<0.02				NR70
PFTeDA (376-06-7)	ug/L	<0.02				NR70
PFHxDA (67905-19-5)	ug/L	<0.02				NR70
PFODA (16517-11-6)	ug/L	<0.05				NR70
FOUEA (70887-84-2)	ug/L	<0.01				NR70
PFDS (335-77-3)	ug/L	<0.01				NR70
PFPeS (2706-91-4)	ug/L	0.012				NR70
PFHxS (355-46-4)	ug/L	0.15				NR70
PFHpS (375-92-8)	ug/L	<0.01				NR70
PFOS (1763-23-1)	ug/L	0.11				NR70
PFNS (68259-12-1)	ug/L	<0.01				NR70
PFBS (375-73-5)	ug/L	<0.01				NR70
PFOSA (754-91-6)	ug/L	<0.01				NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02				NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02				NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01				NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01				NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05				NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05				NR70
4:2 FTS (757124-72-4)	ug/L	<0.01				NR70
6:2 FTS (27619-97-2)	ug/L	<0.01				NR70

REPORT OF ANALYSIS

Lab Reg No.		N22/007583				
Date Sampled		14-APR-2022				
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
8:2 FTS (39108-34-4)	ug/L	<0.01				NR70
10:2 FTS (120226-60-0)	ug/L	<0.01				NR70
8:2 diPAP (678-41-1)	ug/L	<0.02				NR70
PFBA (Surrogate Recovery)	%	125				NR70
PFPeA (Surrogate Recovery)	%	122				NR70
PFHxA (Surrogate Recovery)	%	107				NR70
PFHpA (Surrogate Recovery)	%	110				NR70
PFOA (Surrogate Recovery)	%	118				NR70
PFNA (Surrogate Recovery)	%	55				NR70
PFDA (Surrogate Recovery)	%	62				NR70
PFUdA (Surrogate Recovery)	%	83				NR70
PFDoA (Surrogate Recovery)	%	45				NR70
PFTeDA (Surrogate Recovery)	%	48				NR70
PFHxDA (Surrogate Recovery)	%	74				NR70
FOUEA (Surrogate Recovery)	%	87				NR70
PFBS (Surrogate Recovery)	%	111				NR70
PFHxS (Surrogate Recovery)	%	112				NR70
PFOS (Surrogate Recovery)	%	121				NR70
PFOSA (Surrogate Recovery)	%	44				NR70
N-MeFOSA (Surrogate Recovery)	%	71				NR70
N-EtFOSA (Surrogate Recovery)	%	51				NR70
N-MeFOSAA (Surrogate Recovery)	%	37				NR70
N-EtFOSAA (Surrogate Recovery)	%	36				NR70
N-MeFOSE (Surrogate Recovery)	%	82				NR70
N-EtFOSE (Surrogate Recovery)	%	79				NR70
4:2 FTS (Surrogate Recovery)	%	101				NR70
6:2 FTS (Surrogate Recovery)	%	90				NR70
8:2 FTS (Surrogate Recovery)	%	49				NR70
8:2 diPAP (Surrogate Recovery)	%	47				NR70
Dates						
Date extracted		27-APR-2022				
Date analysed		28-APR-2022				

N22/007583
PFOS and PFHxS are quantified using a combined branched and linear standard,
linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô

[redacted]

REPORT OF ANALYSIS

Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

09-MAY-2022

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This Report supersedes reports: *RN1350394*
RN1350403

[redacted]

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/220426/2 **Sample Matrix:** Liquid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		ug/L	ug/L	ug/L	ug/L	%	%	%
PFBA (375-22-4)	NR70	0.05	<0.05	NA	NA	NA	150	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	143	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	149	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	149	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	80	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	131	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	111	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	149	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	68	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	150	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	142	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	150	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	150	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	148	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	149	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	150	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	113	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	133	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	150	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	150	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	58	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	52	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	149	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	147	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	149	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	96	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	96	NA

Results expressed in percentage (%) or ug/L wherever appropriate.
Acceptable Spike recovery is 50-150%.
Maximum acceptable RPDs on spikes and duplicates is 40%.
'NA ' = Not Applicable.
RPD= Relative Percentage Difference.

Signed: [redacted]

Date:

[redacted]

Australian Government
Department of Industry, Science, Energy and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

Fax:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: [redacted]

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

Fax:

SAMPLE DETAILS

NMI Job Name: **AECO06/220426/3**

Total No. of Samples: **2**

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N22/007584	5-MAY-2022	1435_QC200_220419	WATER 19-APR-2022
N22/007585	5-MAY-2022	1435_QC201_220419	WATER 19-APR-2022

SAMPLE RECEIVED CONDITION

Date samples received: 26-APR-2022

Sample received in good order: Yes

NMI Quotation no. provided: QLD_0207_PFASOMP

Client purchase order number: 60612563_2_1

Temperature of samples: Chilled

Comments:

Mode of Delivery: Courier

[redacted]

Additional Terms and Conditions

Incomplete / unclear information about samples or required testing will delay the start of the analysis work

If you require your Purchase Order (PO) number to be included on our invoice, please provide the number during sample submission and before the completion of work to avoid unnecessary delays and/or additional processing/handling fees.

The lodgement of an order or receipt of samples for NMI services referenced in this Sample Receipt Notification constitutes an acceptence of the current version of NMI Terms and Conditions or other applicable Terms referenced in the NMI Quotation. NMI Terms and Conditions are available on the web at https://www.industry.gov.au/client-services/testing-and-analysis-services/chemical-and-biological-analysis-services-terms-and-conditions

REPORT OF ANALYSIS

Report No. RN1350700

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426/3
	[redacted]	**Quote No.**	: QT-02018
		Order No.	: 60612563_2_1
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: 60612563 2.1		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007584	1435_QC200_220419	WATER 19-APR-2022
N22/007585	1435_QC201_220419	WATER 19-APR-2022

Lab Reg No.		N22/007584	N22/007585			
Date Sampled		19-APR-2022	19-APR-2022			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	0.071			NR70
PFPeA (2706-90-3)	ug/L	<0.02	0.18			NR70
PFHxA (307-24-4)	ug/L	<0.01	0.41			NR70
PFHpA (375-85-9)	ug/L	<0.01	0.083			NR70
PFOA (335-67-1)	ug/L	<0.01	0.069			NR70
PFNA (375-95-1)	ug/L	<0.01	<0.01			NR70
PFDA (335-76-2)	ug/L	<0.01	<0.01			NR70
PFUdA (2058-94-8)	ug/L	<0.01	<0.01			NR70
PFDoA (307-55-1)	ug/L	<0.01	<0.01			NR70
PFTrDA (72629-94-8)	ug/L	<0.02	<0.02			NR70
PFTeDA (376-06-7)	ug/L	<0.02	<0.02			NR70
PFHxDA (67905-19-5)	ug/L	<0.02	<0.02			NR70
PFODA (16517-11-6)	ug/L	<0.05	<0.05			NR70
FOUEA (70887-84-2)	ug/L	<0.01	<0.01			NR70
PFDS (335-77-3)	ug/L	<0.01	<0.01			NR70
PFPeS (2706-91-4)	ug/L	<0.01	0.20			NR70
PFHxS (355-46-4)	ug/L	<0.01	0.71			NR70
PFHpS (375-92-8)	ug/L	<0.01	<0.01			NR70
PFOS (1763-23-1)	ug/L	<0.02	0.054			NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01			NR70
PFBS (375-73-5)	ug/L	<0.01	0.23			NR70
PFOSA (754-91-6)	ug/L	<0.01	<0.01			NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02	<0.02			NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02	<0.02			NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01	<0.01			NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01	<0.01			NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05	<0.05			NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05	<0.05			NR70
4:2 FTS (757124-72-4)	ug/L	<0.01	<0.01			NR70

REPORT OF ANALYSIS

Lab Reg No.		N22/007584	N22/007585			
Date Sampled		19-APR-2022	19-APR-2022			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
6:2 FTS (27619-97-2)	ug/L	<0.01	0.020			NR70
8:2 FTS (39108-34-4)	ug/L	<0.01	<0.01			NR70
10:2 FTS (120226-60-0)	ug/L	<0.01	<0.01			NR70
8:2 diPAP (678-41-1)	ug/L	<0.02	<0.02			NR70
PFBA (Surrogate Recovery)	%	100	104			NR70
PFPeA (Surrogate Recovery)	%	122	128			NR70
PFHxA (Surrogate Recovery)	%	86	85			NR70
PFHpA (Surrogate Recovery)	%	69	83			NR70
PFOA (Surrogate Recovery)	%	78	91			NR70
PFNA (Surrogate Recovery)	%	72	57			NR70
PFDA (Surrogate Recovery)	%	130	56			NR70
PFUdA (Surrogate Recovery)	%	74	79			NR70
PFDoA (Surrogate Recovery)	%	52	48			NR70
PFTeDA (Surrogate Recovery)	%	37	44			NR70
PFHxDA (Surrogate Recovery)	%	54	82			NR70
FOUEA (Surrogate Recovery)	%	83	60			NR70
PFBS (Surrogate Recovery)	%	73	80			NR70
PFHxS (Surrogate Recovery)	%	76	80			NR70
PFOS (Surrogate Recovery)	%	104	101			NR70
PFOSA (Surrogate Recovery)	%	51	41			NR70
N-MeFOSA (Surrogate Recovery)	%	44	61			NR70
N-EtFOSA (Surrogate Recovery)	%	35	51			NR70
N-MeFOSAA (Surrogate Recovery)	%	40	40			NR70
N-EtFOSAA (Surrogate Recovery)	%	41	41			NR70
N-MeFOSE (Surrogate Recovery)	%	49	69			NR70
N-EtFOSE (Surrogate Recovery)	%	54	43			NR70
4:2 FTS (Surrogate Recovery)	%	67	75			NR70
6:2 FTS (Surrogate Recovery)	%	58	67			NR70
8:2 FTS (Surrogate Recovery)	%	49	43			NR70
8:2 diPAP (Surrogate Recovery)	%	59	54			NR70
Dates						
Date extracted		28-APR-2022	28-APR-2022			
Date analysed		28-APR-2022	28-APR-2022			

N22/007584
to
N22/007585

PFOS and PFHxS are quantified using a combined branched and linear standard,

[redacted]

REPORT OF ANALYSIS

linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô
Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

05-MAY-2022

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This Report supersedes reports: *RN1350688*

Measurement Uncertainty is available upon request.

[redacted]

REPORT OF ANALYSIS

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/220426/3
	[redacted]	**Quote No.**	: QT-02018
		Order No.	:
		Date Received	: 26-APR-2022
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: QLD_0207_PFASOMP		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N22/007584	1435_QC200_220419	WATER 19-APR-2022
N22/007585	1435_QC201_220419	WATER 19-APR-2022

Lab Reg No.		N22/007584	N22/007585			
Date Sampled		19-APR-2022	19-APR-2022			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	0.071			NR70
PFPeA (2706-90-3)	ug/L	<0.02	0.18			NR70
PFHxA (307-24-4)	ug/L	<0.01	0.41			NR70
PFHpA (375-85-9)	ug/L	<0.01	0.083			NR70
PFOA (335-67-1)	ug/L	<0.01	0.069			NR70
PFNA (375-95-1)	ug/L	<0.01	<0.01			NR70
PFDA (335-76-2)	ug/L	<0.01	<0.01			NR70
PFUdA (2058-94-8)	ug/L	<0.01	<0.01			NR70
PFDoA (307-55-1)	ug/L	<0.01	<0.01			NR70
PFTrDA (72629-94-8)	ug/L	<0.02	<0.02			NR70
PFTeDA (376-06-7)	ug/L	<0.02	<0.02			NR70
PFHxDA (67905-19-5)	ug/L	<0.02	<0.02			NR70
PFODA (16517-11-6)	ug/L	<0.05	<0.05			NR70
FOUEA (70887-84-2)	ug/L	<0.01	<0.01			NR70
PFDS (335-77-3)	ug/L	<0.01	<0.01			NR70
PFPeS (2706-91-4)	ug/L	<0.01	0.20			NR70
PFHxS (355-46-4)	ug/L	<0.01	0.71			NR70
PFHpS (375-92-8)	ug/L	<0.01	<0.01			NR70
PFOS (1763-23-1)	ug/L	<0.02	0.054			NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01			NR70
PFBS (375-73-5)	ug/L	<0.01	0.23			NR70
PFOSA (754-91-6)	ug/L	<0.01	<0.01			NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02	<0.02			NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02	<0.02			NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01	<0.01			NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01	<0.01			NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05	<0.05			NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05	<0.05			NR70
4:2 FTS (757124-72-4)	ug/L	<0.01	<0.01			NR70

REPORT OF ANALYSIS

Lab Reg No.		N22/007584	N22/007585			
Date Sampled		19-APR-2022	19-APR-2022			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
6:2 FTS (27619-97-2)	ug/L	<0.01	0.020			NR70
8:2 FTS (39108-34-4)	ug/L	<0.01	<0.01			NR70
10:2 FTS (120226-60-0)	ug/L	<0.01	<0.01			NR70
8:2 diPAP (678-41-1)	ug/L	<0.02	<0.02			NR70
PFBA (Surrogate Recovery)	%	100	104			NR70
PFPeA (Surrogate Recovery)	%	122	128			NR70
PFHxA (Surrogate Recovery)	%	86	85			NR70
PFHpA (Surrogate Recovery)	%	69	83			NR70
PFOA (Surrogate Recovery)	%	78	91			NR70
PFNA (Surrogate Recovery)	%	72	57			NR70
PFDA (Surrogate Recovery)	%	130	56			NR70
PFUdA (Surrogate Recovery)	%	74	79			NR70
PFDoA (Surrogate Recovery)	%	52	48			NR70
PFTeDA (Surrogate Recovery)	%	37	44			NR70
PFHxDA (Surrogate Recovery)	%	54	82			NR70
FOUEA (Surrogate Recovery)	%	83	60			NR70
PFBS (Surrogate Recovery)	%	73	80			NR70
PFHxS (Surrogate Recovery)	%	76	80			NR70
PFOS (Surrogate Recovery)	%	104	101			NR70
PFOSA (Surrogate Recovery)	%	51	41			NR70
N-MeFOSA (Surrogate Recovery)	%	44	61			NR70
N-EtFOSA (Surrogate Recovery)	%	35	51			NR70
N-MeFOSAA (Surrogate Recovery)	%	40	40			NR70
N-EtFOSAA (Surrogate Recovery)	%	41	41			NR70
N-MeFOSE (Surrogate Recovery)	%	49	69			NR70
N-EtFOSE (Surrogate Recovery)	%	54	43			NR70
4:2 FTS (Surrogate Recovery)	%	67	75			NR70
6:2 FTS (Surrogate Recovery)	%	58	67			NR70
8:2 FTS (Surrogate Recovery)	%	49	43			NR70
8:2 diPAP (Surrogate Recovery)	%	59	54			NR70
Dates						
Date extracted		28-APR-2022	28-APR-2022			
Date analysed		28-APR-2022	28-APR-2022			

N22/007584
to
N22/007585

PFOS and PFHxS are quantified using a combined branched and linear standard,

[redacted]

REPORT OF ANALYSIS

linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô
Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

09-MAY-2022

NATA
ACCREDITED FOR
TECHNICAL
COMPETENCE

Accredited for compliance with ISO/IEC 17025 - Testing.
This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

This Report supersedes reports: *RN1350688*
RN1350700

Measurement Uncertainty is available upon request.

[redacted]

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/220426/3 **Sample Matrix:** Liquid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		ug/L	ug/L	ug/L	ug/L	%	%	%
PFBA (375-22-4)	NR70	0.05	< 0.05	NA	NA	NA	150	NA
PFPeA (2706-90-3)	NR70	0.02	< 0.02	NA	NA	NA	143	NA
PFHxA (307-24-4)	NR70	0.01	< 0.01	NA	NA	NA	148	NA
PFHpA (375-85-9)	NR70	0.01	< 0.01	NA	NA	NA	149	NA
PFOA (335-67-1)	NR70	0.01	< 0.01	NA	NA	NA	149	NA
PFNA (375-95-1)	NR70	0.01	< 0.01	NA	NA	NA	150	NA
PFDA (335-76-2)	NR70	0.01	< 0.01	NA	NA	NA	80	NA
PFUdA (2058-94-8)	NR70	0.01	< 0.01	NA	NA	NA	150	NA
PFDoA (307-55-1)	NR70	0.01	< 0.01	NA	NA	NA	131	NA
PFTrDA (72629-94-8)	NR70	0.02	< 0.02	NA	NA	NA	111	NA
PFTeDA (376-06-7)	NR70	0.02	< 0.02	NA	NA	NA	149	NA
PFHxDA (67905-19-5)	NR70	0.02	< 0.02	NA	NA	NA	68	NA
PFODA (16517-11-6)	NR70	0.05	< 0.05	NA	NA	NA	150	NA
FOUEA (70887-84-2)	NR70	0.01	< 0.01	NA	NA	NA	142	NA
PFBS (375-73-5)	NR70	0.01	< 0.01	NA	NA	NA	148	NA
PFPeS (2706-91-4)	NR70	0.01	< 0.01	NA	NA	NA	150	NA
PFHxS (355-46-4)	NR70	0.01	< 0.01	NA	NA	NA	148	NA
PFHpS (375-92-8)	NR70	0.01	< 0.01	NA	NA	NA	150	NA
PFOS (1763-23-1)	NR70	0.02	< 0.02	NA	NA	NA	150	NA
PFNS (68259-12-1)	NR70	0.01	< 0.01	NA	NA	NA	148	NA
PFDS (335-77-3)	NR70	0.01	< 0.01	NA	NA	NA	149	NA
PFOSA (754-91-6)	NR70	0.01	< 0.01	NA	NA	NA	150	NA
N-MeFOSA (31506-32-8)	NR70	0.02	< 0.02	NA	NA	NA	113	NA
N-EtFOSA (4151-50-2)	NR70	0.02	< 0.02	NA	NA	NA	133	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	< 0.01	NA	NA	NA	150	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	< 0.01	NA	NA	NA	150	NA
N-MeFOSE (24448-09-7)	NR70	0.05	< 0.05	NA	NA	NA	58	NA
N-EtFOSE (1691-99-2)	NR70	0.05	< 0.05	NA	NA	NA	52	NA
4:2 FTS (757124-72-4)	NR70	0.01	< 0.01	NA	NA	NA	149	NA
6:2 FTS (27619-97-2)	NR70	0.01	< 0.01	NA	NA	NA	147	NA
8:2 FTS (39108-34-4)	NR70	0.01	< 0.01	NA	NA	NA	149	NA
10:2 FTS (120226-60-0)	NR70	0.01	< 0.01	NA	NA	NA	96	NA
8:2 diPAP (678-41-1)	NR70	0.02	< 0.02	NA	NA	NA	96	NA

Results expressed in percentage (%) or ug/L wherever appropriate.
Acceptable Spike recovery is 50-150%.
Maximum acceptable RPDs on spikes and duplicates is 40%.
'NA ' = Not Applicable.
RPD= Relative Percentage Difference.

Signed:

Date:

[redacted]

Appendix F

Equipment Calibration Certificates

Appendix F Equipment Calibration Certificates

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003871 WATER QUALITY METER – MULTIFUNCTION

Plant Number: 1079947

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	378672 368681	☑
Conductivity	2.76 mS/cm @ 25°C	2.76 mS/cm		362912	☑
Dissolved Oxygen	Sodium Sulphite / Air	0.0% in Sodium Sulphite	% Saturation in Air	5928	☑
ORP	240mV @ 25°C	240mV	-	7035	☑

Battery Status 100 %	Temperature 21 °C
	Electrodes Cleaned and Checked

Note: Calibration solution traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: [redacted] Date: 17/3/22 Signed: [redacted]

Accessories List:

User's Manual & USB	pH Sensor	Conductivity Sensor
Dissolved Oxygen Sensor with Wetting Cap	Redox (ORP) Sensor with Wetting Cap	Flow Cell 500ml
Comm Cable	Testing Cap	Storage Cap

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003871 WATER QUALITY METER – MULTIFUNCTION

Plant Number: 1072255

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	377339 380327	☑
Conductivity	2.76 mS/cm @ 25°C	2.76 mS/cm		377099	☑
Dissolved Oxygen	Sodium Sulphite / Air	0.0% in Sodium Sulphite	% Saturation in Air	5928	☑
ORP	240mV @ 25°C	240mV	-	7035	☑

Battery Status 80 %	Temperature 21.7 °C
	Electrodes Cleaned and Checked

Note: Calibration solution traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: [redacted] Date: 8/4/22 Signed: [redacted]

Accessories List:

User's Manual & USB	pH Sensor	Conductivity Sensor
Dissolved Oxygen Sensor with Wetting Cap	Redox (ORP) Sensor with Wetting Cap	Flow Cell 500ml
Comm Cable	Testing Cap	Storage Cap

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003842-9003846 - INTERFACE METER

Plant Number: 235206

Probe Length: 100 m

ITEM	TEST	PASS	COMMENTS
Battery	Compartment / Capacity	☑	9v
Probe	Clean / Operation	☑	
Earth Lead	Check if equipped	☑	
Tape Check	Cleaned / Checked for cuts	☑	
Function test	At surface level	☑	

Note: Calibration traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By [redacted] Date: 11/2/22 Signed: [redacted]

Accessories List:

Interface Meter	Tape Guide	Decon 90 Solution
Brush	Spare 9v Battery	Instruction Manual
Transport Box		

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	11/04/2022 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	229.6
Bump Test Reading:	4.02	7.02	2775	0	230.2
Bump Test Temperature:	23.4	23.4	23.4	23.5	23.5

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

11/04/2022

Date

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	12/4/2022 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	231
Bump Test Reading:	4.03	6.98	2788	0.01	232.6
Bump Test Temperature:	23.8	23.9	23.8	23.8	23.8

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] 12/04/2022

Fieldwork Staff Signature **Date**

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	13/420/22 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	232.2
Bump Test Reading:	4.02	6.98	2771	0	233.1
Bump Test Temperature:	23.1	23.1	23.1	23.1	23.3

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

13/04/2022

Date

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	14/4/2022 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	234.3
Bump Test Reading:	4.04	6.97	2758	0	235.4
Bump Test Temperature:	22.7	22.8	22.8	22.7	22.5

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] 14/04/2022

Fieldwork Staff Signature **Date**

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	15/4/2022 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	232
Bump Test Reading:	4.03	6.99	2752	0	234.2
Bump Test Temperature:	23.4	23.4	23.2	23.3	23.4

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

15/04/2022

Date

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	16/4/2022 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	232
Bump Test Reading:	4.01	6.99	2763	0	233.8
Bump Test Temperature:	23.5	23.4	23.4	23.5	23.4

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] 16/04/2022

Fieldwork Staff Signature **Date**

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	17/4/2022 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	232.1
Bump Test Reading:	4.03	6.98	2755	0	233.4
Bump Test Temperature:	23.3	23.3	23.1	23.3	23.2

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] 17/04/2022

Fieldwork Staff Signature **Date**

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	18/4/2022 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	232.5
Bump Test Reading:	4.01	7	2759	0	234.1
Bump Test Temperature:	23.3	23.3	23.2	23.3	23.4

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

18/04/2022

Date

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	19/4/2022 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	232.6
Bump Test Reading:	4.02	6.98	2762	0	233.2
Bump Test Temperature:	23.4	23.3	23.3	23.4	23.4

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] 19/04/2022

Fieldwork Staff Signature **Date**

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	20/4/2022 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	232.6
Bump Test Reading:	4.01	6.99	2754	0	233.1
Bump Test Temperature:	23.2	23.1	23.2	23.2	23.4

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

20/04/2022

Date

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	PFAS OMP	**Project Number:**	60612563
Project Location:	AACO	**Client:**	DOD
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:	Kennards Hire
Make and Model:	Water quality meter - multifunction
Serial Number:	PGN9003871 Plant #1072255

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:					
Calibration Reading:					
Calibration Temperature:					

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	21/4/2022 0800				
Parameter	Acidity		Conductivity	Dissolved Oxygen	Redox
Units	pH	pH	µS/cm	ppm	mV
Calibration Standard Concentration:	4	7.01	2760	0	232.4
Bump Test Reading:	4.01	6.98	2770	0	233.7
Bump Test Temperature:	23.4	23.3	23.3	23.3	23.3

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

21/04/2022

Date

Distribution: Project Central File

Prepared for
Department of Defence
ABN: 68706814312

Sampling Event Factual Report, October/November 2022

PFAS OMP - Army Aviation Centre Oakey

27-Mar-2023
Doc No. 60612563_RP063_2_230327

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Delivering a better world

Sampling Event Factual Report, October/November 2022

PFAS OMP - Army Aviation Centre Oakey

Client: Department of Defence

ABN: 68706814312

Prepared by

AECOM Australia Pty Ltd
Turrbal and Jagera Country, Level 8, 540 Wickham Street, PO Box 1307, Fortitude Valley QLD 4006, Australia
T +61 7 3056 4800 www.aecom.com
ABN 20 093 846 925

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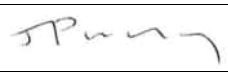
2	27-Mar-2023	Final	James Peachey Associate Director	

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Abbreviations

Abbreviation	
AACO	Army Aviation Centre Oakey
AECOM	AECOM Australia Pty Ltd
ALS	Australian Laboratory Services
ASC NEPM	Assessment of Site Contamination National Environment Protection Measure 1999 (as amended 2013)
COC	Chain of Custody
Defence	Department of Defence
DO	Dissolved oxygen
EC	Electrical conductivity
HEPA	Heads of Environmental Protection Agencies
IP	Interface probe
LNAPL	Light non aqueous phase liquid
LOR	Limit of reporting
NEMP	National Environmental Management Plan
NHMRC	National Health and Medical Research Council
NMI	National Measurement Institute
OMP	Ongoing monitoring plan
ORP	Oxidation reduction potential
PFAS	Per- and poly-fluorinated alkyl substances
PFHxS	Perfluorohexane sulfonate
PFOA	Perflurooctanoic acid
PFOS	Perflurooctanesulfonic acid
PMAP	PFAS management area plan
QA/QC	Quality assurance / quality control
RPD	Relative percent difference
SAQP	Sampling analysis and quality plan

Units of Measurement			
L	Litres	m	Metres
mg	Milligram	ha	Hectares
kg	Kilogram	µg	Microgram
mV	Millivolts	µS/cm	Microsiemens per centimetre
mAHD	Metres Australian height datum	mbtoc	Metres below top of casing
mbgl	Metres below ground level		

PFAS Group	Compound	CAS No.
Perfluoroalkyl Sulfonic Acids	Perfluorobutane sulfonic acid (PFBS)	375-73-5
	Perfluoropentane sulfonic acid (PFPeS)	2706-91-4
	Perfluorohexane sulfonic acid (PFHxS)	355-46-4
	Perfluoroheptane sulfonic acid (PFHpS)	375-92-8
	Perfluorooctane sulfonic acid (PFOS)	1763-23-1
	Perfluorodecane sulfonic acid (PFDS)	335-77-3
Perfluoroalkyl Carboxylic Acids	Perfluorobutanoic acid (PFBA)	375-22-4
	Perfluoropentanoic acid (PFPeA)	2706-90-3
	Perfluorohexanoic acid (PFHxA)	307-24-4
	Perfluoroheptanoic acid (PFHpA)	375-85-9
	Perfluorooctanoic acid (PFOA)	335-67-1
	Perfluorononanoic acid (PFNA)	375-95-1
	Perfluorodecanoic acid (PFDA)	335-76-2
	Perfluoroundecanoic acid (PFUnDA)	2058-94-8
	Perfluorododecanoic acid (PFDoDA)	307-55-1
	Perfluorotridecanoic acid (PFTrDA)	72629-94-8
	Perfluorotetradecanoic acid (PFTeDA)	376-06-7
Perfluoroalkyl Sulfonamides	Perfluorooctane sulphonamide (FOSA)	754-91-6
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	2448-09-7
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2
	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6
(n:2) Fluorotelomer Sulfonic Acids	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0

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) (Defence, 2019) at the Army Aviation Centre Oakey (AACO) (the 'Site') and the AACO Management Area in the South Queensland Region. The location of the Site and the Management Area are shown in **Figure 1** and **Figure 2** in **Appendix A**. The OMP for AACO (Defence, 2019) included the following sampling events:

- Targeted groundwater sampling events in October 2019, October 2020 and October 2021
- Annual comprehensive sampling events in March/April 2020, March/April 2021 and March/April 2022 including groundwater, sediment and surface water sampling.

In July 2022, Defence extended the period for the OMP sampling events by two years with additional targeted groundwater sampling events scheduled for October 2022 and October 2023 and additional annual comprehensive events scheduled for March/April 2023 and March/April 2024.

Following each comprehensive and targeted sampling event, sampling event factual 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 targeted sampling event completed in October and November 2022[1], specifically highlighting first-time detections and/or new exceedances of human health screening criteria for perfluorohexane sulfonic acid (PFHxS) and perfluorooctane sulfonate (PFOS) and / or perfluorooctanoic acid (PFOA).

This report has been prepared in accordance with the *PFAS OMP Factual Report Guidance,* Version 0.2, May 2021 (Defence, 2021).

1.2 Objectives

The objectives of the OMP are to:

- Implement the OMP prepared as part of the PFAS Management Area Plan (PMAP); and
- Collect data that will enable Defence to maintain an up-to-date understanding of the distribution, concentration and transport of PFAS at the Site.

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 PMAP.

The objective of this phase of works is to implement the scope of works for the targeted October/November 2022 sampling event in accordance with the sampling and analysis quality plan (SAQP), Rev 5, (AECOM, 2022).

[1] Following wet weather in October 2022, several monitoring wells could not be accessed. Two follow-up visits were completed in November (on 2/3 and 24 November). Consequently, this sampling event is referred to as the October / November 2022 Sampling Event.

2.0 Scope of Work

The sampling event at AACO was completed in general accordance with the SAQP (AECOM, 2022). In summary, the scope of work for this sampling event included:

- Obtaining access to private properties where some groundwater sampling locations are situated.
- Review of the SAQP prior to the monitoring event to ensure compliance with the following:
  - PFAS National Environmental Management Plan (NEMP) (Heads of Environmental Protection Agencies [HEPA], 2020)
  - National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, as amended in 2013 (ASC NEPM, 2013)
  - Defence Routine Environment Water Quality Monitoring Manual
  - AS/NZ 5667:1998 Water quality – Sampling
  - Australian and New Zealand Guidelines for Fresh and Marine Water Quality
  - Relevant State regulatory guidelines.
- Gauging of groundwater level in monitoring wells prior to collection of samples (refer to **Table 1** below, and **Figure 3** and **Figure 4** in **Appendix A** for specific locations).
- As per the SAQP (AECOM, 2022), collection of groundwater samples at 44 of 48 locations including 41 monitoring wells (34 at AACO and seven located off-Site) and seven off-Site residential bores (refer to **Table 1** below, and **Figure 3** and **Figure 4** in **Appendix A**). It is noted that groundwater samples from three off-Site monitoring wells/bores (MW147, MW255 and MW264) could not be collected, refer to **Table 4** in **Section 3.4** for details. One on-Site monitoring well (MW206) was not accessible and replaced with nearby well MW207, refer to **Table 4** in **Section 3.4** for details. A total of 45 monitoring wells / bores were sampled.
- Collecting intra- and inter-laboratory duplicate samples at a rate of 1 in 10 primary samples and collecting one rinsate sample per fieldwork day when re-usable (i.e. decontaminated) equipment was in use.
- Analysis of all samples for a suite of 28 PFAS analytes at the standard limit of reporting (LOR).
- Data management of all OMP field and laboratory data in the Defence ESdat database.
- Preparation of this Sampling Event Factual Report.

Table 1 Groundwater Sampling Locations

Location		Monitoring Wells / Residential Bores	No. of Samples
Source Area Bores	Fire training area in the north of the Site	MW562, MW563	2
	Former fire station in B3	MW201, MW202, MW203, MW204, MW205	5
	Aqueous film forming foam (AFFF) Storage Area / D20 appliance testing area	MW221, MW222, MW230, MW232	4
	AFFF recovery tank in F1 / hot refuel area	MW235, MW236, MW241	3
	AFFF recovery tank in A2 / hot refuel area	MW172, MW173	2
	AFFF recovery tank in S1	MW299, MW300	2
	AFFF Settling tank in C1	MW193, MW198, MW206#, MW207*, MW223, MW229	6
On-Site boundary bores (Oakey Creek Alluvium)		MW167, MW174, MW178, MW179, MW187, MW189, MW233, MW242, MW245, MW249, MW252	11
Off-Site west and southwest of the Site		MW255#, MW257, MW262, MW264#, MW272, MW276, *MW003, MW019, MW038, MW056, MW134, MW147#, MW151*	13
Off-Site underlying aquifers to south of the Site		*MW269*	1

***Notes**:*

Italics indicate residential bores.

** Well MW207 was sampled in replacement to MW206, which was not accessible. MW207 is not specified in the SAQP Rev 5 (AECOM, 2022), refer to **Table 8** in **Section 3.4**.*

*#Wells/bores that could not be sampled during this sampling event, refer to **Table 8** in **Section 3.4**.*

3.0 Methodology

The methodology used for the annual targeted October/November 2022 sampling event was in accordance with the SAQP (AECOM, 2022) and is summarised below.

3.1 Groundwater Sampling Methodology

Table 2 Groundwater 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 (IP). The six residential bores sampled were not gauged as they had pumping equipment installed.
Quality parameter field measurements	Temperature, electrical conductivity (EC), dissolved oxygen (DO), oxidation-reduction potential (ORP), pH and observations of water quality were recorded for all groundwater samples. Measurements were taken from water remaining in the HydraSleeves™ following collection of the sample for laboratory analysis. Equipment calibration certificates are provided in **Appendix F**.
Sampling methodology	With one exception, groundwater samples were collected from all monitoring wells using no-purge methodology HydraSleeves™, which were installed within the screened interval of each well (based on a review of the well construction log) for a minimum of 24 hours prior to the sampling round. Once sampling was completed, new HydraSleeves™ were deployed at the screened interval depth in preparation for the next sampling round. There was insufficient water in monitoring well MW242 for HydraSleeve™ sampling. The groundwater sample was collected with a bailer. Monitoring wells, MW255 and MW264 were unable to be located due to being lost under heavy sediment cover and regrowth. A metal detector was used in an attempt to locate them. With the exception of MW151, bore water samples were collected by placing the laboratory sample bottle beneath the tap and the tap slowly opened to collect the “first flush” of water. Bore MW151 was in use by the landowner and had been operating for approximately one hour before it was sampled.
QA/QC samples	Field quality assurance / quality control (QA/QC) samples collected included intra-laboratory duplicate and inter-laboratory duplicate samples (i.e. splits) and rinsate samples. Refer to **Appendix C** for assessment of QA/QC sample data. Rinsate samples were collected at the rate of one sample per fieldwork day by pouring laboratory supplied PFAS-free deionised water over the decontaminated sampling equipment. The only reusable equipment that was decontaminated during the sampling event was the IP and water quality meter.
Sample analysis	All primary samples were submitted for analysis for the PFAS suite using the standard levels of detection. ALS Environmental (ALS) Brisbane, Queensland was used as the primary laboratory. The National Measurement Institute (NMI) of Sydney, NSW was used as the secondary laboratory. ALS and NMI methods for groundwater analyses were certified by the National Association of Testing Authorities. Chain of custody (COC) forms and laboratory certificates are presented in **Appendix D** and **Appendix E** respectively.

3.2 Adopted Screening Criteria

Adopted screening criteria references national guidance in the form of the PFAS NEMP, Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance. Guidance documents used to assess the dataset includes the following:

- PFAS NEMP, (HEPA, 2020)
- Department of Health, 2019. *Health Based Guidance Values for PFAS for use in site investigations in Australia.* April 2017 [updated September 2019]
- 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.

The adopted PFAS screening criteria to assess the data generated as part of the OMP are presented in **Table 3** below.

Table 3 Summary of Adopted Screening Criteria

Pathway	Compound	Criteria	Comment / Reference
Human Health Receptors			
Drinking water - groundwater	PFOS + PFHxS	0.07 µg/L	The values are from the PFAS NEMP (HEPA, 2020). *All groundwater results will be compared to these criteria.*
	PFOA	0.56 µg/L	
	PFOA	10 µg/L	
Ecological Receptors			
Freshwater (99% species protection values)	PFOS	0.00023 µg/L	The values are from the PFAS NEMP (HEPA, 2020). The 99% level of protection has been applied for slightly to moderately disturbed ecosystems. This approach is generally adopted for chemicals that bioaccumulate and biomagnify in wildlife. For the purposes of preliminary screening of analytical water results, the laboratory LOR will be adopted rather than sole use of the criteria value. *All groundwater results will be compared to these criteria.*
	PFOA	19 µg/L	

3.3 Data Quality Objectives and Data Validation

The data quality objectives and data quality indicators adopted for these works are presented in the SAQP (AECOM, 2022).

Data validation assessment is provided in **Appendix C**.

The 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 Defence Contamination Management Manual (Defence, 2018, amended 2021) requirements.

3.4 Deviations from the SAQP

Table 4 lists the deviations from the SAQP (AECOM, 2022) during this sampling event.

Table 4 Deviations from the SAQP during sampling event for October/November 2022

SAQP	October/November 2022 Sampling Event	Impact on OMP program
Collection of groundwater samples at 48 locations	A total of 45 groundwater samples were collected including 44 out of the 48 groundwater samples specified in the SAQP with one additional well, not in the SAQP, sampled. The deviations were as follows: • Monitoring well MW206 was not sampled as it was in a construction site that could not be accessed. In replacement, nearby well MW207 was sampled. As MW207 is in a similar location, there is no impact on the sampling program. MW207 has been sampled in replacement of MW206 in previous sampling events. • Monitoring wells MW255 and MW264 could not be located due to flooding and the subsequent flora overgrowth. The non-sampling of these wells means that there is no groundwater quality information available at these locations, which are both at distal locations down-gradient of the source areas. The locations should be reinspected in the next sampling event to search for these monitoring wells. • Monitoring well MW147 is no longer functionable and is being replaced by the landholder. This bore is located outside and to the west of the Management Area and is a sentinel well informing the potential migration of PFAS in groundwater. The non-sampling of this well will limit the understanding of groundwater quality downgradient of the Management Area. The replacement bore should be included in the OMP sampling event in April 2023.	The sampling of MW207 in replacement of MW206 will not impact the program as these wells are located close to each other. The non-sampling of MW264 and MW147 reduced the spatial coverage of the groundwater monitoring network to the southwest and west of the Site. These locations are close to the Management Area boundary and provide information on the migration of PFAS in groundwater beyond the boundary. The non-sampling of MW255 also reduced the spatial coverage, however, as down-gradient monitoring locations are present (MW019, MW151), the non-sampling of this well has limited impact.
Groundwater gauging	• Depth to groundwater was measured in 38 monitoring wells. The three wells not accessible (MW206, MW255 and MW264) could not be gauged (noting that MW207 was gauged in replacement to MW206). MW242 was inadvertently not gauged and had little water present in the well (insufficient for HydraSleeve™ sampling). The seven residential bores could not be gauged as they have pumping equipment installed.	As sufficient gauging information was collected to infer groundwater flow on and off-site, the non-collection of groundwater level measurements at three locations has minimal impact on the OMP program.
Collection of field parameter measurements	• The groundwater parameter data for MW167 could not be collected due to the loss of sample volume. • The groundwater parameter data for MW204 was inadvertently not collected.	The non-collection of sampling measurements in these wells is of low significance as a large dataset is available for this well and nearby wells

SAQP	October/November 2022 Sampling Event	Impact on OMP program
		monitored as part of the OMP.
Collection of groundwater samples from monitoring wells using no-purge HydraSleeves™	• The groundwater sample from monitoring wells MW242, was collected via a grab sample using a bailer due to the water column not being sufficient for a HydraSleeve™ to be installed.	The use of a bailer to collect a sample in replacement of a HydraSleeve™ is unlikely to impact the OMP program. The change in sampling technique will be considered during the evaluation of PFAS concentrations at this location in the interpretive report.
Analysis of inter-laboratory (triplicate) samples at NMI	• Triplicates (QC263 to QC267) were collected and submitted to NMI for analysis. On arrival at NMI, the labels on the sample bottles were found to be wiped. Consequently, these bottles were discarded. Spare bottles were available from the duplicate samples, however, there was insufficient volume for NMI to complete analyse. ALS require a smaller volume of sample and the spare bottles were submitted to ALS laboratory in Sydney for analysis. As triplicate sample results were able to be analysed, there was no impact on the program.	The use of ALS (Sydney) as the secondary laboratory will not impact the OMP program as the laboratory is NATA-accredited.
First flush sampling	• Residential bore, MW151, was not sampled on the first flush as specified in the SAQP. During the sample visit, the bore had been running for approximately one hour before the sample was collected.	As there is unlikely to be a difference between samples collected on first flush and after running for one hour, there is not likely to be an impact on the OMP program.

4.0 Field Observations and Results

The annual comprehensive October/November 2022 sampling event was completed between 24 and 27 October, 2 and 3 November 2022 and on 24 November 2022. The results are summarised in following sections.

4.1 Groundwater

4.1.1 Groundwater Observations and Quality Parameter Field Measurements

Table 5 Groundwater Observations and Quality Parameter Field Measurements

Feature	Details
Access	Except for MW255 and MW264, all monitoring wells and bores were accessible. Wells MW255 and MW264 could not be located due to heavy overgrowth.
Monitoring Well Network	All well covers were noted to be in good condition except for MW276 which has a damaged concrete collar and gatic collar, which requires repair. One residential (MW147) is no longer operational and being replaced by the landholder. Two monitoring wells (MW255 and MW264) were unable to be located and their condition is unknown.
Field Observations	A hydrocarbon odour and heavy sheen were noted during gauging of MW193 which is located east of Hangar C2 and close to Tank C59. The hydrocarbon contamination is associated with a known historical leak of petroleum hydrocarbons from Tank C60 in 2009 (AECOM, 2018) and is consistent with historical observations at this location. A weak sulfuric odour was noted in monitoring well MW174. No visible or olfactory indications of contamination were observed during the sampling of the other monitoring wells. Field observations are presented **Table T1** in **Appendix B**.
Depth to light non-aqueous phase liquid (LNAPL)	LNAPL was present in MW193 with a thickness of 0.092 m recorded. Measurable LNAPL was not gauged in any of the other monitoring wells during October/November 2022. Groundwater gauging data are presented in **Table T1** in **Appendix B**.
Depth to Groundwater	Depth to groundwater in the Oakey Creek Alluvium aquifer at AACO ranged between 2.715 (MW229) and 14.569 mbtoc (MW205). Groundwater elevations in the Oakey Creek Alluvium aquifer ranged between 386.660 (MW272) and 402.818 mAHD (MW229). Depth to groundwater in the one monitoring well screened in the Walloon Coal Measures (MW269) was 33.486 mbtoc with a groundwater elevation of 368.472 mAHD. Groundwater gauging data are presented in **Table T1** in **Appendix B**.
Groundwater Flow Direction	Inferred groundwater contours and groundwater flow directions in the Oakey Creek Alluvium aquifer at AACO in October 2022 are shown on **Figure 5** in **Appendix A**. The inferred local groundwater flow direction is generally from east to west across the Site. This is consistent with historical gauging events.

Feature	Details
Quality Parameter Field Measurements	Groundwater quality parameters were measured from water remaining in the HydraSleeve™ following the collection groundwater samples for laboratory analysis. The readings are presented in **Table T1** in **Appendix B** and are summarised below: • EC ranged from 252.9 µS/cm (MW252) to 10,532 µS/cm (MW242) indicating fresh to brackish conditions. • pH ranged from 6.440 (MW252) to 12.130 (MW269). pH results indicated near neutral to alkaline conditions. • Corrected ORP ranged from 142.70 mV (MW151) to 367.7 mV (MW201) indicating mildly to moderately reducing conditions. • Temperature ranged from 16.1°C (MW269) to 28.1°C (MW202). • The DO results ranged between 0.70 (MW178) and 5.40 mg/L (MW242) indicating poorly to well oxygenated conditions).
Weather Conditions	Weather conditions during sampling between 24 October and 3 November and on 24 November 2022 were mostly dry and overcast. The Bureau of Meteorology (BOM) station 041359 – 'Oakey Aero' recorded rainfall on three days during the sampling event; 21.8 mm on 25 October 2022, 26.2 and 4.6 mm on 1 November and 2 November 2022, respectively. Prior to the sampling event commencing, there was a total of 52.6mm of rainfall between 1 and 25 October 2022.
Estate Management Works or Training Activities	During the sampling event notable estate works were ongoing and observed in the vicinity of sampling locations. This included but not limited to, underground electrical pit installation, OPEC treatment of PFAS water onsite, and roadworks. The works are unlikely to impact the groundwater sampling event as groundwater is typically more than 14 mbgl.

4.1.2 Groundwater Analytical Results

The PFAS groundwater analytical results from this sampling event are presented in **Table T2** in **Appendix B**. There was one first-time detection of PFAS in the groundwater sample from MW563 where both sum of PFHxS and PFOS (0.11 µg/L) and PFOA (0.01 µg/L) were detected. Monitoring well MW563 is a replacement monitoring well for MW254, which was destroyed during remediation of the former fire training ground. The well was installed in January 2022 and was first monitored during the April 2022 sampling event.

There were two new exceedances of the human health drinking water guideline. The exceedances were for sum of PFHxS and PFOS (0.11 µg/L) in the sample from MW563 and PFOA (0.62 µg/L) in the sample from MW179. Sum of PFHxS and PFOS has been consistently detected in MW179 at concentrations exceeding the drinking water guideline since monitoring began in 2017. **Table 6** presents the details of the first-time detections and exceedances with the sample locations shown on **Figure 6** in **Appendix A**.

Forty of the 45 groundwater samples exceeded the human health drinking water guideline value for sum of PFHxS and PFOS with 13 samples exceeding the guideline value for PFOA. Forty-two groundwater samples exceeded the limit of reporting for PFOS and therefore exceeded the ecological guideline for PFOS for 99% protection of freshwater ecosystems (HEPA, 2020). Two samples exceeded the ecological guideline value for PFOA (MW204 and MW299 [both 21.6 µg/L]).

New maximum sum of PFHxS and PFOS concentrations were recorded in six monitoring wells / bores in MW019 (0.13 µg/L), MW179 (6.95 µg/L), MW205 (43.1 µg/L), MW207 (1.35 µg/L), MW299 (177 µg/L), MW563 (0.11 µg/L). New maximum PFOA concentrations were recorded in three monitoring wells in MW179 (0.62 µg/L), MW207 (0.07 µg/L), MW563 (0.01 µg/L).

Table 6 Deviation from Historical Groundwater Dataset

Deviation Type	Monitoring well	Sum of PFHxS+PFOS concentration (µg/L)		PFOA concentration (µg/L)	
		October 2022	Historical maximum	October 2022	Historical maximum
First-time detection of Sum of PFHxS+PFOS or PFOA in groundwater	MW563	0.11	<0.01	0.01	<0.01
First-time exceedance of human health guideline value	MW563	0.11	<0.01	0.01	<0.01
	MW179	6.95	6.65	0.62	0.43

Note: Blue shading indicates a sampling detection with a first-time detection of PFOS + PFHxS or PFOA. Yellow shading indicates first-time exceedance of the human health guideline value.

5.0 Summary and Next Sampling Event

5.1 Summary of Monitoring Event

A comprehensive groundwater monitoring event was completed within and outside of the AACO Management Area, between 24 and 27 October 2022, on 2 and 3 November 2022 and on 24 November 2022. The event included sampling of groundwater from 41 monitoring wells (including 34 on-Site, seven located off-Site), and seven off-Site residential bores **Table 7** summarises the findings of the targeted October/November 2022 sampling event and the recommended actions.

Table 7 Summary of Sampling Event

Item	Comment	Recommended Actions
Access to sampling locations	44 out of the 48 monitoring well/bore locations were able to be sampled with four wells not accessible. One of the wells not sampled (MW206 was replaced by a nearby well (MW207), hence a total of 45 groundwater samples were collected The loss of the groundwater sampling locations MW147, MW255 and MW264 has the potential to impact on the understanding of the distribution of PFAS in groundwater. One residential (MW147) is no longer operational and being replaced by the landholder.	The locations of monitoring wells MW206, MW255 and MW264 should be reinspected during the next monitoring event. The replacement bore for MW147 should be scheduled for sampling as part of the next monitoring event.
Monitoring well network condition	Damage to one monitoring well was identified. This was at MW276 where the concrete collar was damaged. Two monitoring wells (MW255 and MW264) were unable to be located and their condition is unknown.	The damaged collar and gatic at MW276 should be repaired. The locations of monitoring wells MW255 and MW264 should be reinspected during the next monitoring event.
Analytical Results	PFAS concentrations were consistent with historical results for 43 of the 45 groundwater samples analysed.	Ongoing monitoring in accordance with the OMP.
First-time detections of Sum of PFHxS+PFOS or PFOA	The groundwater sample from MW563 recorded first-time detections of PFHxS and PFOS and PFOA.	Ongoing monitoring in accordance with the OMP.
New exceedance of HEPA (2020) drinking water guideline values	There were new exceedances of the NEMP (HEPA, 2020) drinking water guidelines in samples from MW179 and MW563. The exceedances were for sum of PFHxS and PFOS and PFOA in the sample from MW563 (which is a replacement monitoring well for wells destroyed during remediation works at the former fire training ground) and PFOA in MW179. Sum of PFHxS and PFOS concentrations in groundwater samples from MW179 have consistently exceeded the drinking water guideline value since 2017.	Ongoing monitoring in accordance with the OMP.

5.2 Upcoming Sampling Events

An annual comprehensive sampling event is scheduled for April 2023.

5.3 Upcoming Annual Interpretive Report

The next annual interpretive report is scheduled for April 2023.

6.0 References

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National Health and Medical Research Council, 2019. *Guidance on PFAS in Recreational Water. August 2019*. August 2019.

Appendix A

Figures

Appendix A Figures

AECOM
www.aecom.com

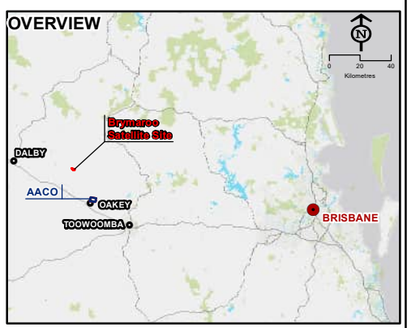
DATUM GDA 1994. PROJECTION MGA ZONE 56

0 2.5 5
Kilometres

1:200,000 (when printed at A3)

LEGEND

- Airport
- Watercourse/waterbody
- Great Dividing Range
- Investigation Area
- Local Governmental Area
- AACO & Brymaroo Base Boundaries
- National Park



Data sources:

Base Layers: ESRI Basemaps Online
Street, Drainage Lines, Locality, Features: @ Street Pro 2011

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: October/November 2022

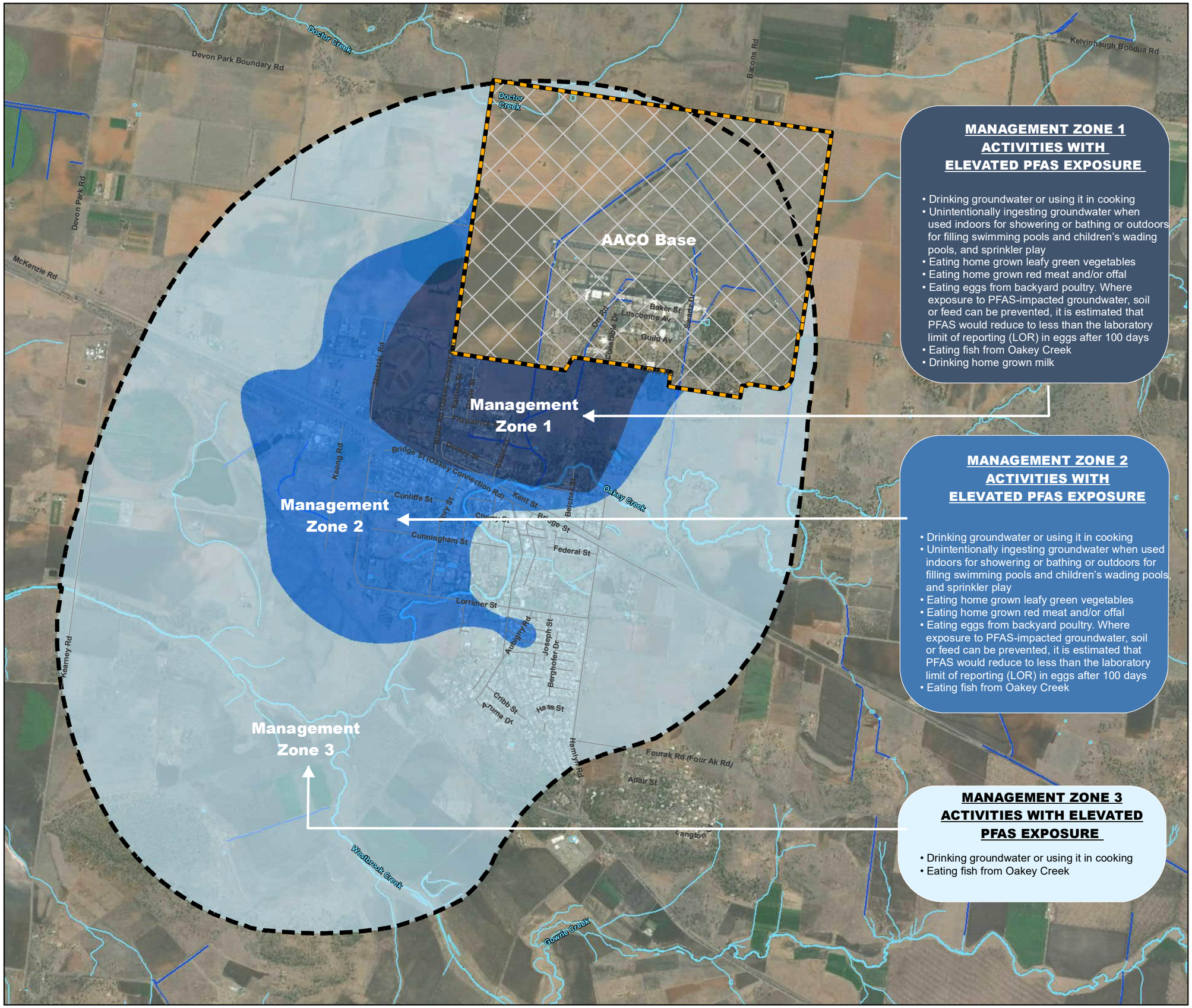
SITE LOCATION

PROJECT ID	60612563
CREATED BY	WW
LAST MODIFIED	Jacob Suchting; 05/12/2022
VERSION:	1

FIGURE 1

A3 size

Path: \\na.aecomnet.com\lfs\APAC\Brisbane-AUBNE1\Secure\Projects\606X\60612563\900_CAD_GIS\920_GIS\02_MXDs\PFAS_OMP_AACO Factual Report April 2022\P60612563_F1_SiteLocation_AACO&Brymaroo_RePathed.mxd



LEGEND

- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- AACO Base

km
0 0.25 0.5 1

SCALE 1:35,000
SIZE A3
SHEET 1 of 1
COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 2: Management Zones - Activities with Elevated PFAS Exposure

PROJECT

PFAS OMP AACO SAMPLING EVENT FACTUAL REPORT: OCTOBER/NOVEMBER 2022

CLIENT

DEPARTMENT OF DEFENCE

LEGEND

On-Site Groundwater Monitoring Locations

Site Boundary

0 75 150 300 m

AECOM

SCALE 1:9,000

SIZE A3

SHEET 1 of 1

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 3: On-Site Groundwater Monitoring Locations

PROJECT

PFAS OMP AACO SAMPLING EVENT FACTUAL REPORT: OCTOBER/NOVEMBER 2022

CLIENT

DEPARTMENT OF DEFENCE

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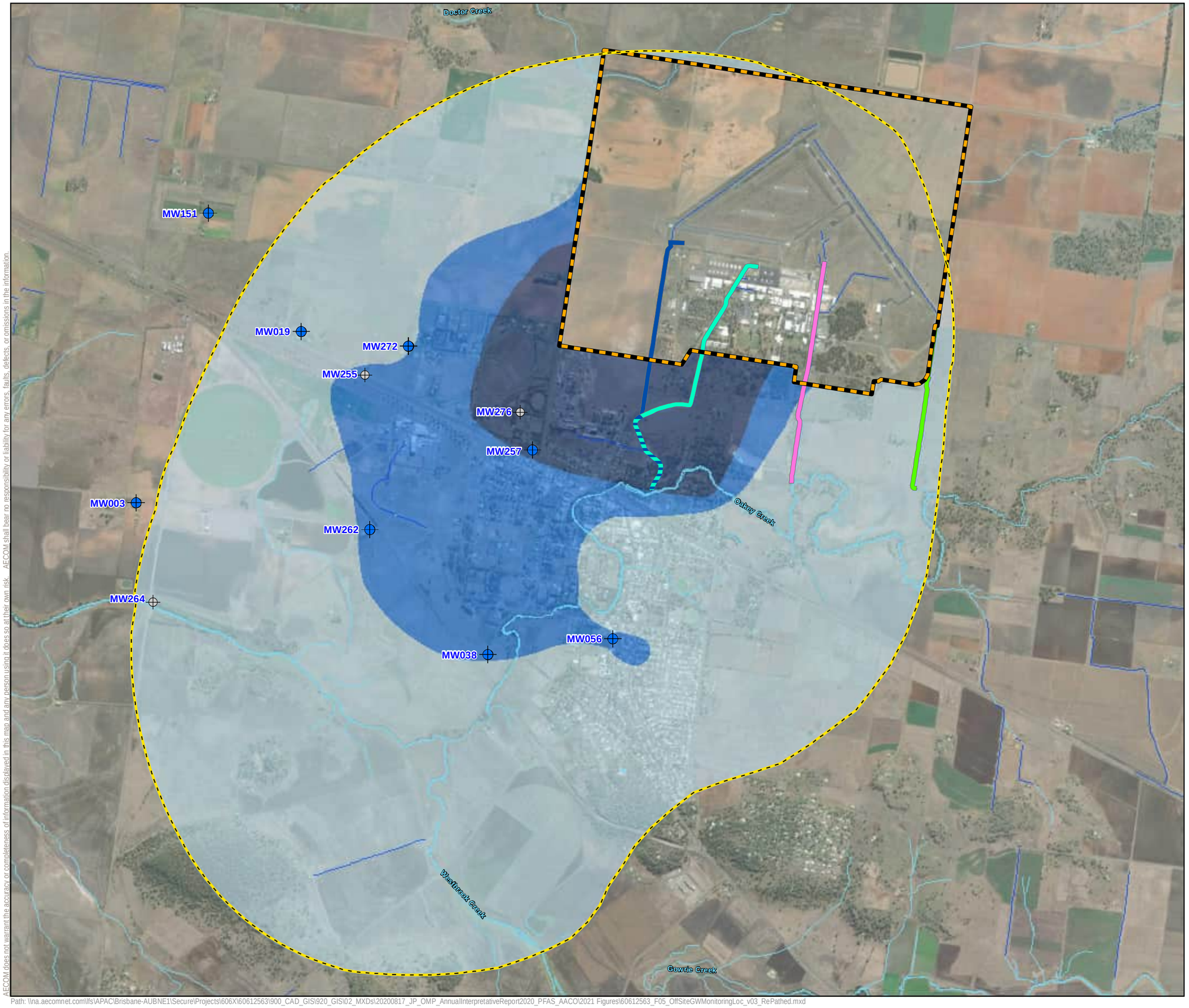

AECOM

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- Off-Site Monitoring Well not sampled
- Off-Site Groundwater Monitoring Well
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Management Area
- Site Boundary

Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

SIZE

km
0 0.25 0.5 1

AECOM

1:32,000

SIZE A3

TITLE

Figure 4: Off-Site Groundwater Monitoring Locations

PFAS OMP AACO SAMPLING EVENT FACTUAL REPORT: OCTOBER/NOVEMBER 2022

CLIENT

DEPARTMENT OF DEFENCE

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MW563
[390.341]
MW562
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391.5
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MW269
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MW262
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LEGEND
- Groundwater Monitoring Locations
- Site Boundary
- Inferred Groundwater Contours (mAHD)

N

0 0.25 0.5 km

AECOM

SCALE 1:15,000
SIZE A3
SHEET 1 of 1
COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE
Figure 5: Inferred Groundwater Contours: October 2022

PROJECT
PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: OCTOBER/NOVEMBER 2022

CLIENT
DEPARTMENT OF DEFENCE

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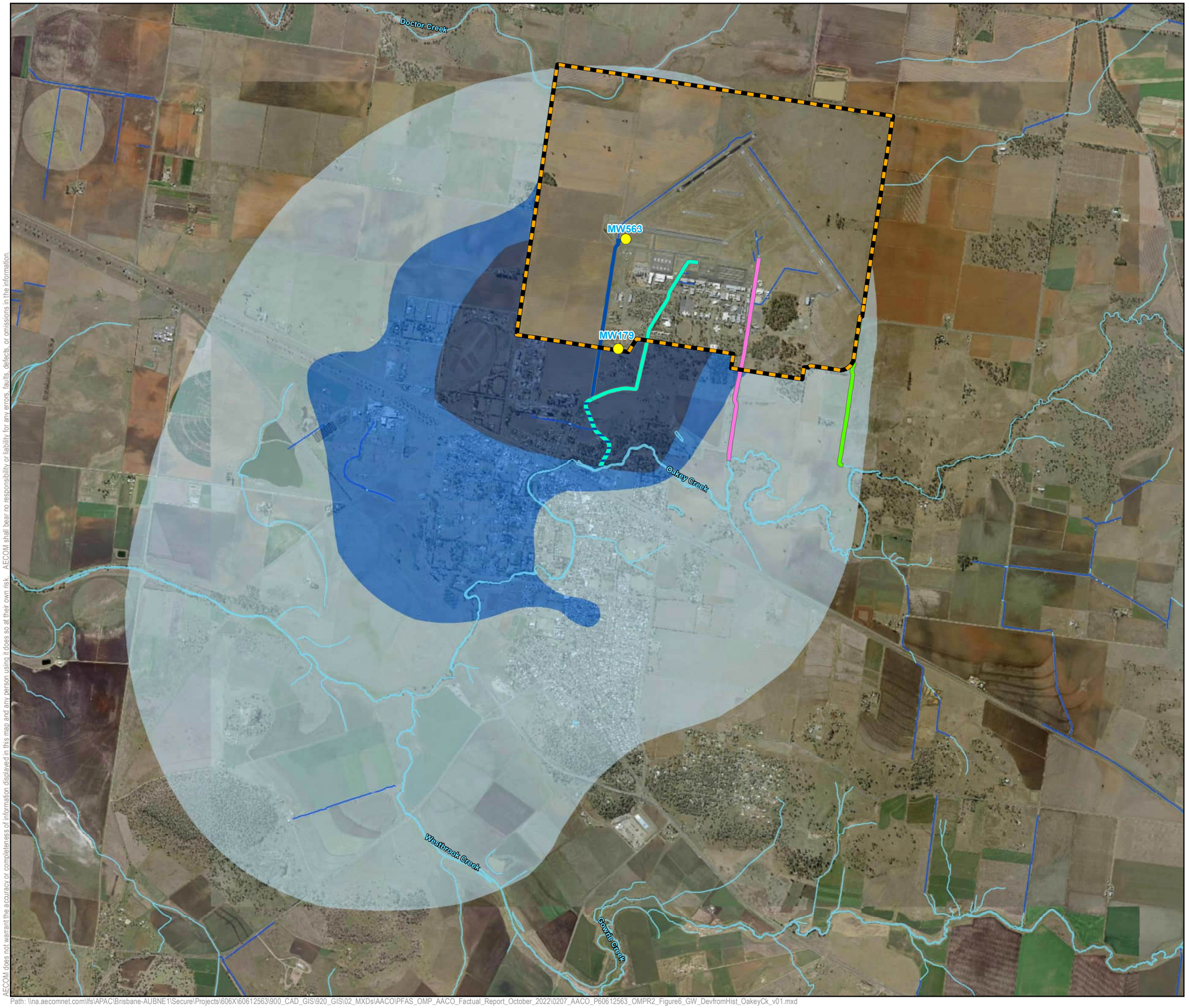

Legend

Groundwater Results

- First time detection
- First time exceedance
- Site Boundary
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3

First time detection of PFHxS+PFOS or PFOA

First time exceedances of human health screening criteria for PFHxS+PFOS or PFOA

km
0 0.5 1

AECOM

SCALE 1:35,000

SIZE A3

SHEET **1 of 1**

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 6: Groundwater Results: Deviations from Historical Data - AACO

PROJECT

PFAS OMP AACO SAMPLING EVENT
FACTUAL REPORT: OCTOBER/NOVEMBER 2022

CLIENT

DEPARTMENT OF DEFENCE

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Appendix B

Tables

Appendix B Tables

Table T1 Groundwater Gauging and Quality Parameter Field Measurement Results

Property ID	Well ID	Date HydraSleeve™ Installed	Date HydraSleeve™ Sampled / Sampled Date	Depth of HydraSleeve™ deployment (mbgl)	Gauging Date	Well Depth (mbtoc)	Depth to LNAPL (mbtoc)	Depth to Water (mbtoc)	TOC Elevation (mAHD)	Groundwater Elevation (mAHD)	Corrected Groundwater Elevation (mAHD)*	Condition of Gatic	DO (mg/L) *Field measurement*	EC (µS/cm) *Field measurement*	pH *Field measurement*	E_r (mV) *Field measurement*	E_h (mV)	Temp (°C) *Field measurement*	Turbidity	Water Colour	Odour	Sheen	Sample Method / Comments
0207	MW003	Tap sample	2/11/2022	Not gauged - pumping equipment installed.									1.75	2605	7.1	96.2	301.2	20.6	Medium	Clearish/brown	No odour	No sheen	Tap sample.
0207	MW019	Tap sample	27/10/2022	Not gauged - pumping equipment installed.									1.98	2723	7.24	74.6	279.6	25.3	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW038	Tap sample	3/11/2022	Not gauged - pumping equipment installed.									0.79	1056	8.05	72.10	277.1	19.9	Clear	Clear	No odour	No sheen	Tap sample.
0207	MW056	17/04/2022	27/10/2022	19.50	Not surveyed								3.68	2321	7.13	108.4	313.4	24.3	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW134	Tap sample	2/11/2022	Not gauged - pumping equipment installed.									3.01	2712	7.17	75.9	280.9	18.9	Medium	Clear/brown	No odour	No sheen	Tap sample.
0207	MW147	Tap sample	Not sampled	Not gauged or sampled- bore no longer functioning.																			Bore is no longer functional.
0207	MW151	Tap sample	27/10/2022	Not gauged - pumping equipment installed.									3.4	2221	7.19	117	142.7	22.6	Clear	Clear	No odour	No sheen	Tap sample. Bore had been running for roughly an hour before sampling.
0207	MW167	26/10/2022	27/10/2022	15.00	27/10/2022	15.86	-	12.02	402.428	390.408	390.408	Good	-	-	-	-	-	-	Clear	Clear	No odour	No sheen	Sharpie pen found in HydraSleeve™, which may have been dropped during another sampling program (e.g. Queensland water quality monitoring program). Water quality parameters were not collected due to the loss of some of sample volume.
0207	MW172	17/04/2022	26/10/2022	16.50	26/10/2022	17.16	-	12.527	402.818	390.291	390.291	Good	2.7	1311	7.45	88.5	293.5	22.6	Medium	Brownish/Clear	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW173	17/04/2022	24/10/2022	16.50	24/10/2022	17.65	-	12.998	403.262	390.264	390.264	Good	3.58	2385	7.29	64.7	269.7	23.8	Med-high	Cloudy/brown	No odour	No sheen	HydraSleeve™. Lots of brown suspended sediment.
0207	MW174	27/10/2022	2/11/2022	28.00	2/11/2022	29.99	-	13.366	404.072	390.706	390.706	Good	1.42	3725	7.32	78.9	283.9	20.5	Clear	Clear	Weak sulfuric	No sheen	HydraSleeve™. Minimal settled black/brown sediment.
0207	MW178	27/10/2022	2/11/2022	16.50	2/11/2022	17.4	-	12.551	403.513	390.962	390.962	Good	0.7	4664	7.05	68.6	273.6	20.4	Clear	Clear	No odour	No sheen	HydraSleeve™. Some black/grey settled sediment.
0207	MW179	27/10/2022	3/11/2022	13.00	3/11/2022	20.98	-	12.947	403.006	390.059	390.059	Good	4.3	4630	7.09	70.2	275.2	21.4	Low	Cloudy	No odour	No sheen	HydraSleeve™.
0207	MW187	19/04/2022	27/10/2022	17.50	27/10/2022	18.355	-	13.366	404.576	391.210	391.210	Good	0.98	4310	6.88	93.4	298.4	24.9	Low	Cloudy	No odour	No sheen	HydraSleeve™. Settled grey sediment.
0207	MW189	18/04/2022	27/10/2022	20.00	27/10/2022	21.07	-	13.209	404.652	391.443	391.443	Good	1.67	5246	6.84	47.6	252.6	24.6	High	Cloudy/brown/grey	No odour	No sheen	HydraSleeve™. Suspended brown sediment and settled grey sediment.
0207	MW193	25/10/2022	26/10/2022	19.00	26/10/2022	19.74	13.859	13.951	405.630	391.679	391.747	Good	0.86	5652	6.98	34.2	239.2	25.3	Low	Clear	Strong Kerosene/HC odour	Heavy sheen	HydraSleeve™. 92 mm LNAPL. Min settled grey sediment.
0207	MW198	19/04/2022	25/10/2022	13.00	25/10/2022	13.5	-	6.308	405.505	399.197	399.197	Good	1.26	4388	7.13	150.7	355.7	23.6	Clear	Clear	No odour	No sheen	HydraSleeve™ . Some settled brown sediment.
0207	MW201	20/04/2022	25/10/2022	19.00	25/10/2022	19.83	-	13.727	404.800	391.073	391.073	Good	2.24	6928	6.69	162.7	367.7	22.6	Med-high	Cloudy/brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW202	15/04/2022	24/10/2022	18.50	24/10/2022	19.12	-	13.648	405.000	391.352	391.352	Good	1.6	3145	7.24	104.3	309.3	28.1	Clear	Clear	No odour	No sheen	HydraSleeve™. Some suspended grey sediment.
0207	MW203	15/04/2022	24/10/0222	19.00	24/10/2022	20.11	-	13.835	405.100	391.265	391.265	Good	2.19	4734	9.96	111.2	316.2	21.2	Low	Cloudy	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW204	16/04/2022	24/10/2022	19.00	24/10/2022	19.97	-	14.117	405.200	391.083	391.083	Good	-	-	-	-	-	-	Clear	Clear	No odour	No sheen	HydraSleeve™. Water quality parameters missed.
0207	MW205	14/04/2022	24/10/2022	19.00	24/10/2022	20.02	-	14.569	405.700	391.131	391.131	Good	2.26	6879	6.72	116	321	25.5	Med-high	Cloudy/brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW207	15/04/2022	25/10/2022	19.00	25/10/2022	20.435	-	13.996	405.416	391.420	391.420	Good	2	4138	7.43	132.2	337.2	24	med-high	Cloudy/grey	No odour	No sheen	HydraSleeve™. Suspended and settled grey sediment. Sampled instead of MW206, which was not accessible.
0207	MW221	17/04/2022	25/10/2022	18.50	25/10/2022	19.31	-	13.953	405.496	391.543	391.543	Good	0.99	2198	7.42	132.6	337.6	24.8	Low	Clear/brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW222	17/04/2022	26/10/2022	18.00	26/10/2022	18.93	-	14.084	405.716	391.632	391.632	Good	2.71	2624	7.36	81.5	286.5	23.4	Medium	Clear/brown	No odour	No sheen	HydraSleeve™ suspended and settled brown sediment.
0207	MW223	17/04/2022	26/10/2022	19.00	26/10/2022	20.18	-	12.568	405.845	393.277	393.277	Good	3.6	3134	7.08	80.1	285.1	23	Clear	Clear	No odour	No sheen	HydraSleeve™. Some settled brown sediment.
0207	MW229	20/04/2022	27/10/2022	14.50	27/10/2022	15.66	-	2.715	405.533	402.818	402.818	Good	1.09	2074	7.55	77	282	24.3	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW230	20/04/2022	26/10/2022	18.00	26/10/2022	18.85	-	11.991	405.416	393.425	393.425	Good	3.09	1420	7.32	84.5	289.5	24.7	Low-med	Clear/brown	No odour	No sheen	HydraSleeve™. Suspended brown sediment.
0207	MW232	17/04/2022	27/10/2022	11.00	27/10/2022	12.055	-	10.923	405.898	394.975	394.975	Good	4.11	329.1	7.05	102.5	307.5	20.9	Clear	Clear	No odour	No sheen	HydraSleeve™.
0207	MW233	20/04/2022	24/11/2022	17.00	24/11/2022	17.78	-	14.564	406.470	391.906	391.906	Good	3.4	850	7.56	142	347	22.1	Medium	Clear	No odour	No sheen	HydraSleeve™. Some suspended and settled brown sediment.
0207	MW235	20/04/2022	26/10/2022	21.50	26/10/2022	22.54	-	14.533	406.308	391.775	391.775	Good	2.9	1907	7.02	128.8	333.8	25.2	Meidum	Clearish/Brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW236	20/04/2022	26/10/2022	16.00	26/10/2022	16.67	-	14.38	405.653	391.273	391.273	Good	1.8	1495	6.63	123.6	328.6	25.1	Low	Brownish/clear	No odour	No sheen	HydraSleeve™. Brown settled sediment.
0207	MW241	19/04/2022	26/10/2022	17.00	26/10/2022	18.07	-	14.232	405.883	391.651	391.651	Good	3.64	865	7.1	103.1	308.1	23.2	Low-med	Clear	No odour	No sheen	HydraSleeve™. Brown suspended and settled sediment.
0207	MW242	Not installed.	24/11/2022	19.00	24/11/2022	20.00	-	Not gauged.				Good	5.4	10532	7.04	130.2	335.2	22.2	High	Brown	No odour	No sheen	Monument recently replaced, sampled with bailer. Insuffcient water to install HydraSleeve™. Suspended brown sediment. Inadvertently not gauged.
0207	MW245	18/04/2022	3/11/2022	21.00	3/11/2022	21.925	-	14.01	402.981	388.971	388.971	Good	2.39	1815	6.99	80.8	285.8	20.4	Medium	Clear	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW249	19/04/2022	26/10/2022	18.00	26/10/2022	18.7	-	13.538	404.769	391.231	391.231	Good	3.06	1594	7.15	94.4	299.4	24.4	Med-high	Brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW252	20/04/2022	26/10/2022	15.50	26/10/2022	16.545	-	13.915	406.162	392.247	392.247	Good	2.5	252.9	6.44	122	327	23.8	Med-high	Brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW255	16/04/2022	Not sampled	23.00	Well not found.																		Used metal detector but unable to locate well due to heavy overgrowth.
207	MW257	15/04/2022	26/10/2022	23.00	27/10/2022	23.945	-	12.962	400.833	387.871	387.871	Good	0.8	3280	7.29	49.3	254.3	25.5	Clear	Clear	No odour	No sheen	HydraSleeve™. Some organice in HydraSleeve™, minimal settled grey sediment.
0207	MW262	16/04/2022	2/11/2022	16.70	2/11/2022	17.81	-	11.091	398.329	387.238	387.238	Good	2.05	2384	7.31	78.9	283.9	20.4	Clearing	Cloudy/brown	No odour	No sheen	HydraSleeve™.
0207	MW264	14/04/2022	Not sampled	10.00	Well not found.																		Used metal detector but unable to locate well due to heavy overgrowth.
0207	MW269	13/04/2022	2/11/2022	86.00	2/11/2022	86.96	-	33.486	401.958	368.472	368.472	Good	1.34	3134	12.13	44.3	249.3	16.1	Clear	Clear	No odour	No sheen	HydraSleeve™. Settled brown sediment.
0207	MW272	16/04/2022	27/10/2022	19.00	27/10/2022	20.04	-	11.312	397.972	386.660	386.660	Good	2.5	2799	7.37	83	288	23.3	Med-high	Clear/brown	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW276	15/04/2022	24/11/2022	19.00	14/11/2022	19.9	-	13.535	400.474	386.939	386.939	Damaged	1.46	2428	7.12	101.1	306.1	23.5	High	Brown	No odour	No sheen	HydraSleeve™. Suspended brown sediment and settled grey sediment. Concrete has been damaged.
0207	MW299	17/04/2022	24/10/2022	14.50	26/10/2022	15.45	-	12.129	403.970	391.841	391.841	Good	1.04	6628	6.76	91.9	296.9	26.8	Clear	Clear	No odour	No sheen	HydraSleeve™. Min settled sediment.
0207	MW300	17/04/2022	24/10/2022	15.50	26/10/2022	16.46	-	13.01	403.715	390.705	390.705	Good	3.49	5686	6.8	105.9	310.9	25.6	Clear	Clear	No odour	No sheen	HydraSleeve™. Min settled sediment.
0207	MW562	26/10/2022	3/11/2022	15.50	3/11/2022	16.5	-	12.487	402.720	390.233	390.233	Good	2.58	2102	7.12	88.8	293.8	17.8	Medium	Clear	No odour	No sheen	HydraSleeve™. Suspended and settled brown sediment.
0207	MW563	26/10/2022	3/11/2022	18.50	3/11/2022	19.49	-	12.559	402.900	390.341	390.341	Good	1.01	1891	7.33	90.3	295.3	18.9	Clear	Clear	No odour	No sheen	HydraSleeve™.

* = Corrected Groundwater Elevation, $h_c = h_{measured} + (H_{PSH} * (r_{PSH}/r_{water}))$

mbtoc is metres below top of casing

mAHD is metres above Australian height datum

LNAPL is light non-aqueous phase liquid

DO is dissolved oxygen

EC is electrical conductivity

E_h is oxidation reduction potential

Oxidation reducation potential (E_r) measured with a platinum electrode and a silver/silver chloride reference electrode (E_r) and converted to E_h by $E_h = E_r + 205$ mV (based on a groundwater temperature of 21°C)

Temp is Temperature

µS/cm is microsiemens per centrimetre

ºC is degrees Celcius

mV is millivolts

		Sum of PFHxS and PFOS	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	FOSA	MeFOSE	EtFOSE	MeFOSA	EtFOSA	MFOSAA	EtFOSAA	4:2 FTS	6:2 FtS	8:2 FTS	10:2 FTS	Sum of PFAS
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.02	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	0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.05	0.05	0.05	0.05	0.01
NEMP (HEPA, 2020) Human Health Drinking Water		**0.07**											**0.56**																		
NEMP (HEPA, 2020) Ecological Freshwater 99% Species Protection							*0.00023*						*19*																		
Sample ID	**Well**	**Sampled Date**	**Lab Sample Code**																												
0207_MW003_221102	MW003	2/11/2022	EB2232882	<0.01	<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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.01
0207_MW019_221027	MW019	27/10/2022	EB2232883	**0.13**	<0.02	<0.02	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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.13
0207_MW038_221103	MW038	3/11/2022	EB2232888	**0.93**	0.06	0.05	0.31	0.03	*0.62*	<0.02	<0.1	<0.02	0.07	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	1.18
0207_MW056_221027	MW056	27/10/2022	EB2232879	**0.42**	0.05	0.04	0.33	<0.02	*0.09*	<0.02	<0.1	0.03	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.61
0207_MW134_221102	MW134	2/11/2022	EB2232886	**0.09**	<0.02	<0.02	0.05	<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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.09
0207_MW151_221027	MW151	27/10/2022	EB2232881	<0.01	<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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.01
0207_MW167_221027	MW167	27/10/2022	EB2232878	**8.17**	0.46	0.42	2.32	0.2	*5.85*	<0.02	0.1	0.22	0.98	0.15	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	11
0207_MW172_221026	MW172	26/10/2022	EB2232878	**24.1**	1.15	1.02	5.72	0.6	*18.4*	<0.1	1.3	3.61	4.28	2.03	**1.8**	0.16	<0.1	<0.1	<0.1	<0.1	<0.25	<0.1	<0.25	<0.25	<0.25	<0.25	<0.1	<0.1	<0.1	6.22	3.04	<0.1	49.3
0207_MW173_221024	MW173	24/10/2022	EB2232878	**4.76**	0.3	0.35	2.42	0.2	*2.34*	<0.02	0.4	1.07	1.47	0.55	0.49	0.12	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.43	<0.05	<0.05	10.1
0207_MW174_221102	MW174	2/11/2022	EB2232878	0.06	<0.02	<0.02	0.03	<0.02	*0.03*	<0.02	<0.1	0.09	0.04	0.03	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.22
0207_MW178_221102	MW178	2/11/2022	EB2232878	<0.01	<0.04	<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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.01
0207_MW179_221103	MW179	3/11/2022	EB2232878	**6.95**	0.94	0.53	2.76	0.3	*4.19*	<0.02	0.2	0.36	1.82	0.32	**0.62**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.09	<0.05	<0.05	12.1
0207_MW187_221027	MW187	27/10/2022	EB2232878	**0.73**	0.05	0.06	0.41	<0.02	*0.32*	<0.02	<0.1	0.05	0.12	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	1.03
0207_MW189_221027	MW189	27/10/2022	EB2232878	**0.13**	0.02	<0.02	0.07	<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	<0.06	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.15
0207_MW193_221026	MW193	26/10/2022	EB2232878	**24.3**	2.21	2.11	11.5	0.92	*12.8*	<0.02	4.8	1.4	6.18	1.52	**2.2**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	45.6
0207_MW198_221025	MW198	4/11/2022	EB2232878	**25.1**	0.65	0.78	5.49	0.82	*19.6*	<0.05	0.6	1.13	2.4	0.61	**0.98**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	33.2
0207_MW201_221025	MW201	4/11/2022	EB2232878	**210**	26.5	28.3	147	10.1	*63*	<0.24	5.9	9.15	43	5.2	**9.2**	<0.24	<0.24	<0.24	<0.24	<0.24	<0.6	<0.24	<0.6	<0.6	<0.6	<0.6	<0.24	<0.24	<0.24	0.55	<0.24	<0.24	348
0207_MW202_221024	MW202	24/10/2022	EB2232878	**222**	6.74	6.85	56.5	5.01	*165*	<0.23	1.5	3	14.3	1.98	**4.45**	<0.23	<0.23	<0.23	<0.23	<0.23	<0.58	0.65	<0.58	<0.58	<0.58	<0.58	<0.23	<0.23	<0.23	0.46	<0.23	<0.23	266
0207_MW203_221024	MW203	24/10/2022	EB2232878	**6.56**	0.6	0.67	5.66	0.29	*0.9*	<0.02	0.2	0.33	1.25	0.15	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	10.3
0207_MW204_221024	MW204	24/10/2022	EB2232878	**307**	30.4	35	263	14.8	*43.9*	<0.43	6.2	9.24	55.6	8.63	**21.6**	<0.43	<0.43	<0.43	<0.43	<0.43	<1.08	<0.43	<1.08	<1.08	<1.08	<1.08	<0.43	<0.43	<0.43	0.56	<0.43	<0.43	489
0207_MW205_221024	MW205	24/10/2022	EB2232878	**43.1**	9.29	9.78	42.1	0.38	*1.04*	<0.24	2.1	4.82	18.8	1.84	0.54	<0.24	<0.24	<0.24	<0.24	<0.24	<0.59	<0.24	<0.59	<0.59	<0.59	<0.59	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	90.7
0207_MW207_221025	MW207	25/10/2022	EB2232878	**1.35**	0.11	0.12	0.93	0.06	*0.42*	<0.02	<0.1	0.06	0.18	0.05	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	2
0207_MW221_221025	MW221	25/10/2022	EB2232878	**4.31**	0.36	0.41	2.03	0.22	*2.28*	<0.02	0.2	0.24	1.12	0.25	0.39	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	7.5
0207_MW222_221026	MW222	26/10/2022	EB2232878	**17.4**	0.57	0.47	3.71	0.47	*13.7*	<0.02	0.6	1.32	2.17	1.02	**1.7**	0.48	0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	0.66	0.2	<0.05	27.1
0207_MW223_221026	MW223	26/10/2022	EB2232878	**20.6**	0.5	0.61	5.95	0.74	*14.6*	<0.05	4.7	18.8	14.5	11.6	**8.86**	2.3	0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	5.92	0.46	<0.05	89.6
0207_MW229_221027	MW229	27/10/2022	EB2232878	**38.2**	0.67	0.96	9.23	0.79	*29*	<0.05	<0.2	0.33	2.47	0.2	0.55	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	44.2
0207_MW230_221026	MW230	26/10/2022	EB2232878	**3.27**	0.34	0.37	2.28	0.14	*0.99*	<0.02	0.2	0.4	0.96	0.28	0.4	0.07	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	0.08	<0.05	<0.05	6.51
0207_MW232_221027	MW232	27/10/2022	EB2232878	**16.2**	0.67	0.76	6.5	0.27	*9.67*	<0.05	1.4	3.59	2.39	1.17	**1.56**	0.25	0.25	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	0.13	1.21	<0.05	29.8
0207_MW233_221124	MW233	24/11/2022	EB2235603	**0.74**	0.11	0.1	0.59	<0.02	*0.15*	<0.02	<0.1	0.03	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	1.11
0207_MW235_221026	MW235	26/10/2022	EB2232878	**14.3**	3.94	3.2	9.12	0.28	*5.16*	<0.02	1.2	1.57	7.78	0.4	0.3	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	33
0207_MW236_221026	MW236	26/10/2022	EB2232878	**1.42**	1.36	0.55	1.16	0.02	*0.26*	<0.02	0.8	0.83	2.86	0.15	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	8.16
0207_MW241_221026	MW241	26/10/2022	EB2232878	**8.02**	0.18	0.14	1.18	0.11	*6.84*	<0.02	<0.1	0.06	0.23	0.05	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	8.95
0207_MW242_221124	MW242	24/11/2022	EB2235603	0.02	<0.02	<0.02	<0.01	<0.02	*0.02*	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.02
0207_MW245_221103	MW245	3/11/2022	EB2232878	**0.31**	0.03	0.04	0.19	<0.02	*0.12*	<0.02	<0.1	<0.02	0.06	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.44
0207_MW249_221026	MW249	26/10/2022	EB2232878	**3.39**	0.65	0.71	3.22	0.06	*0.17*	<0.02	0.2	0.37	1.46	0.16	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	7.09
0207_MW252_221026	MW252	26/10/2022	EB2232878	**2.73**	0.11	0.08	0.5	0.03	*2.23*	<0.02	<0.1	0.06	0.13	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	3.2
0207_MW257_221027	MW257	27/10/2022	EB2232878	**0.23**	<0.02	<0.02	0.12	<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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.23
0207_MW262_221102	MW262	2/11/2022	EB2232878	**0.34**	0.08	0.04	0.2	<0.02	*0.14*	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.53
0207_MW269_221102	MW269	2/11/2022	EB2232884	**0.1**	<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	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.1
0207_MW272_221027	MW272	27/10/2022	EB2232878	**0.39**	0.05	0.05	0.28	<0.02	*0.11*	<0.02	<0.1	<0.02	0.08	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.58
0207_MW276_221124	MW276	24/11/2022	EB2235603	**16.6**	0.82	1.12	7.16	0.51	*9.39*	<0.02	0.2	0.32	1.65	0.22	0.54	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	21.9
0207_MW299_221026	MW299	26/10/2022	EB2232878	**177**	17.6	12.8	70.3	6.41	*107*	<0.1	4.8	9.32	51.1	11.9	**21.6**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.24	<0.95	<0.24	<0.24	<2.38	<2.38	<0.1	<0.1	<0.95	<0.95	<0.1	<0.1	313
0207_MW300_221026	MW300	26/10/2022	EB2232878	**101**	5.28	5.14	30.4	3.86	*70.2*	<0.1	1.8	2.76	11.8	3.06	**8.56**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.24	<0.1	<0.24	<0.24	<0.24	<0.24	<0.1	<0.1	<0.1	0.16	<0.1	<0.1	143
0207_MW562_221103	MW562	3/11/2022	EB2232878	**14.8**	2.72	2.66	14.4	0.19	*0.39*	<0.02	0.7	1.19	4.69	0.68	**0.74**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.06	<0.06	<0.06	<0.06	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	28.4
0207_MW563_221103	MW563	3/11/2022	EB2232878	**0.11**	0.05	0.04	0.1	<0.02	*0.01*	<0.02	<0.1	0.18	0.09	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	0.48

LOR is limit of reporting
µg/L is micrograms per litre
-' denotes no analysis undertaken
<' denotes concentration is less than
NEMP is National Environmental Mangement Plan
NHMRC is National Health Medical Research Council
Denotes first time detection above LOR
Denotes new exceedance of human health guideline values

Appendix C

Analytical Data Validation

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DATA VALIDATION REPORT

Project No.:	60612563	**Validation by:** JS		**Date:**	23/11/22
Client:	Department of Defence				
Site:	Army Aviation Centre Oakey				
Matrix type:	Groundwater	**Data verified by:** JP		**Date:**	09/12/22
No. of primary samples:	45 groundwater				
Laboratory:	ALS (Brisbane), ALS (Sydney)	**Project Manager:** JP			
Lab reference:	EB2232878, EB2232879, EB2232881, EB2232882, EB2232883, EB2232884, EB2232886, EB2232888, EB2232889, EB2232890, EB2235603, ES2242590				

Key Issues:	No QA/QC issues were identified in the field or laboratory datasets that could have a material implication on data interpretation and therefore decision-making on the project. The data are therefore considered appropriate for use to meet the project objectives.

Field QA/QC

Sampling personnel	Sampling was conducted by trained AECOM fieldstaff between 24 and 27 October 2022, 2 and 3 November 2022 and 24 November 2022.
Sampling Methodology	Samples were collected using appropriate methods as identified within the main body of the report.
HydraSleeve™ duration	All HydraSleeves™ were installed in monitoring wells for a minimum of 24 hours.
Chain of Custody (COC)	COC documents completed as per AECOM procedures.
Rinsate Blank (refer to **Table C1**)	Rinsate blank samples were collected at a frequency of one per day of sampling (7 in total). All rinsates were collected from the decontaminated interface probe. PFAS concentrations were reported below the LOR for all analytes. This indicates that the equipment was decontaminated adequately during the sampling event.
Frequency of field QC	Field duplicate (intra-laboratory duplicates) and triplicates (inter-laboratory duplicates) were collected at a frequency of one in ten primary samples (total of 5 duplicate / triplicate pairs for 45 samples indicates a field QC frequency of 11%).
Handling and preservation	Primary, duplicate and triplicate samples were received preserved and chilled at the laboratory. Triplicate samples were intended to be analysed at NMI laboratory, however, the sample IDs were found to have been wiped from the bottles, which meant that they had to be discarded. It was identified that there was spare bottles available from the duplicate samples. There was insufficient volume for NMI to conduct analyses, however, the volume was sufficient for ALS and subsequently these samples were submitted to ALS in Sydney for analysis. All samples were received at the laboratory in appropriate sample containers with no sample container / preservation non-compliances noted.

Laboratory QA/QC

Holding time compliance	All samples were extracted and analysed within the recommended holding times.

Laboratory Accreditation	The laboratory analysis was conducted by ALS Environmental Pty Ltd (Brisbane) a National Association of Testing Authorities (NATA) accredited laboratory. The triplicate samples were analysed at the ALS Environmental Pty Ltd (Sydney), also a NATA accredited laboratory.
Frequency of laboratory QC	The laboratory reported a sufficient frequency of quality control samples to assess whether the results have been reported to an acceptable accuracy and precision, except: • ES2240590 where laboratory duplicates (5.26%) and matrix spikes (0.0%) for PFAS were below the expected rates (10% and 5%, respectively) • EB2232878where laboratory duplicates (4.17%) and matrix spikes (2.1%) for PFAS were below the expected rates (10% and 5%, respectively) The reason for insufficient laboratory and matrix spikes being analysed for the above batches is due to the way the laboratory assigns the duplicates and matrix spikes. These are assigned every 20 samples and may include samples from other submissions. The laboratory LIMS assigns laboratory QC to samples within the analytical run. Although additional bottles were included the LIMS system is not able to create runs to allocate samples with the additional bottles to allow for frequency compliance. As all other QC results met control limits this is not expected to impact data quality. This issue is being addressed with the laboratory.
Method Blank	No method blank value outliers were reported in any of the laboratory reports.
Laboratory duplicate RPDs	Laboratory duplicate Relative Percentage Differences (RPD) were within control limits for all samples.
Laboratory control spike recovery	Laboratory Control Spikes (LCS) recoveries were within the control limits across all primary laboratory batches.
Matrix spike recovery	All Matrix Spike (MS) recoveries (where reported) were within control limits, except: EB2232878-002 (0207_MW201_221025) where matrix spike recovery of PFHxS and PFOS was not determined due to the background level being greater than or equal to 4 x spike level. These non-conformances are not expected to impact data quality.
Surrogate spike recovery	Surrogate spike recoveries were within control limits.
QA/QC Data Evaluation	
Comparison of Field Observations and Laboratory Results	No anomalous results between field observations and analysis results were noted.
Data transcription	A random 10% check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by AECOM.
Limits of reporting	Limits of Reporting (LORs) were sufficiently low to enable assessment against adopted screening levels except for PFOS for NEMP (HEPA, 2020) ecological guideline values for the 99% protection of freshwater species. The potential exists for concentrations of PFOS to exceed the adopted guideline in the three samples where PFOS was reported not to exceed the laboratory LOR. This should be taken into consideration when interpreting and using this data quantitatively where results are reported below LOR.
Field duplicate RPDs (refer to **Tables C2**)	Field duplicate RPDs were reported within control limits except the following (the sample with the higher concentration is in bold): • **0207_MW249_221026** and 0207_QC1064_221026 for PFHxA (36%) • **0207_MW172_221026** and 0207_QC165_221026 for PFHpS (49%) The magnitude of the differences between the primary and duplicates is noted to be relatively small, up to 49%, and therefore the elevated RPDs are not considered to affect data interpretation for use in this report.

Field triplicate RPDs (refer to **Tables C2)**	Field triplicate RPDs were reported within control limits with the exception of the following (the sample with the higher concentration is in bold): • **0207_MW249_221026** and 0207_QC264_221026 for PFBS (39%) and PFHxA (46%) The magnitude of the differences between the primary and duplicates is noted to be relatively small, up to 46%, and therefore the elevated RPDs are not considered to affect data interpretation for use in this report. None of the triplicate sample concentrations were higher than the primary sample concentrations.
Other	
Other observations	With two exceptions, evaluation of the data does not indicate any first-time detections of PFHxS+PFOS or PFOA compounds above LOR and no new exceedances of human health guideline values compared to historical data. One of the exceptions was for the groundwater sample from monitoring well MW179 where PFOA exceeded the drinking water guideline for the first time. However PFHxS and PFOS concentrations have exceeded the drinking water guideline in all sampling events completed since 2017. The second exception was the first-time detection and exceedance of PFHxS and PFOS (and first-time detection of PFOA) in the groundwater sample from MW563. This monitoring well was installed in 2022 and was a replacement well for MW253, which was destroyed during remediation work in 2021. As MW253 consistently reported PFAS at concentrations that exceeded the human health guidelines, the detection of PFAS in this well is consistent with historical results. The calibration certificate for the interface probe (312447) used during the sampling between 24 and 27 October 2022 showed that the instrument was calibrated on 26 August 2022 and was due for recalibration on 25 October 2022. The use of the instrument during the period when it was due for recalibration is unlikely to impact on groundwater level measurements. No issues were observed during the interpretation of data and the preparation of groundwater contour map.

Table C1 Rinsate Blank Analytical Results

Lab Report Number		EB2232878	EB2232878	EB2232878	EB2232878	EB2232878	EB2232878	EB2235603
Field ID		0207_QC336_221024	0207_QC337_221025	0207_QC338_221026	0207_QC339_221027	0207_QC340_221102	0207_QC341_221103	0207_QC342_221124
Sampled_Date		24/10/2022	25/10/2022	26/10/2022	27/10/2022	2/11/2022	3/11/2022	24/11/2022
Sample Type		Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate
Chemical Name	**Units**	**LO R**						
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	<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	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05	<0.05	<0.05	<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	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of PFAS	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table C2 Groundwater Duplicate and Triplicate Analytical Results

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	Lab Report Number	EB2232878	EB2232878		EB2232878	EB2242590		EB2232878	EB2232878		EB2232878	EB2242590		EB2232878	EB2232878	
	Field ID	0207_MW198_221025	0207_QC163_221025	RPD	0207_MW198_221025	0207_QC263_221025	RPD	0207_MW249_221026	0207_QC164_221026	RPD	0207_MW249_221026	0207_QC264_221026	RPD	0207_MW172_221026	0207_QC165_221026	RPD
	Sampled Date	4/11/2022	4/11/2022		4/11/2022	4/11/2022		26/10/2022	26/10/2022		26/10/2022	26/10/2022		26/10/2022	26/10/2022	
Chemical Name	**Units**	**LO R**														
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	0.65	0.6	8	0.65	0.5	26	0.65	0.52	22	**0.65**	**0.44**	**39**	1.15	1.01	13
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	0.78	0.73	7	0.78	0.65	18	0.71	0.56	24	0.71	0.56	24	1.02	0.85	18
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	5.49	5.05	8	5.49	4.56	19	3.22	2.46	27	3.22	2.43	28	5.72	4.41	26
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	0.82	0.84	2	0.82	0.65	23	0.06	0.04	40	0.06	0.03	67	0.6	0.45	29
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	19.6	18.5	6	19.6	17.8	10	0.17	0.14	19	0.17	0.12	34	18.4	17.2	7
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.1	<0.02	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1	0.6	0.7	15	0.6	0.5	18	0.2	0.2	0	0.2	0.2	0	1.3	1	26
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	1.13	1.05	7	1.13	0.97	15	0.37	0.29	24	0.37	0.28	28	3.61	3.33	8
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	2.4	2.56	6	2.4	1.83	27	**1.46**	**1.01**	**36**	**1.46**	**0.91**	**46**	4.28	3.76	13
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	0.61	0.55	10	0.61	0.49	22	0.16	0.13	21	0.16	0.11	37	2.03	1.93	5
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	0.98	0.92	6	0.98	0.82	18	0.09	0.08	12	0.09	0.07	25	1.8	1.81	1
Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	0.16	0.17	6
Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.1	0.08	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.1	<0.02	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.1	<0.02	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.1	<0.02	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.12	<0.06	0	<0.12	<0.06	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.25	<0.06	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.1	<0.02	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.12	<0.06	0	<0.12	<0.06	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.25	<0.06	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.12	<0.06	0	<0.12	<0.06	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.25	<0.06	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.12	<0.06	0	<0.12	<0.06	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.25	<0.06	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.12	<0.06	0	<0.12	<0.06	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.25	<0.06	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.1	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.05	<0.02	0	<0.05	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.1	<0.02	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.1	<0.05	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05	0.09	0.1	11	0.09	0.07	25	<0.05	<0.05	0	<0.05	<0.05	0	6.22	5.06	21
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	**3.04**	**1.84**	**49**
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.1	<0.05	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 200 (1-10 x EQL); 50 (10-20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: NL (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table C2 Groundwater Duplicate and Triplicate Analytical Results

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		EB2232878	EB2242590		EB2232883	EB2232878		EB2232883	EB2242590		EB2232882	EB2232878		EB2232882	EB2242590	
		0207_MW172_221026	0207_QC265_221026	RPD	0207_MW019_221027	0207_QC166_221027	RPD	0207_MW019_221027	0207_QC266_221027	RPD	0207_MW003_221102	0207_QC167_221102	RPD	0207_MW003_221102	0207_QC267_221102	RPD
		26/10/2022	26/10/2022		27/10/2022	27/10/2022		27/10/2022	27/10/2022		2/11/2022	2/11/2022		2/11/2022	2/11/2022	
Chemical Name	**Units**															
Perfluorobutane sulfonic acid (PFBS)	µg/L	1.15	0.92	22	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	1.02	0.98	4	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	5.72	4.9	15	0.08	0.06	29	0.08	0.06	29	<0.01	<0.01	0	<0.01	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.6	0.5	18	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	18.4	17.2	7	0.05	0.03	50	0.05	0.03	50	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	<0.1	0.06	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorobutanoic acid (PFBA)	µg/L	1.3	1	26	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Perfluoropentanoic acid (PFPeA)	µg/L	3.61	3.37	8	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorohexanoic acid (PFHxA)	µg/L	4.28	3.21	7	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroheptanoic acid (PFHpA)	µg/L	2.03	1.69	18	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorooctanoic Acid (PFOA)	µg/L	1.8	1.74	3	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.16	0.19	17	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorodecanoic acid (PFDA)	µg/L	<0.1	0.11	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	<0.1	0.03	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorododecanoic acid (PFDoDA)	µg/L	<0.1	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	<0.1	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	<0.25	<0.06	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorooctane sulfonamide (FOSA)	µg/L	<0.1	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	<0.25	<0.06	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	<0.25	<0.06	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	<0.25	<0.06	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	<0.25	<0.06	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	<0.1	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	<0.1	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	<0.1	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	6.22	4.68	17	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	3.04	2.71	12	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	<0.1	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0

*RPDs have only been considered where a concentration is greater tl
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier ra
***Interlab Duplicates are matched on a per compound basis as meth
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range ar
***Interlab Duplicates are matched on a per compound basis as methods va

Appendix D

Chain of Custody Forms

Appendix D Chain of Custody Forms

ALSCompass
SAMPLING Intelligence

SCANNED

Environmental Division
Brisbane
Work Order Reference
EB2232878

Custody Document for Submissions via ALS Compass App

Project: 66/2563 Client: AECOM Project Manager [redacted]
Phone:

ALS Compass COC Reference: 44561 # Samples: 61 Sampler:
44563 44565 44567 44569 44571 Phone:
44564 44566 44568 44570

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions: Hard copy COC Please Send to NMI Sydney

Custody:

Relinquished	Received by:	Relinquished by:	Received by:
[redacted]	LD		
Date / Time: 04.11.22 16:45	Date / Time: 4/11 1620	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8192 5160 E: adelaide@alsglobal.com

BRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 46 Callemondah Drive Gladstone QLD 4680 Ph: 07 4976 7944 E: gladstone@alsglobal.com

MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

MELBOURNE 24 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

MUDGEE 129 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

ORANGE 1/13 Geary Place North Nowra NSW 2541 Ph: 02 4421 2063 E: nowra@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

Environmental Division
Brisbane
Work Order Reference
EB2235603

Telephone : +61-7-3243 7222

CLIENT: AECOM	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☐ Standard TAT (List due date):	FOR LABOR
OFFICE: Brisbane		☐ Non Standard or urgent TAT (List due date):	Custody Seal Ir
PROJECT: 60612563 PROJECT NO.:	ALS QUOTE NO.:	COC SEQUENCE NUMBER (Circle)	Free ice / froze receipt?
ORDER NUMBER: PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	COC: 1 2 3 4 5 6 7	Random Samp
PROJECT MANAGER: CONTACT PH:		OF: 1 2 3 4 5 6 7	Other commen
SAMPLER: SAMPLER MOBILE:	RELINQUISHED BY:	RECEIVED BY: [redacted]	RELINQUISHED B
COC Emailed to ALS? (YES / NO) EDD FORMAT (or default):			
Email Reports to (will default to PM if no other addresses are listed):	DATE/TIME:	DATE/TIME: 25/11/22 1152	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES									Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
ALS	COMPASS: 45394													
				TOTAL										

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CHAIN OF CUSTODY

COC#: **45394** *ALS Laboratory:* EB Brisbane

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: QLD_0270_PFASOMP

SITE: AACO - catch up wells

ORDER NO: 60612563_2.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612563_2.1 / ES2022AECOMAU0018

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

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	Analysis NOT REQUIRED	PFAS (EP231X) WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0207_MW233_221124		24/11/2022 09:35 AM	WATER	ALS: 2 Non ALS: 0	No		X		
002	0207_MW276_221124		24/11/2022 09:36 AM	WATER	ALS: 2 Non ALS: 0	No		X		
003	0207_MW242_221124		25/11/2022 09:37 AM	WATER	ALS: 2 Non ALS: 0	No		X		
004	0207_QC342_221124		24/11/2022 09:43 AM	WATER	ALS: 2 Non ALS: 0	No		X		
005	0207_QC168_221124		24/11/2022 09:44 AM	WATER	ALS: 2 Non ALS: 0	Yes	-			
006	0207_QC169_221124		25/11/2022 09:44 AM	WATER	ALS: 2 Non ALS: 0	Yes	-			

CHAIN OF CUSTODY

ALS COC#: 45394 *ALS Laboratory:* EB Brisbane

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: QLD_0270_PFASOMP

SITE: AACO - catch up wells

ORDER NO: 60612563_2.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 v4 60612563_2.1 / ES2022AECOMAU0018

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	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	0207_MW233_221124	HDPE (no PTFE)	20 mL	00350621028660	Grey	No	
001	0207_MW233_221124	HDPE (no PTFE)	20 mL	00350522042102	Grey	No	
002	0207_MW276_221124	HDPE (no PTFE)	20 mL	00350522042210	Grey	No	
002	0207_MW276_221124	HDPE (no PTFE)	20 mL	00350522042360	Grey	No	
003	0207_MW242_221124	HDPE (no PTFE)	20 mL	00350019182801	Grey	No	
003	0207_MW242_221124	HDPE (no PTFE)	20 mL	00350019182707	Grey	No	
004	0207_QC342_221124	HDPE (no PTFE)	20 mL	00352101084403	Grey	No	
004	0207_QC342_221124	HDPE (no PTFE)	20 mL	00352101084284	Grey	No	
005	0207_QC168_221124	HDPE (no PTFE)	20 mL	00352101064828	Grey	No	
005	0207_QC168_221124	HDPE (no PTFE)	20 mL	00350621028501	Grey	No	
006	0207_QC169_221124	HDPE (no PTFE)	20 mL	00350522042182	Grey	No	
006	0207_QC169_221124	HDPE (no PTFE)	20 mL	00350522042664	Grey	No	

Total Bottle Count: ALS: 12, Non ALS: 0

AECOM

Chain of Custody

COC Page 1 of 1

AECOM Australia Pty Ltd

[redacted]

Email reports to: [redacted]

Laboratory Details

Lab. Name:
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: SY/139/19

Sampled By: [redacted]
Mobile no. :

Project Name: QLD_0207_PFASOMP
AECOM Project #: 60612563 2.1
Purchase Order No: 60612563 2.1

Specifications: Please report in ESdat format

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days) - 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: [redacted]

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	sed	Preservation: filt'ed	acid	ice	other	Container (No. & type)	EP231X (PFAS Std 28)	HOLD	Notes
1	0207_QC263_221025	25/10/2022		X						1 x P			
2	0207_QC264_221026	26/10/2022		X						1 x P			
3	0207_QC265_221026	26/10/2022		X						1 x P			
4	0207_QC266_221027	27/10/2022		X						1 x P			
5	0207_QC267_221102	2/11/2022		X						1 x P			

Analysis Request

Environmental Division Sydney
Work Order Reference
ES2242590

Telephone : +61-2-8784 8555

Comments: Please send ESdat files to DERP.labreports@esdat.com.au and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & invoic [redacted]

Lab Report No. | Esky ID

Relinquished by: [redacted]	Signed: 23/11/22	Date:	Relinquished by:	Signed:	Date:
Received by:	Signed: 24/11/22 1500	Date:	Received by:	Signed:	Date:

Appendix E

Laboratory Analytical Certificates and QA/QC Reports

Appendix E Laboratory Analytical Certificates and QA/QC Reports

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EB2232878**		
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 4
Order number	: 60612563_2.1	Quote number	: ES2022AECOMAU0018 (SY/139/19 v4 60612563_2.1)
C-O-C number	: 44561	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Army Aviation Centre Oakey (onsite+offsite)		
Sampler	: [redacted]		

Dates

Date Samples Received	: 04-Nov-2022 17:20	Issue Date	: 09-Dec-2022
Client Requested Due Date	: 21-Nov-2022	Scheduled Reporting Date	: **21-Nov-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 47 / 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
- ***SRN Reissued 09/11/2022 Please be advised that the project number has been updated to QLD_0207_PFASOMP as per email from [redacted].***
- ***SRN Reissued 7/12/2022: To acknowledge request for updated Sample ID's, ALS 003, and ALS 007.***
- ***SRN Reissued 9/12/2022: To acknowledge request for updated Sampel ID on ALS 028.***
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- **"QC2_" samples have been forwarded to NMI, as requested. Please note that this will incur a freight forwarding fee.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232878-001	04-Nov-2022 14:52	0207_MW198_221025	✓
EB2232878-002	04-Nov-2022 14:54	0207_MW201_221025	✓
EB2232878-003	25-Oct-2022 14:55	0207_MW221_221025	✓
EB2232878-004	25-Oct-2022 14:56	0207_MW207_221025	✓
EB2232878-005	04-Nov-2022 15:06	0207_QC163_221025	✓
EB2232878-006	24-Oct-2022 15:08	0207_MW173_221024	✓
EB2232878-007	24-Oct-2022 15:09	0207_MW204_221024	✓
EB2232878-008	24-Oct-2022 15:10	0207_MW203_221024	✓
EB2232878-009	24-Oct-2022 15:11	0207_MW202_221024	✓
EB2232878-010	24-Oct-2022 15:12	0207_MW205_221024	✓
EB2232878-011	26-Oct-2022 15:18	0207_MW172_221026	✓
EB2232878-012	26-Oct-2022 15:19	0207_MW235_221026	✓
EB2232878-013	26-Oct-2022 15:20	0207_MW230_221026	✓
EB2232878-014	26-Oct-2022 15:21	0207_MW299_221026	✓
EB2232878-015	26-Oct-2022 15:22	0207_MW223_221026	✓
EB2232878-016	26-Oct-2022 15:23	0207_MW249_221026	✓
EB2232878-017	26-Oct-2022 15:24	0207_MW222_221026	✓
EB2232878-018	26-Oct-2022 15:24	0207_MW193_221026	✓
EB2232878-019	26-Oct-2022 15:27	0207_MW300_221026	✓
EB2232878-020	26-Oct-2022 15:28	0207_MW236_221026	✓
EB2232878-021	26-Oct-2022 15:29	0207_MW241_221026	✓
EB2232878-022	26-Oct-2022 15:30	0207_MW252_221026	✓
EB2232878-023	26-Oct-2022 15:31	0207_QC165_221026	✓
EB2232878-024	26-Oct-2022 15:32	0207_QC164_221026	✓
EB2232878-025	27-Oct-2022 15:35	0207_MW257_221027	✓
EB2232878-026	27-Oct-2022 15:37	0207_MW232_221027	✓
EB2232878-027	27-Oct-2022 15:38	0207_MW189_221027	✓
EB2232878-028	27-Oct-2022 15:39	0207_MW151_221027	✓
EB2232878-029	27-Oct-2022 15:40	0207_MW229_221027	✓
EB2232878-030	27-Oct-2022 15:41	0207_MW167_221027	✓
EB2232878-031	27-Oct-2022 15:43	0207_MW187_221027	✓
EB2232878-032	27-Oct-2022 15:43	0207_MW272_221027	✓
EB2232878-033	27-Oct-2022 15:45	0207_QC166_221027	✓
EB2232878-034	02-Nov-2022 15:51	0207_MW262_221102	✓
EB2232878-035	02-Nov-2022 15:53	0207_MW174_221102	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232878-036	02-Nov-2022 15:54	0207_MW178_221102	✓
EB2232878-037	03-Nov-2022 15:55	0207_MW563_221103	✓
EB2232878-038	03-Nov-2022 15:55	0207_MW562_221103	✓
EB2232878-039	03-Nov-2022 15:56	0207_MW245_221103	✓
EB2232878-040	03-Nov-2022 15:57	0207_MW179_221103	✓
EB2232878-041	02-Nov-2022 16:01	0207_QC167_221102	✓
EB2232878-042	24-Oct-2022 16:03	0207_QC336_221024	✓
EB2232878-043	25-Oct-2022 16:05	0207_QC337_221025	✓
EB2232878-044	26-Oct-2022 16:06	0207_QC338_221026	✓
EB2232878-045	02-Nov-2022 16:08	0207_QC340_221102	✓
EB2232878-046	03-Nov-2022 16:09	0207_QC341_221103	✓
EB2232878-047	27-Oct-2022 16:52	0207_QC339_221027	✓

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

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) Email
- EDI Format - ESDAT (ESDAT) Email

DERP ESDAT REPORTS

- *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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) Email
- EDI Format - ESDAT (ESDAT) Email

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) Email
- EDI Format - ESDAT (ESDAT) Email

[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
- A4 - AU Tax Invoice (INV) Email
- Chain of Custody (CoC) (COC) Email
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM) Email
- EDI Format - ESDAT (ESDAT) Email

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) Email
- EDI Format - ESDAT (ESDAT) Email

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232878**	Page	: 1 of 25
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022 17:20
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44561	Issue Date	: 09-Dec-2022 11:25
Sampler	: [redacted]		
Site	: Army Aviation Centre Oakey (onsite+offsite)		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 47		
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]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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.
- Amendment (9/12/2022): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Jacob Sutching on 9/12/2022, for samples EB2232878 028. All analysis results are as per the previous report.
- Amendment (7/12/2022): This report has been amended as a result of misinterpretation of sample identification numbers (IDs) for samples EB2232878 003, and 007. All analysis results are as per the previous report.
- EP231X PFAS: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly. The LORs of particular analytes have been further raised due to matrix interference.
- EP231X PFAS: Sample '0207_MW189_221027' required dilution prior to extraction due to matrix interferences. LOR values have been adjusted accordingly.
- EP231X PFAS: The LOR of PFBS for sample “0207_MW178_221102” has been raised due to sample matrix interferences.
- EP231X PFAS: Sample “0207_MW562_221103” 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	0207_MW198_221025	0207_MW201_221025	0207_MW221_221025	0207_MW207_221025	0207_QC163_221025
				Sampling date / time	04-Nov-2022 14:52	04-Nov-2022 14:54	25-Oct-2022 14:55	25-Oct-2022 14:56	04-Nov-2022 15:06
Compound	CAS Number	LOR	Unit		EB2232878-001	EB2232878-002	EB2232878-003	EB2232878-004	EB2232878-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.65**	**26.5**	**0.36**	**0.11**	**0.60**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.78**	**28.3**	**0.41**	**0.12**	**0.73**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**5.49**	**147**	**2.03**	**0.93**	**5.05**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.82**	**10.1**	**0.22**	**0.06**	**0.84**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**19.6**	**63.0**	**2.28**	**0.42**	**18.5**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.05	<0.24	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.6**	**5.9**	**0.2**	<0.1	**0.7**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**1.13**	**9.15**	**0.24**	**0.06**	**1.05**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**2.40**	**43.0**	**1.12**	**0.18**	**2.56**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.61**	**5.20**	**0.25**	**0.05**	**0.55**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.98**	**9.20**	**0.39**	**0.07**	**0.92**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.05	<0.24	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.05	<0.24	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.05	<0.24	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.05	<0.24	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.05	<0.24	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.12	<0.60	<0.05	<0.05	<0.06
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.05	<0.24	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.12	<0.60	<0.05	<0.05	<0.06
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.12	<0.60	<0.05	<0.05	<0.06

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW198_221025	0207_MW201_221025	0207_MW221_221025	0207_MW207_221025	0207_QC163_221025
				Sampling date / time	04-Nov-2022 14:52	04-Nov-2022 14:54	25-Oct-2022 14:55	25-Oct-2022 14:56	04-Nov-2022 15:06
Compound	CAS Number	LOR	Unit		EB2232878-001	EB2232878-002	EB2232878-003	EB2232878-004	EB2232878-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.12	<0.60	<0.05	<0.05	<0.06
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.12	<0.60	<0.05	<0.05	<0.06
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.05	<0.24	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.05	<0.24	<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	<0.24	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.09**	**0.55**	<0.05	<0.05	**0.10**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.24	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.24	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**33.2**	**348**	**7.50**	**2.00**	**31.6**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**25.1**	**210**	**4.31**	**1.35**	**23.6**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**31.6**	**310**	**6.87**	**1.82**	**30.0**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**88.9**	**94.5**	**90.5**	**90.2**	**84.0**
13C8-PFOA	----	0.02	%		**100**	**100**	**99.2**	**103**	**102**

Analytical Results

Sub-Matrix: **GROUNDWATER** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW173_221024	0207_MW204_221024	0207_MW203_221024	0207_MW202_221024	0207_MW205_221024
				Sampling date / time	24-Oct-2022 15:08	24-Oct-2022 15:09	24-Oct-2022 15:10	24-Oct-2022 15:11	24-Oct-2022 15:12
					EB2232878-006	EB2232878-007	EB2232878-008	EB2232878-009	EB2232878-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.30**	**30.4**	**0.60**	**6.74**	**9.29**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.35**	**35.0**	**0.67**	**6.85**	**9.78**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**2.42**	**263**	**5.66**	**56.5**	**42.1**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.20**	**14.8**	**0.29**	**5.01**	**0.38**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**2.34**	**43.9**	**0.90**	**165**	**1.04**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.43	<0.02	<0.23	<0.24
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.4**	**6.2**	**0.2**	**1.5**	**2.1**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**1.07**	**9.24**	**0.33**	**3.00**	**4.82**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.47**	**55.6**	**1.25**	**14.3**	**18.8**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.55**	**8.63**	**0.15**	**1.98**	**1.84**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.49**	**21.6**	**0.21**	**4.45**	**0.54**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.12**	<0.43	<0.02	<0.23	<0.24
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.43	<0.02	<0.23	<0.24
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.43	<0.02	<0.23	<0.24
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.43	<0.02	<0.23	<0.24
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.43	<0.02	<0.23	<0.24
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<1.08	<0.05	<0.58	<0.59
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.43	<0.02	**0.65**	<0.24
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<1.08	<0.05	<0.58	<0.59
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<1.08	<0.05	<0.58	<0.59

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW173_221024	0207_MW204_221024	0207_MW203_221024	0207_MW202_221024	0207_MW205_221024
				Sampling date / time	24-Oct-2022 15:08	24-Oct-2022 15:09	24-Oct-2022 15:10	24-Oct-2022 15:11	24-Oct-2022 15:12
Compound	CAS Number	LOR	Unit		EB2232878-006	EB2232878-007	EB2232878-008	EB2232878-009	EB2232878-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<1.08	<0.05	<0.58	<0.59
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<1.08	<0.05	<0.58	<0.59
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.43	<0.02	<0.23	<0.24
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.43	<0.02	<0.23	<0.24
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.43	<0.05	<0.23	<0.24
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.43**	**0.56**	<0.05	**0.46**	<0.24
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.43	<0.05	<0.23	<0.24
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.43	<0.05	<0.23	<0.24
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**10.1**	**489**	**10.3**	**266**	**90.7**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**4.76**	**307**	**6.56**	**222**	**43.1**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**9.47**	**439**	**9.30**	**254**	**80.5**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.2**	**89.0**	**94.2**	**99.1**	**98.5**
13C8-PFOA	----	0.02	%		**101**	**102**	**101**	**103**	**99.5**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW172_221026	0207_MW235_221026	0207_MW230_221026	0207_MW299_221026	0207_MW223_221026
				Sampling date / time	26-Oct-2022 15:18	26-Oct-2022 15:19	26-Oct-2022 15:20	26-Oct-2022 15:21	26-Oct-2022 15:22
Compound	CAS Number	LOR	Unit		EB2232878-011	EB2232878-012	EB2232878-013	EB2232878-014	EB2232878-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**1.15**	**3.94**	**0.34**	**17.6**	**0.50**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**1.02**	**3.20**	**0.37**	**12.8**	**0.61**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**5.72**	**9.12**	**2.28**	**70.3**	**5.95**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.60**	**0.28**	**0.14**	**6.41**	**0.74**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**18.4**	**5.16**	**0.99**	**107**	**14.6**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.10	<0.02	<0.02	<0.10	<0.05
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**1.3**	**1.2**	**0.2**	**4.8**	**4.7**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**3.61**	**1.57**	**0.40**	**9.32**	**18.8**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**4.28**	**7.78**	**0.96**	**51.1**	**14.5**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**2.03**	**0.40**	**0.28**	**11.9**	**11.6**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**1.80**	**0.30**	**0.40**	**21.6**	**8.86**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.16**	<0.02	**0.07**	<0.10	**2.30**
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.10	<0.02	<0.02	<0.10	**0.05**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.10	<0.02	<0.02	<0.10	<0.05
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.10	<0.02	<0.02	<0.10	<0.05
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.10	<0.02	<0.02	<0.10	<0.05
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.25	<0.05	<0.05	<0.24	<0.12
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.10	<0.02	<0.02	<0.95	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.25	<0.05	<0.05	<2.38	<0.12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.25	<0.05	<0.05	<2.38	<0.12

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW172_221026	0207_MW235_221026	0207_MW230_221026	0207_MW299_221026	0207_MW223_221026
				Sampling date / time	26-Oct-2022 15:18	26-Oct-2022 15:19	26-Oct-2022 15:20	26-Oct-2022 15:21	26-Oct-2022 15:22
Compound	CAS Number	LOR	Unit		EB2232878-011	EB2232878-012	EB2232878-013	EB2232878-014	EB2232878-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.25	<0.05	<0.05	<0.24	<0.12
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.25	<0.05	<0.05	<0.24	<0.12
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.10	<0.02	<0.02	<0.10	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.10	<0.02	<0.02	<0.10	<0.05
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	<0.05	<0.95	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**6.22**	<0.05	**0.08**	<0.95	**5.92**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		**3.04**	<0.05	<0.05	<0.10	**0.46**
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.10	<0.05	<0.05	<0.10	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**49.3**	**33.0**	**6.51**	**313**	**89.6**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**24.1**	**14.3**	**3.27**	**177**	**20.6**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**47.6**	**29.5**	**5.93**	**294**	**85.9**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.0**	**102**	**96.0**	**98.4**	**109**
13C8-PFOA	----	0.02	%		**101**	**106**	**102**	**101**	**104**

Analytical Results

Sub-Matrix: **GROUNDWATER** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW249_221026	0207_MW222_221026	0207_MW193_221026	0207_MW300_221026	0207_MW236_221026
				Sampling date / time	26-Oct-2022 15:23	26-Oct-2022 15:24	26-Oct-2022 15:24	26-Oct-2022 15:27	26-Oct-2022 15:28
					EB2232878-016	EB2232878-017	EB2232878-018	EB2232878-019	EB2232878-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.65**	**0.57**	**2.21**	**5.28**	**1.36**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.71**	**0.47**	**2.11**	**5.14**	**0.55**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**3.22**	**3.71**	**11.5**	**30.4**	**1.16**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.06**	**0.47**	**0.92**	**3.86**	**0.02**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.17**	**13.7**	**12.8**	**70.2**	**0.26**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.10	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.2**	**0.6**	**4.8**	**1.8**	**0.8**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.37**	**1.32**	**1.40**	**2.76**	**0.83**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.46**	**2.17**	**6.18**	**11.8**	**2.86**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.16**	**1.02**	**1.52**	**3.06**	**0.15**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.09**	**1.70**	**2.20**	**8.56**	**0.17**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	**0.48**	<0.02	<0.10	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	**0.02**	<0.02	<0.10	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.10	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.10	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.10	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.06	<0.06	<0.24	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.10	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.06	<0.06	<0.24	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.06	<0.06	<0.24	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW249_221026	0207_MW222_221026	0207_MW193_221026	0207_MW300_221026	0207_MW236_221026
				Sampling date / time	26-Oct-2022 15:23	26-Oct-2022 15:24	26-Oct-2022 15:24	26-Oct-2022 15:27	26-Oct-2022 15:28
Compound	CAS Number	LOR	Unit		EB2232878-016	EB2232878-017	EB2232878-018	EB2232878-019	EB2232878-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.06	<0.06	<0.24	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.06	<0.06	<0.24	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.10	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<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		<0.05	<0.05	<0.05	<0.10	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	**0.66**	<0.05	**0.16**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	**0.20**	<0.05	<0.10	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.10	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**7.09**	**27.1**	**45.6**	**143**	**8.16**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**3.39**	**17.4**	**24.3**	**101**	**1.42**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**6.32**	**25.6**	**42.6**	**134**	**7.59**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**90.2**	**86.3**	**97.2**	**93.9**	**82.9**
13C8-PFOA	----	0.02	%		**97.1**	**96.7**	**92.4**	**95.5**	**96.2**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW241_221026	0207_MW252_221026	0207_QC165_221026	0207_QC164_221026	0207_MW257_221027
				Sampling date / time	26-Oct-2022 15:29	26-Oct-2022 15:30	26-Oct-2022 15:31	26-Oct-2022 15:32	27-Oct-2022 15:35
Compound	CAS Number	LOR	Unit		EB2232878-021	EB2232878-022	EB2232878-023	EB2232878-024	EB2232878-025
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.18**	**0.11**	**1.01**	**0.52**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.14**	**0.08**	**0.85**	**0.56**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**1.18**	**0.50**	**4.41**	**2.46**	**0.12**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.11**	**0.03**	**0.45**	**0.04**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**6.84**	**2.23**	**17.2**	**0.14**	**0.11**
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	**1.0**	**0.2**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.06**	**0.06**	**3.33**	**0.29**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.23**	**0.13**	**3.76**	**1.01**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.05**	**0.03**	**1.93**	**0.13**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.16**	**0.03**	**1.81**	**0.08**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	**0.17**	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	**0.08**	<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	<0.06	<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	<0.06	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.06	<0.05	<0.05

Analytical Results

Sub-Matrix: **GROUNDWATER** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW241_221026	0207_MW252_221026	0207_QC165_221026	0207_QC164_221026	0207_MW257_221027
				Sampling date / time	26-Oct-2022 15:29	26-Oct-2022 15:30	26-Oct-2022 15:31	26-Oct-2022 15:32	27-Oct-2022 15:35
					EB2232878-021	EB2232878-022	EB2232878-023	EB2232878-024	EB2232878-025
					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	<0.06	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.06	<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	**5.06**	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	**1.84**	<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		**8.95**	**3.20**	**42.9**	**5.43**	**0.23**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**8.02**	**2.73**	**21.6**	**2.60**	**0.23**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**8.70**	**3.09**	**41.4**	**4.83**	**0.23**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.3**	**101**	**91.9**	**83.8**	**86.3**
13C8-PFOA	----	0.02	%		**97.2**	**93.5**	**92.8**	**99.2**	**94.6**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW232_221027	0207_MW189_221027	0207_MW151_221027	0207_MW229_221027	0207_MW167_221027
				Sampling date / time	27-Oct-2022 15:37	27-Oct-2022 15:38	27-Oct-2022 15:39	27-Oct-2022 15:40	27-Oct-2022 15:41
Compound	CAS Number	LOR	Unit		EB2232878-026	EB2232878-027	EB2232878-028	EB2232878-029	EB2232878-030
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.67**	**0.02**	<0.02	**0.67**	**0.46**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.76**	<0.02	<0.02	**0.96**	**0.42**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**6.50**	**0.07**	<0.01	**9.23**	**2.32**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.27**	<0.02	<0.02	**0.79**	**0.20**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**9.67**	**0.06**	<0.01	**29.0**	**5.85**
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		**1.4**	<0.1	<0.1	<0.2	**0.1**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**3.59**	<0.02	<0.02	**0.33**	**0.22**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**2.39**	<0.02	<0.02	**2.47**	**0.98**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**1.17**	<0.02	<0.02	**0.20**	**0.15**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**1.56**	<0.02	<0.01	**0.55**	**0.28**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.25**	<0.02	<0.02	<0.05	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		**0.25**	<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	<0.06	<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	<0.06	<0.05	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.12	<0.06	<0.05	<0.12	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW232_221027	0207_MW189_221027	0207_MW151_221027	0207_MW229_221027	0207_MW167_221027
				Sampling date / time	27-Oct-2022 15:37	27-Oct-2022 15:38	27-Oct-2022 15:39	27-Oct-2022 15:40	27-Oct-2022 15:41
Compound	CAS Number	LOR	Unit		EB2232878-026	EB2232878-027	EB2232878-028	EB2232878-029	EB2232878-030
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.12	<0.06	<0.05	<0.12	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.12	<0.06	<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		**0.13**	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		**1.21**	<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		**29.8**	**0.15**	<0.01	**44.2**	**11.0**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**16.2**	**0.13**	<0.01	**38.2**	**8.17**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**28.3**	**0.15**	<0.01	**42.4**	**10.4**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.4**	**76.7**	**81.2**	**86.5**	**101**
13C8-PFOA	----	0.02	%		**93.8**	**96.2**	**95.2**	**99.8**	**100**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW187_221027	0207_MW272_221027	0207_QC166_221027	0207_MW262_221102	0207_MW174_221102
				Sampling date / time	27-Oct-2022 15:43	27-Oct-2022 15:43	27-Oct-2022 15:45	02-Nov-2022 15:51	02-Nov-2022 15:53
Compound	CAS Number	LOR	Unit		EB2232878-031	EB2232878-032	EB2232878-033	EB2232878-034	EB2232878-035
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.05**	**0.05**	<0.02	**0.08**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.06**	**0.05**	<0.02	**0.04**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.41**	**0.28**	**0.06**	**0.20**	**0.03**
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		**0.32**	**0.11**	**0.03**	**0.14**	**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		**0.05**	<0.02	<0.02	<0.02	**0.09**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.12**	**0.08**	<0.02	**0.05**	**0.04**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.03**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**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: **GROUNDWATER** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	0207_MW187_221027	0207_MW272_221027	0207_QC166_221027	0207_MW262_221102	0207_MW174_221102
				Sampling date / time	27-Oct-2022 15:43	27-Oct-2022 15:43	27-Oct-2022 15:45	02-Nov-2022 15:51	02-Nov-2022 15:53
					EB2232878-031	EB2232878-032	EB2232878-033	EB2232878-034	EB2232878-035
					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		**1.03**	**0.58**	**0.09**	**0.53**	**0.22**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.73**	**0.39**	**0.09**	**0.34**	**0.06**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.97**	**0.53**	**0.09**	**0.49**	**0.22**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**86.5**	**99.8**	**110**	**102**	**111**
13C8-PFOA	----	0.02	%		**100**	**101**	**99.8**	**99.8**	**91.4**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW178_221102	0207_MW563_221103	0207_MW562_221103	0207_MW245_221103	0207_MW179_221103
				Sampling date / time	02-Nov-2022 15:54	03-Nov-2022 15:55	03-Nov-2022 15:55	03-Nov-2022 15:56	03-Nov-2022 15:57
Compound	CAS Number	LOR	Unit		EB2232878-036	EB2232878-037	EB2232878-038	EB2232878-039	EB2232878-040
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.04	**0.05**	**2.72**	**0.03**	**0.94**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**0.04**	**2.66**	**0.04**	**0.53**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**0.10**	**14.4**	**0.19**	**2.76**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.19**	<0.02	**0.30**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**0.01**	**0.39**	**0.12**	**4.19**
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	**0.7**	<0.1	**0.2**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**0.18**	**1.19**	<0.02	**0.36**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	**0.09**	**4.69**	**0.06**	**1.82**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.68**	<0.02	**0.32**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.01**	**0.74**	<0.01	**0.62**
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	<0.06	<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	<0.06	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.06	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW178_221102	0207_MW563_221103	0207_MW562_221103	0207_MW245_221103	0207_MW179_221103
				Sampling date / time	02-Nov-2022 15:54	03-Nov-2022 15:55	03-Nov-2022 15:55	03-Nov-2022 15:56	03-Nov-2022 15:57
Compound	CAS Number	LOR	Unit		EB2232878-036	EB2232878-037	EB2232878-038	EB2232878-039	EB2232878-040
					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	<0.06	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.06	<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	**0.09**
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	**0.48**	**28.4**	**0.44**	**12.1**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.11**	**14.8**	**0.31**	**6.95**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.44**	**25.5**	**0.40**	**11.3**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**109**	**97.5**	**107**	**112**	**124**
13C8-PFOA	----	0.02	%		**106**	**99.0**	**105**	**99.2**	**110**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0207_QC167_221102	----	----	----	----
				Sampling date / time	02-Nov-2022 16:01	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232878-041	--------	--------	--------	--------
					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: GROUNDWATER (Matrix: WATER)				Sample ID	0207_QC167_221102	----	----	----	----
				Sampling date / time	02-Nov-2022 16:01	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232878-041	--------	--------	--------	--------
					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	%		**96.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**100**	----	----	----	----

Analytical Results

Sub-Matrix: **RINSATE** (Matrix: **WATER**)				Sample ID	0207_QC336_221024	0207_QC337_221025	0207_QC338_221026	0207_QC340_221102	0207_QC341_221103
				Sampling date / time	24-Oct-2022 16:03	25-Oct-2022 16:05	26-Oct-2022 16:06	02-Nov-2022 16:08	03-Nov-2022 16:09
Compound	*CAS Number*	*LOR*	*Unit*		**EB2232878-042**	**EB2232878-043**	**EB2232878-044**	**EB2232878-045**	**EB2232878-046**
					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	<0.01	<0.01	<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	<0.02	<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: RINSATE (Matrix: WATER)				Sample ID	0207_QC336_221024	0207_QC337_221025	0207_QC338_221026	0207_QC340_221102	0207_QC341_221103
				Sampling date / time	24-Oct-2022 16:03	25-Oct-2022 16:05	26-Oct-2022 16:06	02-Nov-2022 16:08	03-Nov-2022 16:09
Compound	CAS Number	LOR	Unit		EB2232878-042	EB2232878-043	EB2232878-044	EB2232878-045	EB2232878-046
					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	<0.01	<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	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**113**	**99.6**	**95.0**	**105**	**104**
13C8-PFOA	----	0.02	%		**95.4**	**99.0**	**95.0**	**105**	**98.3**

Analytical Results

Sub-Matrix: **RINSATE** (Matrix: **WATER**)				Sample ID	0207_QC339_221027	----	----	----	----
				Sampling date / time	27-Oct-2022 16:52	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232878-047	--------	--------	--------	--------
					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	0207_QC339_221027	----	----	----	----
				Sampling date / time	27-Oct-2022 16:52	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232878-047	--------	--------	--------	--------
					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	%		**102**	----	----	----	----
13C8-PFOA	----	0.02	%		**99.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: **RINSATE**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2232878**	Page	: 1 of 10
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44561	Issue Date	: 09-Dec-2022
Sampler	: [redacted]		
Site	: Army Aviation Centre Oakey (onsite+offsite)		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 47		
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]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4712338)									
EB2232878-001	0207_MW198_221025	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	5.49	5.55	1.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	19.6	19.0	2.9	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.65	0.60	8.7	0% - 50%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.78	0.82	5.7	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.82	0.86	4.2	0% - 50%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.05	<0.05	0.0	No Limit
EB2232878-011	0207_MW172_221026	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	5.72	5.66	1.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	18.4	17.6	4.5	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	1.15	1.16	0.0	0% - 50%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	1.02	1.02	0.0	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.60	0.56	7.3	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.10	<0.10	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4712338)									
EB2232878-001	0207_MW198_221025	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.98	0.89	9.8	0% - 50%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	1.13	1.14	1.2	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	2.40	2.50	3.8	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.61	0.55	9.4	0% - 50%
		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	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.6	0.5	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: 4712338) - continued									
EB2232878-011	0207_MW172_221026	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	1.80	1.87	3.6	0% - 50%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	3.61	3.86	6.9	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	4.28	4.31	0.7	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	2.03	2.02	0.0	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	0.16	0.16	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.25	<0.24	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	1.3	1.2	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4712338)									
EB2232878-001	0207_MW198_221025	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.12	<0.12	0.0	No Limit
EB2232878-011	0207_MW172_221026	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.25	<0.24	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.25	<0.24	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.25	<0.24	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.25	<0.24	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4712338)									
EB2232878-001	0207_MW198_221025	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: 4712338) - continued									
EB2232878-001	0207_MW198_221025	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.09	0.11	25.1	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
EB2232878-011	0207_MW172_221026	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.10	<0.10	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	6.22	6.44	3.5	0% - 20%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	3.04	2.63	14.6	0% - 20%
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.10	<0.10	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4712338)									
EB2232878-001	0207_MW198_221025	EP231X: Sum of PFAS	----	0.01	µg/L	33.2	32.5	1.9	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	25.1	24.6	2.2	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	31.6	30.8	2.3	0% - 20%
EB2232878-011	0207_MW172_221026	EP231X: Sum of PFAS	----	0.01	µg/L	49.3	48.5	1.7	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	24.1	23.3	3.6	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	47.6	46.8	1.7	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: 4703563)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	88.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	84.2	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	92.3	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	95.0	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	98.7	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	84.8	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4703568)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	101	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	97.5	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	87.1	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	84.6	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4709308)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	93.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	81.6	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	88.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	86.8	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4712338)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	88.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	84.2	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	92.3	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	95.0	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	98.7	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	84.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4703563)								
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	89.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	88.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	86.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	88.6	69.0	130

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: 4703563) - continued								
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	83.8	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	85.0	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	81.8	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	87.4	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	88.7	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4703568)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	83.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	88.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	88.8	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	97.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	97.6	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	90.4	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	88.8	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	89.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	91.5	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4709308)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	89.2	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	83.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	88.4	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	89.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	84.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	80.4	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	81.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	83.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	90.9	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4712338)								
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	89.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	88.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	86.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	88.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	83.8	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	85.0	69.0	133

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: 4712338) - continued								
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	81.8	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	87.4	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	88.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4703563)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	91.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	99.8	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	88.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	80.2	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	86.2	62.6	138
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	84.4	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4703568)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	98.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	87.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	86.7	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	89.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	93.4	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	96.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	106	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4709308)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	88.8	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	91.0	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	94.4	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	91.8	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	92.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	89.8	61.0	135

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: 4712338)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	91.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	99.8	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	88.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	80.2	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	86.2	62.6	138
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	84.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4703563)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	94.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	111	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	99.0	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4703568)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	81.9	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	95.0	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	85.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	78.0	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4709308)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	99.0	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	92.9	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	78.6	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4712338)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	94.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	111	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	99.0	64.2	133
EP231P: PFAS Sums (QCLot: 4703563)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 4703568)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----

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
EP231P: PFAS Sums (QCLot: 4703568) - continued								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 4709308)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 4712338)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4712338)							
EB2232878-002	0207_MW201_221025	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	92.8	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	89.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	# Not Determined	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	110	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	80.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4712338)							
EB2232878-002	0207_MW201_221025	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	88.6	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	73.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	116	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	81.3	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	85.8	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	74.2	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	83.4	71.0	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: 4712338) - continued							
EB2232878-002	0207_MW201_221025	EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	83.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	76.4	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	85.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4712338)							
EB2232878-002	0207_MW201_221025	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	87.8	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	104	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	82.2	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	75.8	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	79.9	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	93.8	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	80.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4712338)							
EB2232878-002	0207_MW201_221025	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	91.2	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	106	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	78.3	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	75.2	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2232878**	Page	: 1 of 9
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Site	: Army Aviation Centre Oakey (onsite+offsite)	Issue Date	: 09-Dec-2022
Sampler	: [redacted]	No. of samples received	: 47
Order number	: 60612563_2.1	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	EB2232878--002	0207_MW201_221025	**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	EB2232878--002	0207_MW201_221025	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	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	2	48	4.17	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	48	2.08	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0207_MW262_221102, 0207_MW178_221102, 0207_QC340_221102	0207_MW174_221102, 0207_QC167_221102,	**02-Nov-2022**	**17-Nov-2022**	01-May-2023	✓	**18-Nov-2022**	01-May-2023	✓
HDPE (no PTFE) (EP231X)								
0207_MW563_221103, 0207_MW245_221103, 0207_QC341_221103	0207_MW562_221103, 0207_MW179_221103,	**03-Nov-2022**	**17-Nov-2022**	02-May-2023	✓	**18-Nov-2022**	02-May-2023	✓
HDPE (no PTFE) (EP231X)								
0207_MW198_221025, 0207_QC163_221025	0207_MW201_221025,	**04-Nov-2022**	**17-Nov-2022**	03-May-2023	✓	**17-Nov-2022**	03-May-2023	✓
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							
0207_MW173_221024, 0207_MW204_221024, 0207_MW203_221024, 0207_MW202_221024, 0207_MW205_221024	**24-Oct-2022**	**17-Nov-2022**	22-Apr-2023	✓	**17-Nov-2022**	22-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC336_221024	**24-Oct-2022**	**17-Nov-2022**	22-Apr-2023	✓	**18-Nov-2022**	22-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW221_221025, 0207_MW207_221025	**25-Oct-2022**	**17-Nov-2022**	23-Apr-2023	✓	**17-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC337_221025	**25-Oct-2022**	**17-Nov-2022**	23-Apr-2023	✓	**18-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW172_221026, 0207_MW235_221026, 0207_MW230_221026, 0207_MW299_221026, 0207_MW223_221026, 0207_MW249_221026, 0207_MW222_221026, 0207_MW193_221026, 0207_MW300_221026, 0207_MW236_221026, 0207_MW241_221026, 0207_MW252_221026, 0207_QC165_221026, 0207_QC164_221026	**26-Oct-2022**	**17-Nov-2022**	24-Apr-2023	✓	**17-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC338_221026	**26-Oct-2022**	**17-Nov-2022**	24-Apr-2023	✓	**18-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW257_221027, 0207_MW232_221027, 0207_MW189_221027, 0207_MW151_221027, 0207_MW229_221027, 0207_MW167_221027, 0207_MW187_221027	**27-Oct-2022**	**17-Nov-2022**	25-Apr-2023	✓	**17-Nov-2022**	25-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW272_221027, 0207_QC166_221027, 0207_QC339_221027	**27-Oct-2022**	**17-Nov-2022**	25-Apr-2023	✓	**18-Nov-2022**	25-Apr-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) 0207_MW262_221102, 0207_MW174_221102, 0207_MW178_221102, 0207_QC167_221102, 0207_QC340_221102	**02-Nov-2022**	**17-Nov-2022**	01-May-2023	✓	**18-Nov-2022**	01-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW563_221103, 0207_MW562_221103, 0207_MW245_221103, 0207_MW179_221103, 0207_QC341_221103	**03-Nov-2022**	**17-Nov-2022**	02-May-2023	✓	**18-Nov-2022**	02-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW198_221025, 0207_MW201_221025, 0207_QC163_221025	**04-Nov-2022**	**17-Nov-2022**	03-May-2023	✓	**17-Nov-2022**	03-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW173_221024, 0207_MW204_221024, 0207_MW203_221024, 0207_MW202_221024, 0207_MW205_221024	**24-Oct-2022**	**17-Nov-2022**	22-Apr-2023	✓	**17-Nov-2022**	22-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC336_221024	**24-Oct-2022**	**17-Nov-2022**	22-Apr-2023	✓	**18-Nov-2022**	22-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW221_221025, 0207_MW207_221025	**25-Oct-2022**	**17-Nov-2022**	23-Apr-2023	✓	**17-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC337_221025	**25-Oct-2022**	**17-Nov-2022**	23-Apr-2023	✓	**18-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW172_221026, 0207_MW235_221026, 0207_MW230_221026, 0207_MW299_221026, 0207_MW223_221026, 0207_MW249_221026, 0207_MW222_221026, 0207_MW193_221026, 0207_MW300_221026, 0207_MW236_221026, 0207_MW241_221026, 0207_MW252_221026, 0207_QC165_221026, 0207_QC164_221026	**26-Oct-2022**	**17-Nov-2022**	24-Apr-2023	✓	**17-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC338_221026	**26-Oct-2022**	**17-Nov-2022**	24-Apr-2023	✓	**18-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW257_221027, 0207_MW232_221027, 0207_MW189_221027, 0207_MW151_221027, 0207_MW229_221027, 0207_MW167_221027, 0207_MW187_221027	**27-Oct-2022**	**17-Nov-2022**	25-Apr-2023	✓	**17-Nov-2022**	25-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW272_221027, 0207_QC166_221027, 0207_QC339_221027	**27-Oct-2022**	**17-Nov-2022**	25-Apr-2023	✓	**18-Nov-2022**	25-Apr-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)								
0207_MW262_221102,	0207_MW174_221102,	**02-Nov-2022**	**17-Nov-2022**	01-May-2023	✓	**18-Nov-2022**	01-May-2023	✓
0207_MW178_221102,	0207_QC167_221102,							
0207_QC340_221102								
HDPE (no PTFE) (EP231X)								
0207_MW563_221103,	0207_MW562_221103,	**03-Nov-2022**	**17-Nov-2022**	02-May-2023	✓	**18-Nov-2022**	02-May-2023	✓
0207_MW245_221103,	0207_MW179_221103,							
0207_QC341_221103								
HDPE (no PTFE) (EP231X)								
0207_MW198_221025,	0207_MW201_221025,	**04-Nov-2022**	**17-Nov-2022**	03-May-2023	✓	**17-Nov-2022**	03-May-2023	✓
0207_QC163_221025								
HDPE (no PTFE) (EP231X)								
0207_MW173_221024,	0207_MW204_221024,	**24-Oct-2022**	**17-Nov-2022**	22-Apr-2023	✓	**17-Nov-2022**	22-Apr-2023	✓
0207_MW203_221024,	0207_MW202_221024,							
0207_MW205_221024								
HDPE (no PTFE) (EP231X)								
0207_QC336_221024		**24-Oct-2022**	**17-Nov-2022**	22-Apr-2023	✓	**18-Nov-2022**	22-Apr-2023	✓
HDPE (no PTFE) (EP231X)								
0207_MW221_221025,	0207_MW207_221025	**25-Oct-2022**	**17-Nov-2022**	23-Apr-2023	✓	**17-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X)								
0207_QC337_221025		**25-Oct-2022**	**17-Nov-2022**	23-Apr-2023	✓	**18-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X)								
0207_MW172_221026,	0207_MW235_221026,	**26-Oct-2022**	**17-Nov-2022**	24-Apr-2023	✓	**17-Nov-2022**	24-Apr-2023	✓
0207_MW230_221026,	0207_MW299_221026,							
0207_MW223_221026,	0207_MW249_221026,							
0207_MW222_221026,	0207_MW193_221026,							
0207_MW300_221026,	0207_MW236_221026,							
0207_MW241_221026,	0207_MW252_221026,							
0207_QC165_221026,	0207_QC164_221026							
HDPE (no PTFE) (EP231X)								
0207_QC338_221026		**26-Oct-2022**	**17-Nov-2022**	24-Apr-2023	✓	**18-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X)								
0207_MW257_221027,	0207_MW232_221027,	**27-Oct-2022**	**17-Nov-2022**	25-Apr-2023	✓	**17-Nov-2022**	25-Apr-2023	✓
0207_MW189_221027,	0207_MW151_221027,							
0207_MW229_221027,	0207_MW167_221027,							
0207_MW187_221027								
HDPE (no PTFE) (EP231X)								
0207_MW272_221027,	0207_QC166_221027,	**27-Oct-2022**	**17-Nov-2022**	25-Apr-2023	✓	**18-Nov-2022**	25-Apr-2023	✓
0207_QC339_221027								

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) 0207_MW262_221102, 0207_MW178_221102, 0207_QC340_221102, 0207_MW174_221102, 0207_QC167_221102,	**02-Nov-2022**	**17-Nov-2022**	01-May-2023	✓	**18-Nov-2022**	01-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW563_221103, 0207_MW245_221103, 0207_QC341_221103, 0207_MW562_221103, 0207_MW179_221103,	**03-Nov-2022**	**17-Nov-2022**	02-May-2023	✓	**18-Nov-2022**	02-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW198_221025, 0207_QC163_221025, 0207_MW201_221025,	**04-Nov-2022**	**17-Nov-2022**	03-May-2023	✓	**17-Nov-2022**	03-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW173_221024, 0207_MW203_221024, 0207_MW205_221024, 0207_MW204_221024, 0207_MW202_221024,	**24-Oct-2022**	**17-Nov-2022**	22-Apr-2023	✓	**17-Nov-2022**	22-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC336_221024	**24-Oct-2022**	**17-Nov-2022**	22-Apr-2023	✓	**18-Nov-2022**	22-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW221_221025, 0207_MW207_221025	**25-Oct-2022**	**17-Nov-2022**	23-Apr-2023	✓	**17-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC337_221025	**25-Oct-2022**	**17-Nov-2022**	23-Apr-2023	✓	**18-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW172_221026, 0207_MW230_221026, 0207_MW223_221026, 0207_MW222_221026, 0207_MW300_221026, 0207_MW241_221026, 0207_QC165_221026, 0207_MW235_221026, 0207_MW299_221026, 0207_MW249_221026, 0207_MW193_221026, 0207_MW236_221026, 0207_MW252_221026, 0207_QC164_221026	**26-Oct-2022**	**17-Nov-2022**	24-Apr-2023	✓	**17-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC338_221026	**26-Oct-2022**	**17-Nov-2022**	24-Apr-2023	✓	**18-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW257_221027, 0207_MW189_221027, 0207_MW229_221027, 0207_MW187_221027, 0207_MW232_221027, 0207_MW151_221027, 0207_MW167_221027,	**27-Oct-2022**	**17-Nov-2022**	25-Apr-2023	✓	**17-Nov-2022**	25-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW272_221027, 0207_QC339_221027, 0207_QC166_221027,	**27-Oct-2022**	**17-Nov-2022**	25-Apr-2023	✓	**18-Nov-2022**	25-Apr-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) 0207_MW262_221102, 0207_MW174_221102, 0207_MW178_221102, 0207_QC167_221102, 0207_QC340_221102	**02-Nov-2022**	**17-Nov-2022**	01-May-2023	✓	**18-Nov-2022**	01-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW563_221103, 0207_MW562_221103, 0207_MW245_221103, 0207_MW179_221103, 0207_QC341_221103	**03-Nov-2022**	**17-Nov-2022**	02-May-2023	✓	**18-Nov-2022**	02-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW198_221025, 0207_MW201_221025, 0207_QC163_221025	**04-Nov-2022**	**17-Nov-2022**	03-May-2023	✓	**17-Nov-2022**	03-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW173_221024, 0207_MW204_221024, 0207_MW203_221024, 0207_MW202_221024, 0207_MW205_221024	**24-Oct-2022**	**17-Nov-2022**	22-Apr-2023	✓	**17-Nov-2022**	22-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC336_221024	**24-Oct-2022**	**17-Nov-2022**	22-Apr-2023	✓	**18-Nov-2022**	22-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW221_221025, 0207_MW207_221025	**25-Oct-2022**	**17-Nov-2022**	23-Apr-2023	✓	**17-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC337_221025	**25-Oct-2022**	**17-Nov-2022**	23-Apr-2023	✓	**18-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW172_221026, 0207_MW235_221026, 0207_MW230_221026, 0207_MW299_221026, 0207_MW223_221026, 0207_MW249_221026, 0207_MW222_221026, 0207_MW193_221026, 0207_MW300_221026, 0207_MW236_221026, 0207_MW241_221026, 0207_MW252_221026, 0207_QC165_221026, 0207_QC164_221026	**26-Oct-2022**	**17-Nov-2022**	24-Apr-2023	✓	**17-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC338_221026	**26-Oct-2022**	**17-Nov-2022**	24-Apr-2023	✓	**18-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW257_221027, 0207_MW232_221027, 0207_MW189_221027, 0207_MW151_221027, 0207_MW229_221027, 0207_MW167_221027, 0207_MW187_221027	**27-Oct-2022**	**17-Nov-2022**	25-Apr-2023	✓	**17-Nov-2022**	25-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_MW272_221027, 0207_QC166_221027, 0207_QC339_221027	**27-Oct-2022**	**17-Nov-2022**	25-Apr-2023	✓	**18-Nov-2022**	25-Apr-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	2	48	**4.17**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	48	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	48	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	48	**2.08**	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2232879**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: c[redacted]
Telephone	: ----	Telephone	: +[redacted]
Facsimile	: ----	Facsimile	: +[redacted]
Project	: QLD_0270_PFASOMP	Page	: 1 of 3
Order number	: 60612563_2.1	Quote number	: ES2022AECOMAU0018 (SY/139/19 v4 60612563_2.1)
C-O-C number	: 44563	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Landholder 1		
Sampler	: [redacted]		

Dates

Date Samples Received	: 04-Nov-2022 17:20	Issue Date	: 07-Nov-2022
Client Requested Due Date	: 14-Nov-2022	Scheduled Reporting Date	: **14-Nov-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232879-001	27-Oct-2022 16:17	0207_MW056_221027	✓

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

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[redacted]

- *AU Certificate of Analysis - NATA (COA) — Email
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email
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- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[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
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- EDI Format - ESDAT (ESDAT) — Email

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232879**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022 17:20
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44563	Issue Date	: 14-Nov-2022 14:49
Sampler	: [redacted]		
Site	: Landholder 1		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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	0207_MW056_221027	----	----	----	----
				Sampling date / time	27-Oct-2022 16:17	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232879-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.05**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.04**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.33**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.09**	----	----	----	----
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		**0.03**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.06**	----	----	----	----
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	0207_MW056_221027	----	----	----	----
				Sampling date / time	27-Oct-2022 16:17	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232879-001	--------	--------	--------	--------
					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		**0.61**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.42**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.57**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**100**	----	----	----	----
13C8-PFOA	----	0.02	%		**91.7**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2232879**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44563	Issue Date	: 14-Nov-2022
Sampler	: [redacted]		
Site	: Landholder 1		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4691053)									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	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

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: 4691053) - continued									
EB2227914-044	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: 4691053)									
EB2227914-005	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
EB2227914-044	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4691053)									
EB2227914-005	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: 4691053) - continued									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EB2227914-044	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	86.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	88.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	82.6	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	98.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	98.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	117	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	111	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	94.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.6	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	130	67.0	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	132	64.2	133
EP231P: PFAS Sums (QCLot: 4691053)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	109	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	99.6	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	106	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	103	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	91.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	114	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	90.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	129	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	111	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	103	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	111	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	122	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	130	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.4	70.0	130

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: 4691053) - continued							
EB2227914-006	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	111	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	125	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	107	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	128	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	113	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	133	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	123	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2232879**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	[redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Site	: Landholder 1	Issue Date	: 14-Nov-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563_2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW056_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW056_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_MW056_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW056_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0207_MW056_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-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	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EB2232881**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: +[redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563_2.1	Quote number	: ES2022AECOMAU0018 (SY/139/19 v4 60612563_2.1)
C-O-C number	: 44564	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Landholder 2		
Sampler	: [redacted]		

Dates

Date Samples Received	: 04-Nov-2022 17:20	Issue Date	: 09-Nov-2022
Client Requested Due Date	: 14-Nov-2022	Scheduled Reporting Date	: **14-Nov-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- ***SRN Reissued 09/11/2022 Please be advised that the project ID has been updated to QLD_0207_PFASOMP as per email request fro** [redacted]
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232881-001	27-Oct-2022 16:18	0207_MW151_221027	✓

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

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- *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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[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
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- EDI Format - ESDAT (ESDAT) — Email

[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
- A4 - AU Tax Invoice (INV) — Email
- Chain of Custody (CoC) (COC) — Email
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232881**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022 17:20
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44564	Issue Date	: 14-Nov-2022 15:36
Sampler	: [redacted]		
Site	: Landholder 2		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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	0207_MW151_221027	----	----	----	----
				Sampling date / time	27-Oct-2022 16:18	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232881-001	--------	--------	--------	--------
					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: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW151_221027	----	----	----	----
				Sampling date / time	27-Oct-2022 16:18	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232881-001	--------	--------	--------	--------
					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		<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	%		**102**	----	----	----	----
13C8-PFOA	----	0.02	%		**83.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2232881**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44564	Issue Date	: 14-Nov-2022
Sampler	: [redacted]		
Site	: Landholder 2		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4691053)									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	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

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: 4691053) - continued									
EB2227914-044	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: 4691053)									
EB2227914-005	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
EB2227914-044	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4691053)									
EB2227914-005	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: 4691053) - continued									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EB2227914-044	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	86.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	88.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	82.6	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	98.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	98.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	117	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	111	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	94.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.6	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	130	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: 4691053) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	132	64.2	133
EP231P: PFAS Sums (QCLot: 4691053)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	109	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	99.6	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	106	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	103	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	91.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	114	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	90.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	129	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	111	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	103	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	111	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	122	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	130	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.4	70.0	130

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: 4691053) - continued							
EB2227914-006	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	111	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	125	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	107	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	128	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	113	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	133	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	123	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2232881**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	[redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Site	: Landholder 2	Issue Date	: 14-Nov-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563_2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW151_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW151_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW151_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW151_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW151_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-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	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2232882**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563_2.1	Quote number	: ES2022AECOMAU0018 (SY/139/19 v4 60612563_2.1)
C-O-C number	: 44565	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Landholder 3		
Sampler	: [redacted]		

Dates

Date Samples Received	: 04-Nov-2022 17:20	Issue Date	: 09-Nov-2022
Client Requested Due Date	: 14-Nov-2022	Scheduled Reporting Date	: **14-Nov-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- ***SRN Reissued 09/11/2022 Please be advised that the project ID has been updated to QLD_0207_PFASOMP as per email request from James Peachey***
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232882-001	02-Nov-2022 16:21	0207_MW003_221102	✓

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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

DERP ESDAT REPORTS

- *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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	
- EDI Format - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232882**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022 17:20
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44565	Issue Date	: 14-Nov-2022 14:48
Sampler	: [redacted]		
Site	: Landholder 3		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

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 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]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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	0207_MW003_221102	----	----	----	----
				Sampling date / time	02-Nov-2022 16:21	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232882-001	--------	--------	--------	--------
					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: GROUNDWATER (Matrix: WATER)				Sample ID	0207_MW003_221102	----	----	----	----
				Sampling date / time	02-Nov-2022 16:21	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232882-001	--------	--------	--------	--------
					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		<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	%		**94.6**	----	----	----	----
13C8-PFOA	----	0.02	%		**93.2**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2232882**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44565	Issue Date	: 14-Nov-2022
Sampler	: [redacted]		
Site	: Landholder 3		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4691053)									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	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

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: 4691053) - continued									
EB2227914-044	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: 4691053)									
EB2227914-005	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
EB2227914-044	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4691053)									
EB2227914-005	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: 4691053) - continued									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EB2227914-044	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	86.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	88.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	82.6	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	98.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	98.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	117	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	111	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	94.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.6	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	130	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: 4691053) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	132	64.2	133
EP231P: PFAS Sums (QCLot: 4691053)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	109	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	99.6	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	106	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	103	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	91.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	114	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	90.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	129	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	111	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	103	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	111	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	122	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	130	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.4	70.0	130

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: 4691053) - continued							
EB2227914-006	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	111	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	125	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	107	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	128	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	113	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	133	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	123	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2232882**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Site	: Landholder 3	Issue Date	: 14-Nov-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563_2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW003_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW003_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_MW003_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW003_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0207_MW003_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-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	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2232883**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: c[redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: +[redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563_2.1	Quote number	: ES2022AECOMAU0018 (SY/139/19 v4 60612563_2.1)
C-O-C number	: 44566	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Landholder 4		
Sampler	: [redacted]		

Dates

Date Samples Received	: 04-Nov-2022 17:20	Issue Date	: 09-Nov-2022
Client Requested Due Date	: 14-Nov-2022	Scheduled Reporting Date	: **14-Nov-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- ***SRN Reissued 09/11/2022 Please be advised that the project ID has been updated to QLD_0207_PFASOMP as per email request from** [redacted]
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232883-001	27-Oct-2022 16:22	0207_MW019_221027	✓

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)

[redacted]

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- Chain of Custody (CoC) (COC)
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)
- EDI Format - ESDAT (ESDAT)

DERP ESDAT REPORTS

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- Chain of Custody (CoC) (COC)
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)
- EDI Format - ESDAT (ESDAT)

[redacted]

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- Chain of Custody (CoC) (COC)
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)
- EDI Format - ESDAT (ESDAT)

[redacted]

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- A4 - AU Tax Invoice (INV)
- Chain of Custody (CoC) (COC)
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)
- EDI Format - ESDAT (ESDAT)

[redacted]

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- Chain of Custody (CoC) (COC)
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)
- EDI Format - ESDAT (ESDAT)

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232883**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022 17:20
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44566	Issue Date	: 14-Nov-2022 15:37
Sampler	: [redacted]		
Site	: Landholder 4		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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	0207_MW019_221027	----	----	----	----
				Sampling date / time	27-Oct-2022 16:22	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232883-001	--------	--------	--------	--------
					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		**0.08**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.05**	----	----	----	----
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	0207_MW019_221027	----	----	----	----
				Sampling date / time	27-Oct-2022 16:22	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232883-001	--------	--------	--------	--------
					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		**0.13**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.13**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.13**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**84.2**	----	----	----	----
13C8-PFOA	----	0.02	%		**83.4**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2232883**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44566	Issue Date	: 14-Nov-2022
Sampler	: [redacted]		
Site	: Landholder 4		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4691053)									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	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

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: 4691053) - continued									
EB2227914-044	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: 4691053)									
EB2227914-005	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
EB2227914-044	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4691053)									
EB2227914-005	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: 4691053) - continued									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EB2227914-044	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	86.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	88.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	82.6	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	98.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	98.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	117	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	111	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	94.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.6	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	130	67.0	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	132	64.2	133
EP231P: PFAS Sums (QCLot: 4691053)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	109	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	99.6	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	106	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	103	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	91.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	114	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	90.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	129	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	111	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	103	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	111	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	122	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	130	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.4	70.0	130

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: 4691053) - continued							
EB2227914-006	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	111	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	125	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	107	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	128	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	113	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	133	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	123	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2232883**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Site	: Landholder 4	Issue Date	: 14-Nov-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563_2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW019_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_MW019_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0207_MW019_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_MW019_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_MW019_221027	**27-Oct-2022**	**11-Nov-2022**	25-Apr-2023	✓	**11-Nov-2022**	25-Apr-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	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2232884**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563_2.1	Quote number	: ES2022AECOMAU0018 (SY/139/19 v4 60612563_2.1)
C-O-C number	: 44567	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Landholder 5		
Sampler	: [redacted]		

Dates

Date Samples Received	: 04-Nov-2022 17:20	Issue Date	: 09-Nov-2022
Client Requested Due Date	: 14-Nov-2022	Scheduled Reporting Date	: **14-Nov-2022**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- ***SRN Reissued 09/11/2022 Please be advised that the project ID has been updated to QLD_0207_PFASOMP as per email request from** [redacted]
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232884-001	02-Nov-2022 16:23	0207_MW269_221102	✓

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

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- *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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[redacted]

- *AU Certificate of Analysis - NATA (COA) — Email
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email
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- EDI Format - ESDAT (ESDAT) — Email

[redacted]

- *AU Certificate of Analysis - NATA (COA) — Email
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email
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- A4 - AU Tax Invoice (INV) — Email
- Chain of Custody (CoC) (COC) — Email
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232884**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022 17:20
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44567	Issue Date	: 14-Nov-2022 15:38
Sampler	: [redacted]		
Site	: Landholder 5		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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	0207_MW269_221102	----	----	----	----
				Sampling date / time	02-Nov-2022 16:23	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232884-001	--------	--------	--------	--------
					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		**0.04**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.06**	----	----	----	----
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	0207_MW269_221102	----	----	----	----
				Sampling date / time	02-Nov-2022 16:23	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232884-001	--------	--------	--------	--------
					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		**0.10**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.10**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.10**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.0**	----	----	----	----
13C8-PFOA	----	0.02	%		**94.0**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2232884**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44567	Issue Date	: 14-Nov-2022
Sampler	: [redacted]		
Site	: Landholder 5		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4691053)									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	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

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: 4691053) - continued									
EB2227914-044	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: 4691053)									
EB2227914-005	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
EB2227914-044	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4691053)									
EB2227914-005	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: 4691053) - continued									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EB2227914-044	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	86.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	88.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	82.6	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	98.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	98.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	117	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	111	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	94.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.6	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	130	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: 4691053) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	132	64.2	133
EP231P: PFAS Sums (QCLot: 4691053)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	109	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	99.6	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	106	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	103	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	91.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	114	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	90.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	129	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	111	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	103	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	111	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	122	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	130	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.4	70.0	130

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: 4691053) - continued							
EB2227914-006	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	111	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	125	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	107	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	128	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	113	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	133	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	123	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2232884**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Site	: Landholder 5	Issue Date	: 14-Nov-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563_2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW269_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW269_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_MW269_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW269_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0207_MW269_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-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	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2232886**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: +[redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563_2.1	Quote number	: ES2022AECOMAU0018 (SY/139/19 v4 60612563_2.1)
C-O-C number	: 44568	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Landholder 6		
Sampler	: [redacted]		

Dates

Date Samples Received	: 04-Nov-2022 17:20	Issue Date	: 09-Nov-2022
Client Requested Due Date	: 14-Nov-2022	Scheduled Reporting Date	: **14-Nov-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- ***SRN Reissued 09/11/2022 Please be advised that the project ID has been updated to QLD_0207_PFASOMP as per email request from** [redacted]
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232886-001	02-Nov-2022 16:24	0207_MW134_221102	✓

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)

[redacted]

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- Chain of Custody (CoC) (COC)
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)
- EDI Format - ESDAT (ESDAT)

DERP REPORTS

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- Chain of Custody (CoC) (COC)
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)
- EDI Format - ESDAT (ESDAT)

[redacted]

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- Chain of Custody (CoC) (COC)
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)
- EDI Format - ESDAT (ESDAT)

[redacted]

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- A4 - AU Tax Invoice (INV)
- Chain of Custody (CoC) (COC)
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)
- EDI Format - ESDAT (ESDAT)

[redacted]

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- Chain of Custody (CoC) (COC)
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)
- EDI Format - ESDAT (ESDAT)

[redacted]

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232886**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022 17:20
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44568	Issue Date	: 14-Nov-2022 15:43
Sampler	: [redacted]		
Site	: Landholder 6		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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	0207_MW134_221102	----	----	----	----
				Sampling date / time	02-Nov-2022 16:24	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232886-001	--------	--------	--------	--------
					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		**0.05**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.04**	----	----	----	----
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	0207_MW134_221102	----	----	----	----
				Sampling date / time	02-Nov-2022 16:24	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232886-001	--------	--------	--------	--------
					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		**0.09**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.09**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.09**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**107**	----	----	----	----
13C8-PFOA	----	0.02	%		**91.3**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2232886**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44568	Issue Date	: 14-Nov-2022
Sampler	: [redacted]		
Site	: Landholder 6		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4691053)									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	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

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: 4691053) - continued									
EB2227914-044	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: 4691053)									
EB2227914-005	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
EB2227914-044	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4691053)									
EB2227914-005	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: 4691053) - continued									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EB2227914-044	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	86.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	88.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	82.6	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	98.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	98.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	117	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	111	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	94.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.6	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	130	67.0	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	132	64.2	133
EP231P: PFAS Sums (QCLot: 4691053)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	109	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	99.6	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	106	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	103	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	91.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	114	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	90.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	129	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	111	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	103	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	111	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	122	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	130	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.4	70.0	130

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: 4691053) - continued							
EB2227914-006	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	111	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	125	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	107	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	128	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	113	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	133	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	123	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2232886**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Site	: Landholder 6	Issue Date	: 14-Nov-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563_2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW134_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW134_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_MW134_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW134_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0207_MW134_221102	**02-Nov-2022**	**11-Nov-2022**	01-May-2023	✓	**11-Nov-2022**	01-May-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	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2232888**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563_2.1	Quote number	: ES2022AECOMAU0018 (SY/139/19 v4 60612563_2.1)
C-O-C number	: 44569	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Landholder 7		
Sampler	: [redacted]		

Dates

Date Samples Received	: 04-Nov-2022 17:20	Issue Date	: 09-Nov-2022
Client Requested Due Date	: 14-Nov-2022	Scheduled Reporting Date	: **14-Nov-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- ***SRN Reissued 09/11/2022 Please be advised that the project ID has been updated to QLD_0207_PFASOMP as per email request from** [redacted]
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232888-001	03-Nov-2022 16:26	0207_MW038_221103	✓

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

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- *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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[redacted]

- *AU Certificate of Analysis - NATA (COA) — Email
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email
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- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[redacted]

- *AU Certificate of Analysis - NATA (COA) — Email
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- EDI Format - ESDAT (ESDAT) — Email

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232888**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022 17:20
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44569	Issue Date	: 14-Nov-2022 12:22
Sampler	: [redacted]		
Site	: Landholder 7		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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	0207_MW038_221103	----	----	----	----
				Sampling date / time	03-Nov-2022 16:26	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232888-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.06**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.05**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.31**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.03**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.62**	----	----	----	----
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		**0.07**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.04**	----	----	----	----
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	0207_MW038_221103	----	----	----	----
				Sampling date / time	03-Nov-2022 16:26	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232888-001	--------	--------	--------	--------
					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		**1.18**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.93**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.10**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.5**	----	----	----	----
13C8-PFOA	----	0.02	%		**90.5**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2232888**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44569	Issue Date	: 14-Nov-2022
Sampler	: [redacted]		
Site	: Landholder 7		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4691053)									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	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

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: 4691053) - continued									
EB2227914-044	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: 4691053)									
EB2227914-005	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
EB2227914-044	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4691053)									
EB2227914-005	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: 4691053) - continued									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EB2227914-044	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	86.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	88.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	82.6	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	98.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	98.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	117	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	111	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	94.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.6	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	130	67.0	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	132	64.2	133
EP231P: PFAS Sums (QCLot: 4691053)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	109	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	99.6	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	106	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	103	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	91.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	114	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	90.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	129	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	111	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	103	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	111	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	122	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	130	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.4	70.0	130

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: 4691053) - continued							
EB2227914-006	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	111	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	125	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	107	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	128	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	113	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	133	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	123	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2232888**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: +[redacted]
Project	[redacted]	Date Samples Received	: 04-Nov-2022
Site	: Landholder 7	Issue Date	: 14-Nov-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563_2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW038_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW038_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_MW038_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW038_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0207_MW038_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-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	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2232889**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: +[redacted]
Facsimile	: ----	Facsimile	: +[redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 3
Order number	: 60612563_2.1	Quote number	: ES2022AECOMAU0018 (SY/139/19 v4 60612563_2.1)
C-O-C number	: 44570	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Landholder 8		
Sampler	: [redacted]		

Dates

Date Samples Received	: 04-Nov-2022 17:20	Issue Date	: 09-Nov-2022
Client Requested Due Date	: 14-Nov-2022	Scheduled Reporting Date	: **14-Nov-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- ***SRN Reissued 09/11/2022 Please be advised that the project ID has been updated to QLD_0207_PFASOMP as per email request from** [redacted]
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232889-001	03-Nov-2022 16:27	0207_MW361_221103	✓

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

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- *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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[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
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- EDI Format - ESDAT (ESDAT) — Email

[redacted]

- *AU Certificate of Analysis - NATA (COA) — Email
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email
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- EDI Format - ESDAT (ESDAT) — Email

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232889**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022 17:20
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44570	Issue Date	: 14-Nov-2022 17:09
Sampler	: [redacted]		
Site	: Landholder 8		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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	0207_MW361_221103	----	----	----	----
				Sampling date / time	03-Nov-2022 16:27	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232889-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.15**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.18**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**1.52**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.08**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**3.38**	----	----	----	----
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		**0.04**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.25**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.04**	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.10**	----	----	----	----
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	0207_MW361_221103	----	----	----	----
				Sampling date / time	03-Nov-2022 16:27	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232889-001	--------	--------	--------	--------
					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		**5.84**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**4.90**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**5.58**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.4**	----	----	----	----
13C8-PFOA	----	0.02	%		**91.5**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2232889**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44570	Issue Date	: 14-Nov-2022
Sampler	: [redacted]		
Site	: Landholder 8		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4691053)									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	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

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: 4691053) - continued									
EB2227914-044	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: 4691053)									
EB2227914-005	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
EB2227914-044	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4691053)									
EB2227914-005	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: 4691053) - continued									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EB2227914-044	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	86.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	88.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	82.6	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	98.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	98.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	117	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	111	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	94.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.6	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	130	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: 4691053) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	132	64.2	133
EP231P: PFAS Sums (QCLot: 4691053)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	109	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	99.6	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	106	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	103	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	91.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	114	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	90.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	129	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	111	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	103	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	111	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	122	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	130	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.4	70.0	130

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: 4691053) - continued							
EB2227914-006	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	111	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	125	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	107	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	128	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	113	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	133	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	123	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2232889**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Site	: Landholder 8	Issue Date	: 14-Nov-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563_2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW361_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW361_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_MW361_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW361_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0207_MW361_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-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	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EB2232890**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: +[redacted]
Facsimile	: ----	Facsimile	: +[redacted]
Project	: QLD_0270_PFASOMP	Page	: 1 of 3
Order number	: 60612563_2.1	Quote number	: ES2022AECOMAU0018 (SY/139/19 v4 60612563_2.1)
C-O-C number	: 44571	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Landholder 9		
Sampler	: [redacted]		

Dates

Date Samples Received	: 04-Nov-2022 17:20	Issue Date	: 07-Nov-2022
Client Requested Due Date	: 14-Nov-2022	Scheduled Reporting Date	: **14-Nov-2022**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EB2232890-001	03-Nov-2022 16:28	0207_MW362_221103	✓

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

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

DERP ESDAT REPORTS

- *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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[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
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- Chain of Custody (CoC) (COC) — Email
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[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
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- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

[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 - EQUIS V5 AECOM (EQUIS_V5_AECOM) — Email
- EDI Format - ESDAT (ESDAT) — Email

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232890**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	[redacted]
Address	: [redacted]	Address	[redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022 17:20
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44571	Issue Date	: 14-Nov-2022 12:21
Sampler	: [redacted]		
Site	: Landholder 9		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- 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	0207_MW362_221103	----	----	----	----
				Sampling date / time	03-Nov-2022 16:28	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232890-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.38**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.27**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.60**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.52**	----	----	----	----
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		**0.09**	----	----	----	----
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	0207_MW362_221103	----	----	----	----
				Sampling date / time	03-Nov-2022 16:28	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2232890-001	--------	--------	--------	--------
					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		**1.99**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.12**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.72**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.1**	----	----	----	----
13C8-PFOA	----	0.02	%		**92.8**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB2232890**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Order number	: 60612563_2.1	Date Analysis Commenced	: 08-Nov-2022
C-O-C number	: 44571	Issue Date	: 14-Nov-2022
Sampler	: [redacted]		
Site	: Landholder 9		
Quote number	: SY/139/19 v4 60612563_2.1		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

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: 4691053)									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	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

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: 4691053) - continued									
EB2227914-044	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: 4691053)									
EB2227914-005	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
EB2227914-044	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4691053)									
EB2227914-005	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: 4691053) - continued									
EB2227914-005	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
EB2227914-044	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: 4691053)									
EB2227914-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EB2227914-044	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	86.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	88.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	82.6	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	98.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	98.7	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	117	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	111	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	94.0	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.6	62.6	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	130	67.0	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	132	64.2	133
EP231P: PFAS Sums (QCLot: 4691053)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	109	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	99.6	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	106	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	103	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	91.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	114	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	90.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	129	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	111	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	103	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	111	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	122	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	130	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	92.4	70.0	130

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: 4691053) - continued							
EB2227914-006	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	111	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	125	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	107	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4691053)							
EB2227914-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	128	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	113	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	133	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	123	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2232890**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 04-Nov-2022
Site	: Landholder 9	Issue Date	: 14-Nov-2022
Sampler	: [redacted]	No. of samples received	: 1
Order number	: 60612563_2.1	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW362_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW362_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0207_MW362_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0207_MW362_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0207_MW362_221103	**03-Nov-2022**	**11-Nov-2022**	02-May-2023	✓	**11-Nov-2022**	02-May-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	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2242590**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Facsimile	: [redacted]	Facsimile	: [redacted]
Project	: QLD_0207_PFASOMP	Page	: 1 of 2
Order number	: 60612563 2.1	Quote number	: ES2020AECOMAU0024 (SY/139/19 V3_QLD)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 24-Nov-2022 15:00	Issue Date	: 24-Nov-2022
Client Requested Due Date	: 01-Dec-2022	Scheduled Reporting Date	: **01-Dec-2022**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 18.7'C
Receipt Detail	: 1 BAG	No. of samples received / analysed	: 5 / 5

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)
ES2242590-001	25-Oct-2022 00:00	0207_QC263_221025	✓
ES2242590-002	26-Oct-2022 00:00	0207_QC264_221026	✓
ES2242590-003	26-Oct-2022 00:00	0207_QC265_221026	✓
ES2242590-004	27-Oct-2022 00:00	0207_QC266_221027	✓
ES2242590-005	02-Nov-2022 00:00	0207_QC267_221102	✓

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	

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 - ESDAT (ESDAT)	Email	

[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 - ESDAT (ESDAT)	Email	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2242590**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 24-Nov-2022 15:00
Order number	: 60612563 2.1	Date Analysis Commenced	: 25-Nov-2022
C-O-C number	: ----	Issue Date	: 01-Dec-2022 13:05
Sampler	[redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 5		
No. of samples analysed	: 5		

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.
- 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: **WATER**
(Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	0207_QC263_221025	0207_QC264_221026	0207_QC265_221026	0207_QC266_221027	0207_QC267_221102
				Sampling date / time	25-Oct-2022 00:00	26-Oct-2022 00:00	26-Oct-2022 00:00	27-Oct-2022 00:00	02-Nov-2022 00:00
					ES2242590-001	ES2242590-002	ES2242590-003	ES2242590-004	ES2242590-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.50**	**0.44**	**0.92**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.65**	**0.56**	**0.98**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**4.56**	**2.43**	**4.90**	**0.06**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.65**	**0.03**	**0.50**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**17.8**	**0.12**	**17.2**	**0.03**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	**0.06**	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.5**	**0.2**	**1.0**	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.97**	**0.28**	**3.37**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.83**	**0.91**	**3.21**	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.49**	**0.11**	**1.69**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.82**	**0.07**	**1.74**	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	**0.19**	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	**0.11**	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	**0.03**	<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: WATER (Matrix: WATER)				Sample ID	0207_QC263_221025	0207_QC264_221026	0207_QC265_221026	0207_QC266_221027	0207_QC267_221102
				Sampling date / time	25-Oct-2022 00:00	26-Oct-2022 00:00	26-Oct-2022 00:00	27-Oct-2022 00:00	02-Nov-2022 00:00
Compound	CAS Number	LOR	Unit		ES2242590-001	ES2242590-002	ES2242590-003	ES2242590-004	ES2242590-005
					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	<0.05
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		**0.07**	<0.05	**4.68**	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	**2.71**	<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		**28.8**	**5.15**	**43.3**	**0.09**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**22.4**	**2.55**	**22.1**	**0.09**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**27.5**	**4.56**	**41.4**	**0.09**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.9**	**87.8**	**90.5**	**102**	**96.3**
13C8-PFOA	----	0.02	%		**102**	**95.2**	**97.0**	**99.9**	**99.3**

Surrogate Control Limits

Sub-Matrix: **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	: **ES2242590**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 24-Nov-2022
Order number	: 60612563 2.1	Date Analysis Commenced	: 25-Nov-2022
C-O-C number	: ----	Issue Date	: 01-Dec-2022
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3_QLD		
No. of samples received	: 5		
No. of samples analysed	: 5		

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: 4730710)									
CA2207965-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.05	<0.05	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4730710)									
CA2207965-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.05	<0.05	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	<0.05	<0.05	0.0	No Limit
		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	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.2	<0.2	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4730710)									
CA2207965-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	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: 4730710) - continued									
CA2207965-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.12	<0.12	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4730710)									
CA2207965-001	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
		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: 4730710)									
CA2207965-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.05	<0.05	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: 4730710)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	88.0	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	87.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	104	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	100	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	119	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4730710)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	107	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	97.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	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	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	118	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	107	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4730710)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	110	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	104	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	102	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	107	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	83.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4730710)								
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	115	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	119	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: 4730710) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	104	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	: **ES2242590**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]
Project	: QLD_0207_PFASOMP	Date Samples Received	: 24-Nov-2022
Site	: ----	Issue Date	: 01-Dec-2022
Sampler	: [redacted]	No. of samples received	: 5
Order number	: 60612563 2.1	No. of samples analysed	: 5

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	1	19	5.26	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	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) 0207_QC267_221102	**02-Nov-2022**	**28-Nov-2022**	01-May-2023	✓	**29-Nov-2022**	01-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC263_221025	**25-Oct-2022**	**28-Nov-2022**	23-Apr-2023	✓	**29-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC264_221026, 0207_QC265_221026	**26-Oct-2022**	**28-Nov-2022**	24-Apr-2023	✓	**29-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC266_221027	**27-Oct-2022**	**28-Nov-2022**	25-Apr-2023	✓	**29-Nov-2022**	25-Apr-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0207_QC267_221102	**02-Nov-2022**	**28-Nov-2022**	01-May-2023	✓	**29-Nov-2022**	01-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC263_221025	**25-Oct-2022**	**28-Nov-2022**	23-Apr-2023	✓	**29-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC264_221026, 0207_QC265_221026	**26-Oct-2022**	**28-Nov-2022**	24-Apr-2023	✓	**29-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC266_221027	**27-Oct-2022**	**28-Nov-2022**	25-Apr-2023	✓	**29-Nov-2022**	25-Apr-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) 0207_QC267_221102	**02-Nov-2022**	**28-Nov-2022**	01-May-2023	✓	**29-Nov-2022**	01-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC263_221025	**25-Oct-2022**	**28-Nov-2022**	23-Apr-2023	✓	**29-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC264_221026, 0207_QC265_221026	**26-Oct-2022**	**28-Nov-2022**	24-Apr-2023	✓	**29-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC266_221027	**27-Oct-2022**	**28-Nov-2022**	25-Apr-2023	✓	**29-Nov-2022**	25-Apr-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0207_QC267_221102	**02-Nov-2022**	**28-Nov-2022**	01-May-2023	✓	**29-Nov-2022**	01-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC263_221025	**25-Oct-2022**	**28-Nov-2022**	23-Apr-2023	✓	**29-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC264_221026, 0207_QC265_221026	**26-Oct-2022**	**28-Nov-2022**	24-Apr-2023	✓	**29-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC266_221027	**27-Oct-2022**	**28-Nov-2022**	25-Apr-2023	✓	**29-Nov-2022**	25-Apr-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0207_QC267_221102	**02-Nov-2022**	**28-Nov-2022**	01-May-2023	✓	**29-Nov-2022**	01-May-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC263_221025	**25-Oct-2022**	**28-Nov-2022**	23-Apr-2023	✓	**29-Nov-2022**	23-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC264_221026, 0207_QC265_221026	**26-Oct-2022**	**28-Nov-2022**	24-Apr-2023	✓	**29-Nov-2022**	24-Apr-2023	✓
HDPE (no PTFE) (EP231X) 0207_QC266_221027	**27-Oct-2022**	**28-Nov-2022**	25-Apr-2023	✓	**29-Nov-2022**	25-Apr-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	1	19	**5.26**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**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.

Appendix F

Equipment Calibration Certificates

Appendix F Equipment Calibration Certificates

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	OMP - AACO	**Project Number:**	60612563
Project Location:	Oakey Defence Base	**Client:**	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:	
Make and Model:	YSI Pro Series
Serial Number:	18J104306

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	24.10.22 11:30				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2918	0.00	222.4
Calibration Reading:	4.05	6.94	2695	0.00	222.3
Calibration Temperature:	28.0	27.7	28.0	27.2	28.2

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2918	0.00	222.4
Bump Test Reading:	4.02	7.01	2912	0.01	222.1
Bump Test Temperature:	27.8	27.6	27.8	28.1	27.9

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

24.10.22 — Date

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	OMP - AACO	**Project Number:**	60612563
Project Location:	Oakey Defence Base	**Client:**	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:	
Make and Model:	YSI Pro Series
Serial Number:	18J104306

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time: 25.10.22 05:45

Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2602	0.00	235.6
Calibration Reading:	5.99	7.02	2600	0.00	232.7
Calibration Temperature:	22.4	22.2	22.3	22.5	22.3

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time: 25.10.22 05:45

Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2602	0.00	235.6
Bump Test Reading:	4.00	7.00	2593	0.00	235.9
Bump Test Temperature:	22.2	22.2	22.1	22.5	22.3

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] 25.10.22

e Date

Distribution: Project Central File

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	OMP - AACO	**Project Number:**	60612563
Project Location:	Oakey Defence Base	**Client:**	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:	
Make and Model:	YSI Pro Series
Serial Number:	18J104306

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	05:50 26.10.22				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2549	0.00	237.8
Calibration Reading:	4.03	7.03	2548	0.00	234.4
Calibration Temperature:	20.9	20.8	20.9	20.7	20.8

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	05:50 26.10.22				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2549	0.00	237.8
Bump Test Reading:	4.03	7.01	2541	0.00	235.5
Bump Test Temperature:	21.0	20.8	21.0	20.8	20.9

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

26.10.22 — Date

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	OMP - AACO	**Project Number:**	60612563
Project Location:	Oakey Defence Base	**Client:**	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:	
Make and Model:	YSI Pro Series
Serial Number:	18J104306

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	27.10.22 05:35				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2496	0.00	237.8
Calibration Reading:	4.00	6.97	2283	0.01	238.2
Calibration Temperature:	20.3	20.2	20.2	20.8	20.5

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:	27.10.22 05:35				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2496	0.00	237.8
Bump Test Reading:	4.03	6.99	2491	0.00	237.4
Bump Test Temperature:	20.3	20.2	20.3	20.8	20.6

COMMENTS

Detail any equipment faults, minor maintenance performed, change of batteries or technical support provided.

YSI randomly turns off

Approval and Distribution

☑ Each individual instrument has been inspected and calibrated daily and bump tested as required by fieldwork staff.

[redacted] — Fieldwork Staff Signature

27.10.22 — Date

Distribution: Project Central File

AECOM

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	OMP - AACO	**Project Number:**	60612563
Project Location:	Oakey	**Client:**	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:	
Make and Model:	YSI Pro Series
Serial Number:	18J104306

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	2.11.22				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2496	0	237.8
Calibration Reading:	4.02	7.02	2487	0.00	235.4
Calibration Temperature:	20.1	19.9	20.4	20.5	21.1

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2496	0	237.8
Bump Test Reading:	4.01	7.00	2490	0.00	237.4
Bump Test Temperature:	20.3	20.0	20.2	20.4	21.4

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] 02.11.22

Date

Distribution: Project Central File

ANZ

FQM - Water Quality Meter Calibration Record

Q4AN(EV)-410-FM1

Project Name:	OMP - AACO	**Project Number:**	60612563
Project Location:	Oakey Defence Base	**Client:**	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:	
Make and Model:	YSI Pro Series
Serial Number:	18J104306

CALIBRATION

CALIBRATE WITH CALIBRATION SOLUTIONS

Date and Time:	03.11.22				
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	7549	0.00	235.6
Calibration Reading:	4.03	7.01	2525	0.00	232.7
Calibration Temperature:	20.1	20.2	21.1	21.0	22.3

ONGOING CHECKS

BUMP TEST WITH CALIBRATION SOLUTION

Date and Time:					
Parameter	Acidity		Conductivity	Dissolved Oxygen	
Units	pH	pH	µS/cm	~~ppm~~ mg/L	~~ppm~~ ORP
Calibration Standard Concentration:	4.00	7.00	2549	0.00	235.6
Bump Test Reading:	4.03	7.00	2536	0.00	235.4
Bump Test Temperature:	20.2	20.5	~~20.5~~ 20.5	21.0	22.3

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

03.11.22 — Date

Distribution: Project Central File

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 18J104306

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	**NIST**	386467	pH 7.01
2. pH 4.00		pH 4.00	**NIST**	384826	pH 4.01
3. mV		238.9mV	**NIST**	385070/387761	238.9mV
4. EC		2760uS	**NIST**	385047	2760uS
6. D.O		100%	**NIST**		99.7% - 756.6mmHg
7. Temp		20.7	**NIST**	MultiTherm 09000528	20.5°C

Calibrated by: [redacted]

Calibration date: **16-Aug-22**

Next calibration due: **12-Feb-23**

Oil / Water Interface Meter

Instrument Interface Meter (60M)
Serial No. 312447

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Calibrated by: [redacted]

Calibration date: **26/08/2022**

Next calibration due: **25/10/2022**

Oil / Water Interface Meter

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Instrument Interface Meter (30M)
Serial No. 312522

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Calibrated by: [redacted]

Calibration date: **22-Nov-22**

Next calibration due: **21/01/2023**

Multi Parameter Water Meter

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Instrument **YSI Quatro Pro Plus**
Serial No. **18J104332**

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		386467	pH 7.01
2. pH 4.00		pH 4.00		389384	pH 4.01
3. ORP		234.5mV		375760/387761	234.5mV
4. EC		2760uS		385047	2760uS
5. D.O		100%			99.6% - 757mmHg
6. Temp		22.4oC		MultiTherm 09000528	22.5oC

Calibrated by: [redacted]

Calibration date: **22/11/2022**

Next calibration due: **22/12/2022**

Appendix F

Sampling Analysis and Quality Plan

Prepared for
Department of Defence
ABN: 68 706 814 312

AECOM

PFAS OMP- AACO Sampling and Analysis Quality Plan

26-Sep-2022
PFAS Ongoing Monitoring Plan
Doc No. 60612563_PL03_5_220926

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Delivering a better world

PFAS OMP- AACO Sampling and Analysis Quality Plan

Client: Department of Defence

ABN: 68 706 814 312

Prepared by

AECOM Australia Pty Ltd
Level 8, 540 Wickham Street, PO Box 1307, Fortitude Valley QLD 4006, Australia
T +61 7 3056 4800 www.aecom.com
ABN 20 093 846 925

26-Sep-2022

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Quality Information

Document PFAS OMP- AACO Sampling and Analysis Quality Plan

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Prepared by Emma Rogers

Reviewed by James Peachey

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
A	11 October 2019	Draft	Frances Lee Project Director	
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4	14 March 2022	Final	James Peachey Project Manager	
5	26-Sep-2022	Final	James Peachey Project Manager	

Table of Contents

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 substances (PFAS) Ongoing Monitoring Plan at the **Army Aviation Centre Oakey (AACO)** (the 'site') and the **AACO Management Area** in the **South Queensland Region**. The SAQP also includes a satellite site of AACO (Brymaroo Satellite Site, hereafter Brymaroo) located approximately 22 km northwest of the AACO.

The SAQP supports the *PFAS Ongoing Monitoring Plan (OMP)* which was included in the AACO PFAS Management Area Plan (PMAP) (Defence, 2019), here-in referred to as OMP.

The purpose of the OMP program is to collect data that will enable Defence to maintain an up to date understanding of the distribution, concentration, transport (migration pathways and flow) and transformation of PFAS at the site and AACO Management Area. 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).

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 data quality assurance and quality control (QAQC) measures to be adopted
- define the data collection requirements for the project.

1.3 Scope of Works

To meet the project objectives, the following scope of works were proposed as per the OMP (Defence, 2019):

- Annual comprehensive sampling event in March/April 2020, March/April 2021, March/April 2022, March/April 2023 and March/April 2024 including:
  - groundwater sampling of 47 on-site groundwater monitoring wells (34 at AACO and 13 at Brymaroo) and 49 off-site groundwater monitoring wells and bores
  - co-located sediment and surface water sampling at six on-site and 16 off-site sampling locations
- Targeted sampling event in October 2019, October 2020, October 2021, October 2022 and October 2023 including groundwater sampling of 34 on-site groundwater monitoring wells (at AACO) and 14 off-site groundwater monitoring wells and bores.
- Preparation of reports including a sampling event factual report (following each comprehensive and targeted sampling event) and annual interpretative reports following the completion of each 12-month sampling period.

Since the OMP was issued in 2019 there have been some minor changes in the number of groundwater sampling locations due to property owners declining permission or monitoring wells being destroyed. **Section 4.3.2** to **Section 4.3.4** provides the updated list of sampling locations.

1.4 Guidelines and Legislation

The SAQP has been developed with reference to the following guidelines and legislation:

- PFAS National Environmental Management Plan (NEMP), Heads of Environmental Protection Agencies (HEPA), version 2.0 2020

- National Environment Protection (Assessment of Site Contamination) Measure (NEPM), National Environment Protection Council (NEPC), 2013
- Department of Defence, Routine Environment Water Quality Monitoring Manual, 2016
- Department of Defence, Contamination Management Manual, 2018 amended 2021
- Department of Health, Health Based Guidance Values for PFAS for use in site investigations in Australia. 2019
- National Health and Medical Research Council (NHMRC), Guidance on PFAS in Recreational Water. August 2019
- 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
- Environmental Protection Policy, (Water and Wetland Biodiversity), 2019.

2.0 Site Identification and Conceptual Site Model

2.1 The Base and Management Area

AACO was constructed in 1943, initially as a training facility and overflow aircraft maintenance depot for RAAF Base Amberley. The Site currently operates as the Army's helicopter training school for pilots and aviation technicians and is also home to a Republic of Singapore Airforce helicopter squadron. The northern part of AACO is the airfield, while the southern part of AACO comprises support services, buildings and infrastructure. Approximately 290 hectares of the Site are leased for agriculture in the western portion of AACO.

The Brymaroo site is approximately 266 hectares in size and is used for training in emergency landings and fire hazard training. AFFF containers are present for use in emergencies. No known training exercises using AFFF are known. The key objective of an environmental investigation conducted between 2016 and 2018 was to characterise potential environmental impacts from the historical use of AFFF.

The AACO Management Area was established in 2017 and comprises three zones:

- **Management Zone 1:** this zone is located immediately to the south and southwest of AACO. It has the highest perfluorooctanesulfonic acid (PFOS) + perfluorohexanesulfonic acid (PFHxS) concentrations in groundwater in the Management Area given its closer proximity to the AACO and potential downwards migration of PFAS from surface water in drainage channels 1 and 2.
- **Management Zone 2:** this zone is located further to the south and southwest of the AACO. It has higher PFOS+PFHxS concentrations in groundwater in comparison with Management Zone 3 as a result of a combination of impacted groundwater flowing to the south and west from the Site together with downwards migration of PFAS-impacted surface water from the drains leaving the Site.
- **Management Zone 3:** located outside Management Zone 1 and Zone 2 and within the remainder of the Management Area. PFAS was not detected by the laboratory in the majority of groundwater samples collected from groundwater monitoring bores in this Management Zone.

Defence has issued precautionary advice for residents within each management zone.

2.2 Conceptual Site Model

The conceptual site models (CSM) for AACO and Brymaroo are presented in detail in the OMP (Defence, 2019) which summarises the linkages between sources, pathways and receptors.

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 following seven steps:

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 discussed below.

3.1.1 Step 1 – State the Problem

Defence and State agencies require up-to-date data to enable informed risk management decisions to protect human health and the environment, given that elevated concentrations of PFAS have been identified in environmental media.

Defence required an understanding of the holistic effect of PFAS management response activities that have and will be implemented.

The data collected by this SAQP will provide a detailed dataset that can be used to assist with assessment of temporal changes in PFAS concentrations in groundwater and surface water / sediment on- and off-site. This will facilitate refinement of the CSM, allow update of the human health and ecological risk assessment and inform management decisions by Defence and government agencies.

3.1.2 Step 2 – Identify the Goal of the Study

The overall goal of the study is to establish a systematic routine groundwater and surface water / sediment sampling and analysis program to provide current and ongoing information on the distribution

and migration of PFAS contaminants of potential concern in groundwater and surface water / sediment in the Management Area.

Specific goals of the program are to:

- understand the changes and trends in the nature, extent and magnitude of PFAS concentrations in the groundwater, surface water and sediment within the Management Area
- understand if the nature, extent and magnitude of PFAS concentrations has changed significantly to warrant a revision to the human health and environmental risk assessments
- understand if the nature, extent and magnitude of PFAS concentrations have changed significantly to warrant refinement of any existing management measures.

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:

- PFAS results from previous investigations
- meteorological data including rainfall
- previous and new data collected during the residential sampling program where permission to use the data has been granted by landowners
- groundwater, surface water and sediment data collected and analysed for PFAS, as part of the SAQP
- groundwater and surface water elevation data
- statistical analysis to identify trends
- advances in laboratory analytical approaches and changes in regulatory requirements.

3.1.4 Step 4 – Define the Boundaries of the Study

The spatial and temporal boundaries that apply for data collection are detailed below and will influence the decision-making process for ongoing monitoring:

- The spatial boundary for data collection and decision making is the site, the Management Area and Brymaroo (refer to **Appendix A**)
- The sampling completed as part of the SAQP includes groundwater, surface water and sediment, at the frequencies defined in **Section 4.3**. In addition, ad hoc sampling for biota may also be required
- The monitoring will be long term and potentially ongoing.

The SAQP will also cover the primary implementation period of the OMP (Defence, 2019). The SAQP will also cover the extended implementation period to the extent required by specific characteristics of the Base and surrounds, and behaviour of the plume, measured against specified data trends.

3.1.5 Step 5 – Develop the Analytical Approach

The decision rules can be defined as:

- Analytical selection; all samples will be analysed for the extended PFAS suite.
- Analytical method selection for PFAS is based on achieving appropriate laboratory LOR in the various media to be analysed.
- Sample locations have been selected with the objective of monitoring PFAS trends (temporal and seasonal), providing early warning of changes in the migration of PFAS in surface water and groundwater.

- If the laboratory quality assurance / quality control data are within the acceptable ranges, the data will be considered suitable for use.
- If PFAS concentrations are reported above the laboratory LOR, where it was previously <LOR, then it will be considered whether further assessment of the data will be required.
- If the PFAS is reported at a concentration that is above drinking water guideline in groundwater, then it will be considered that further assessment is required and / or notification.
- If the PFAS is reported at a concentration that is inside a trigger value or acceptable range, then it will be considered whether monitoring is continued or reduced, this assessment will be undertaken after two years of monitoring.

The decision on the acceptance of the analytical data will be made on the basis of the Data Quality Indicators (DQIs) as follows:

- **Precision:** A quantitative measure of the variability (or reproducibility) of data.
- **Accuracy**: A quantitative measure of the closeness of reported data to the “true” value.
- **Representativeness**: The confidence (expressed qualitatively) that data are representative of each media present on site.
- **Completeness**: A measure of the amount of useable data from a data collection activity.
- **Comparability**: The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event.

3.1.6 Step 6 – Specify Performance or Acceptance Criteria

Specific limits for the works included in the OMP (Defence, 2019) are in accordance with the appropriate guidance made or endorsed by state and national regulations, appropriate indicators of data quality, and standard procedures for field sampling and handling.

This step also examines the certainty of conclusive statements based on the available new data collected. This should include the following points to quantify tolerable limits:

- A decision can be made based on a certainty assumption of 95% confidence in any given data set. A limit on the decision error will be 5% that a conclusive statement may be a false positive or false negative.
- A decision error in the context of the decision rule presented above would lead to either underestimation or overestimation of the risk level associated with a particular sampling area.
- Sampling errors may occur when the sampling program does not adequately detect the variability of a contaminant from point to point across the site. To address this, the OMP outlines minimum numbers of samples proposed to be collected from each media.
- As such, there may be limitations in the data if aspects of the OMP cannot be implemented. Some examples of this scenario include but are not limited to:
    - Proposed surface water sample locations may be dry at the time of sampling
    - Proposed groundwater well locations are damaged or destroyed and therefore cannot be sampled
    - Proposed samples are not collected due to access being restricted to a given location.
- Limitations in ability to acquire useful and representative information from the data collected. The data are proposed to be collected from multiple locations and sample media. Some examples of this scenario include:
    - Some of the data are proposed to be collected from landholder bores, which are not purpose-built for groundwater monitoring. In some cases, there is limited information on the bore construction, and the likely presence of dedicated pumps or windmills may prevent groundwater depths being accurately recorded while also preventing groundwater being sampled using low flow techniques.

- Measurement errors can occur during sample collection, handling, preparation, analysis and data reduction. To address this the following measures are proposed:
  - Collection of sufficient sample mass to facilitate analysis reported to standard laboratory detections limits. Collection of insufficient sample mass may result in raised detection limits.
  - Field staff to follow a standard procedure when collecting samples, including decontamination of tools, and use of appropriate sample containers and preservation methods.
  - Laboratories to follow a standard procedure when preparing samples for analysis and undertaking analysis.
  - Laboratories to report quality assurance/ quality control data for comparison with the DQIs established for the SAQP.

3.1.7 Step 7 – Optimise the Design for Obtaining Data

The methodology presented in this SAQP is designed to meet the project objectives described in **Section 1.2** and to achieve the nominated DQOs. 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 (i.e. groundwater monitoring well sampling versus landholder bore water sampling). These standards are as follows:
  - Department of Defence (July 2018, Amended August 2019), *Contamination Management Manual*
  - 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*
  - Standards Australia (AS 4482.2-1999) *Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile Substances*
- conducting sampling in accordance with AECOM's internal PFAS Sample Collection Guidance
- sampling conducted by suitably qualified and experienced field staff
- basing the sampling upon a CSM developed using the information available at the implementation of the SAQP. Updating the CSM as new data becomes available in the course of the implementation of the SAQP, as required
- progressive review of the data throughout the initial three-year OMP period and modification of sampling programs to optimise the value of data generated.

If the objectives of the SAQP are not being met, the sampling design and approach will be reviewed and amended, as required.

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 specified in **Table 2**.

Table 2 Acceptance Criteria for Data Quality Indicators for Sample Analysis

Data Quality Indicators	Acceptance Criteria
Water and Sediment Samples	
Rinsates (where sampling equipment is reused)	Less than the laboratory LOR.
Field duplicates/Inter-lab duplicates	The RPDs will be assessed as acceptable if less than or equal to 30% as per the NEPM Schedule B3. Where the results shows 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.

4.0 Sampling Location Rationale and Methodology

4.1 OMP

The OMP (Defence, 2019) 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 consistent with that detailed in the OMP[1] (Defence, 2019), with the exception of those points of deviation presented in **Section 4.15**.

4.2 Proposed Schedule

4.2.1 Sampling Events

Groundwater, surface water and sediment sampling from across the Management Area will be performed biannually as part of a comprehensive sampling event in March/April and a targeted sampling event in October. The proposed schedule of fieldworks is presented in **Table 3** below.

Table 3 Proposed Fieldwork Schedule

Sampling Round No.	Description of works	Proposed Schedule
1	Targeted groundwater sampling	October 2019
2	Comprehensive groundwater, surface water and sediment sampling	March/April 2020
3	Targeted groundwater sampling	October 2020
4	Comprehensive groundwater, surface water and sediment sampling	March/April 2021
5	Targeted groundwater sampling	October 2021
6	Comprehensive groundwater, surface water and sediment sampling	March/April 2022
7	Targeted groundwater sampling	October 2022
8	Comprehensive groundwater, surface water and sediment sampling	March/April 2023
9	Targeted groundwater sampling	October 2023
10	Comprehensive groundwater, surface water and sediment sampling	March/April 2024

4.3 Sample Location Rationale

4.3.1 Groundwater Sampling Locations

Groundwater monitoring will be undertaken on selected monitoring wells and residential bores. The rationale for monitoring well selection for each area is summarised in **Table 4** below.

[1] Note that the sampling locations included in the annual comprehensive sampling event and the targeted sampling event have been revised since the PMAP was issued. This is documented in Section 4.15.

Table 4 Rationale for Groundwater Monitoring Locations

Area	Rationale
On-site (Oakey Creek Alluvium Aquifer)	• Monitor spatial and temporal variations in PFAS concentrations in groundwater concentrations up, down and cross-gradient of source areas • Assess if groundwater PFAS concentrations in bores down-gradient of the source areas change in response to management measures over time
Off-site: south of site down-hydraulic gradient of drainage channels and Oakey Creek in the Oakey Creek Alluvium aquifer	• Monitor spatial and temporal variations in PFAS concentration in the groundwater down-gradient of drainage channels and Oakey Creek • Assess if groundwater PFAS concentrations in bores to the south of the Site change in response to management measures over time • Continue to monitor groundwater bores with existing temporal datasets to assist with better understanding of temporal patterns in PFAS concentrations • Monitor groundwater adjacent to Oakey Creek to assess PFAS migrating from the drainage channels and Oakey Creek to groundwater • Monitor groundwater parallel and perpendicular to the PFAS plume to assist with understanding concentrations changes in these alignments.
Off-site: south-west of the site up- and down- hydraulic gradient of the landfill in the Oakey Creek Alluvium aquifer	• Monitor spatial and temporal variations in PFAS concentration in the groundwater up- and down gradient of the landfill • Assess if groundwater PFAS concentrations in bores to the south-west of the Site change in response to management measures over time • Monitor groundwater parallel and perpendicular to the PFAS plume to assist with understanding concentrations changes in these alignments.
Off-site: west and south-west of the site in the Oakey Creek Alluvium aquifer	• Monitor potential changes in PFAS concentrations at the plume margins to the west and south west of the Site to refine model predictions • Assess if groundwater PFAS concentrations in bores to the west and south-west of the Site change in response to management measures over time • To provide an indication if additional management measures are required for groundwater users outside the current area of PFAS contamination in groundwater • Continue to monitor groundwater bores with existing temporal datasets to assist with better understanding of temporal patterns in PFAS concentrations • Monitor groundwater parallel and perpendicular to the PFAS plume to assist with understanding concentrations changes in these alignments.
Off-site: within underlying aquifer units (Main Range Volcanics and Walloon Coal Measures) at locations the south, southwest and west of the site.	• Monitor groundwater PFAS concentrations in underlying aquifers to assess potential vertical migration of PFAS into underlying aquifers at vulnerable locations, including areas where bores have been constructed to previous standards, irrigation return flow and flooding • Monitor potential changes in PFAS concentrations to provide up to date information to users of the underlying aquifer and to refine model predictions

Area	Rationale
	• Continue to monitor groundwater bores with existing temporal datasets to assist with better understanding of temporal patterns in PFAS concentrations.
Brymaroo (Main Range Volcanics aquifer)	• Monitor spatial and temporal variations in PFAS concentration in groundwater • Continue to monitor groundwater bores with existing temporal datasets to assist with better understanding of temporal patterns in PFAS concentrations.

Note: Off-site residential sampling locations will require the agreement of the landholder/leaseholder.

4.3.2 Groundwater Sampling Locations

The groundwater locations to be monitored as part of the annual comprehensive sampling event and targeted sampling event are provided **Table 5** below and are presented in **Figure 1** (on-site), **Figure 2** (off-site) and **Figure 4** (Brymaroo) in **Appendix A**. Sample identity numbers were changed in 2019 to be compliant with the Defence Contamination Management Manual (DCMM) (Defence 2021). A table showing historical and current sample identification numbers is presented in **Appendix C**.

Table 5 Groundwater sampling locations

Location		Event	Bores	No. of locations	
				Annual April	Targeted October
On-site					
Source Area Bores	Fire training area in North	A & T	MW562*, MW563*	2	2
	Former fire station in B3	A & T	MW201, MW202, MW203, MW204, MW205	5	5
	AFFF Storage Area / D20 appliance testing area	A & T	MW221, MW222, MW230, MW232	4	4
	AFFF recovery tank in F1 / hot refuel area	A & T	MW235, MW236, MW241	3	3
	AFFF recovery tank in A2 / hot refuel area	A & T	MW172, MW173	2	2
	AFFF recovery tank in S1	A & T	MW299, MW300	2	2
	AFFF Settling tank in C1	A & T	MW193, MW198, MW206, MW223, MW229	5	5
On-site Boundary Bores (Oakey Creek Alluvium)		A & T	MW167, MW174, MW178, MW179, MW187, MW189, MW233, MW242, MW245, MW249, MW252	11	11
Off-site					
Off-site Background Bores (to east/ southeast of Site)		A	MW265, MW279	2	0
South of Site and down gradient of drainage channels and Oakey Creek		A	MW267, MW268, MW270, MW278, MW292, MW294, *MW032, MW132*	8	0
Up and down gradient of landfill		A	MW280, MW281, MW282	3	0

Location	Event	Bores	No. of locations	
			Annual April	Targeted October
West and southwest of Site	A	MW255, MW257, MW262, MW264, MW266, MW272, MW274, MW276, MW283, MW285, MW296, *MW003, MW019, MW021, MW038, MW056, MW113, MW114, MW118, MW122, MW132, MW147, MW149, MW151, MW157*	25	0
	T	MW255, MW257, MW262, MW264, MW276, MW272, *MW003, MW019, MW038, MW056, MW134, MW147, MW151*	0	13
Underlying aquifers (to south, south-west and west of Site)	A	MW271, MW275, MW288, MW269, MW273, MW289, MW290, MW291, MW293, MW295, MW297	11	0
	T	MW269	0	1
Brymaroo				
On-site Bores	A	MW001, MW002, MW003, MW004, MW005, MW006, MW007, MW008, MW009, MW010, MW011, MW012, MW013	13	0

Note: *Italics* indicates residential bore
A = Annual, T = Targeted
* Monitoring wells MW562 and MW563 were installed in 2022 to replace wells MW253 and MW254 that were decommissioned in 2021 during remediation works.
Four residential bores in Oakey (MW020, MW022, MW031, MW160) have been removed from the monitoring program as the property owners declined permission to access the bores in 2021/22.

4.3.3 Surface Water Sampling Locations

The surface water sampling locations have been selected to build upon and maintain consistency with the monitoring completed during the Stage 2C EI. The locations have been previously sampled several times, and continued monitoring will provide additional data to assess temporal variability. The locations to be monitored as part of the annual comprehensive sampling event (April) are provided in **Table 6** below and are presented on **Figure F3** in **Appendix A**. A table showing historical and current sample identification numbers is presented in **Appendix C**.

Table 6 Surface Water Sampling Locations

Area	Description	Sampling Locations	Number of Locations	Total
Creek	Oakey Creek upstream of drainage channel 3 outfall	SW032, SW040	2	11 locations
	Oakey Creek (downstream of confluence with Westbrook Creek (includes weir))	SW010, SW011, SW012, SW013, SW056	5	
	Oakey Creek (downstream confluence with Westbrook Creek)	SW004, SW059	2	
	Doctor Creek	SW043	1	
	Westbrook Creek	SW028	1	
Drainage Channel	Drainage Channel 1 (on-site)	SW065, SW066	2	11 locations
	Drainage Channel 1 (off-site)	SW026	1	
	Drainage Channel 2 (on-site)	SW024, SW025	2	
	Drainage Channel 2 (off-site)	SW009, SW027	2	
	Drainage Channel 3 (on-site)	SW019, SW021, SW063	3	
	Drainage Channel 3 (off-site)	SW057	1	

4.3.4 Sediment Sampling Locations

The sediment sampling locations have been selected to build upon and maintain consistency with the monitoring completed during the Stage 2C environmental investigation (AECOM, 2017) and are co-located with the surface water sampling locations. Many of the locations have been previously sampled several times, and continued monitoring will provide additional data to assess temporal variability. The locations to be monitored as part of the annual comprehensive sampling event (April) are provided in **Table 7** below. A table showing historical and current sample identification numbers is presented in **Appendix C**.

Table 7 Sediment Sample Locations

Area	Description	Sampling Locations	Number of Locations	Total
Creek	Oakey Creek upstream of drainage channel 3 outfall	SD032, SD040	2	11 locations
	Oakey Creek (downstream of confluence with Westbrook Creek (includes weir))	SD037, SD036, SD0105, SD102, SD018	5	
	Oakey Creek (downstream confluence with Westbrook Creek)	SD038, SD045	2	
	Doctor Creek	SD007	1	
	Westbrook Creek	SD070	1	
Drainage Channel	Drainage Channel 1 (on-site)	SD106, SD022	2	11 locations
	Drainage Channel 1 (off-site)	SD015	1	
	Drainage Channel 2 (on-site)	SD024, SD010	2	
	Drainage Channel 2 (off-site)	SD013, SD011	2	
	Drainage Channel 3 (on-site)	SD016, SD025, SD107	3	
	Drainage Channel 3 (off-site)	SD017	1	

4.4 Sample Collection and Handling

4.4.1 Groundwater Sampling

The groundwater sampling methodology and schedule are presented in **Table 8**.

Table 8 Groundwater Sampling Methodology and Schedule

Item	Details
Groundwater gauging	The depth to groundwater will be measured in each monitoring well immediately prior to collection of groundwater samples.
Sample Collection Methodology	**Shallow Bores in Oakey Creek Alluvium and Deeper Bores installed in Main Range Volcanics and Walloon Coal Measures** Groundwater samples will be collected from all monitoring wells using no-purge methodology HydraSleeves™, which will be installed within the screened interval of the wells (approximately 1 m above the base of the well) for a minimum of 24 hours prior to the sampling round. Once sampling is completed, new HydraSleeves™ will be deployed at the screened interval depth in preparation for the next sampling round. **Residential Bores** Bore water samples will be collected by placing the laboratory provided sample bottle beneath the tap outlet and the tap slowly opened to collect the “first flush” of water.
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 equipment rinsate blank (rinsate) samples. Duplicate samples are to be collected at a minimum frequency of 1 in 10 primary samples. Rinsate samples are to be collected at a rate of one sample per fieldwork day by pouring laboratory supplied PFAS free deionised water over the decontaminated sampling equipment.
Field Parameters	Temperature, electrical conductivity (EC), dissolved oxygen (DO), oxidation-reduction potential (ORP), 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 at AACO will include two monitoring events, as detailed below: **Annual Comprehensive:** 94 monitoring wells and residential bores have been selected for the annual comprehensive sampling event (April). This includes 11 monitoring wells at Brymaroo. **Targeted:** 48 monitoring wells and residential bores have been selected for the targeted sampling event (October).

4.4.2 Surface Water Sampling

The surface water sampling methodology and schedule is presented in **Table 9**.

Table 9 Surface Water Sampling Methodology and Schedule

Item	Details
Sample Collection Methodology	Samples to 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.
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 equipment rinsate blank (rinsate) samples. Duplicate samples are to be collected at a minimum frequency of 1 in 10 primary samples. Rinsate samples are to be collected at a rate of one sample per fieldwork day by pouring laboratory supplied PFAS-free deionised water over the decontaminated sampling equipment.
Field Parameters	Temperature, EC, DO, ORP, 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 surface water sampling will be conducted annually as part of the annual comprehensive event (March/April).

4.4.3 Sediment Sampling

The surface water sampling methodology and schedule are outlined in **Table 10**.

Table 10 Sediment Sampling Methodology and Schedule

Item	Details
Sample Collection Methodology	Samples representative of potentially deposited sediments to be collected from within the water body if possible. Sediment samples will be collected using a trenching shovel from the base of the drain (where possible), or using a Dormer Piston Sediment Sampler. At each location, a new laboratory supplied container should be used for each sample.
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 equipment rinsate blank (rinsate) samples. Duplicate samples are to be collected at a minimum frequency of 1 in 10 primary samples. Rinsate samples are to be collected at a rate of one sample per fieldwork day by pouring laboratory supplied PFAS free deionised water over the decontaminated sampling equipment.
Sample Analysis	All primary samples will be submitted for PFAS extended suite using the standard levels of detection.
Sampling Schedule	The sediment sampling will be conducted annually as part of the annual comprehensive event (April).

4.4.4 Biota Sampling

Ad hoc biota samples may be collected at the request of Defence in accordance with the sampling methodology and schedule presented in **Table 11**.

Table 11 Biota Sampling Methodology and Schedule

Item	Details
Sample Collection Methodology	Targeting sampling of biota (e.g. aquatic biota such as fish, crayfish) may need to be conducted on an ad hoc basis. Appropriate sampling techniques will be used to collect the samples; for example gill nets or electro fishing will be used to collect fish, sample traps could be used to collect crayfish. Where required, samples will be collected by a qualified contractor holding a general fisheries permit for the collection of tissue samples. Where required to obtain sufficient sample mass for laboratory analysis, multiple specimens of the same species may need to be composited. Sampling of fish for human health assessment will require targeting of fish of consumptive size. Samples will be identified, measured, weighed, photographed and placed in a zip lock bag following euthanasia in ice slurry.
QA/QC Samples to be Collected	No QA/QC samples will be collected.
Sample Analysis	All primary samples will be submitted for PFAS extended suite using the standard levels of detection for biota samples.
Sampling Schedule	Samples will be collected on an ad hoc basis at the request of Defence.

4.4.5 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, if possible, at or below 4°C during transit to the laboratory. Prior to sampling, assessment of the analytical holding times will be made and the sampling planned accordingly to help ensure that holding times are not breached or is minimised.

Samples will be transported to the laboratory for analytical testing under standard CoC documentation. Primary and associated duplicate QA/QC samples will be analysed by ALS Brisbane. The inter-laboratory duplicate samples will be analysed by the National Measurement Institute (NMI).

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 N0. 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 Sampling Events Factual Reports.

4.6 Logistics

The laboratory sample containers will be collected from the laboratory prior to the commencement of fieldwork. All samples will be transported by an ALS by the field team or a supplied courier at the completion of fieldwork. All inter-laboratory duplicate samples will be couriered from ALS to the secondary laboratory under a separate CoC documentation 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 NMI (NATA Accreditation Number 198), respectively.

4.7.2 Analytical Schedule

All media sampled shall be analysed for the extended PFAS suite as outlined in **Table 12** below.

Table 12 Sample Analytical Suite for PFAS

PFAS Group	Compound	CAS No.
Perfluoroalkyl Sulfonic Acids	Perfluorobutane sulfonic acid (PFBS)	375-73-5
	Perfluoropentane sulfonic acid (PFPeS)	2706-91-4
	Perfluorohexane sulfonic acid (PFHxS)	355-46-4
	Perfluoroheptane sulfonic acid (PFHpS)	375-92-8
	Perfluorooctane sulfonic acid (PFOS)	1763-23-1
	Perfluorodecane sulfonic acid (PFDS)	335-77-3
Perfluoroalkyl Carboxylic Acids	Perfluorobutanoic acid (PFBA)	375-22-4
	Perfluoropentanoic acid (PFPeA)	2706-90-3
	Perfluorohexanoic acid (PFHxA)	307-24-4
	Perfluoroheptanoic acid (PFHpA)	375-85-9
	Perfluorooctanoic acid (PFOA)	335-67-1
	Perfluorononanoic acid (PFNA)	375-95-1
	Perfluorodecanoic acid (PFDA)	335-76-2
	Perfluoroundecanoic acid (PFUnDA)	2058-94-8
	Perfluorododecanoic acid (PFDoDA)	307-55-1
	Perfluorotridecanoic acid (PFTrDA)	72629-94-8
	Perfluorotetradecanoic acid (PFTeDA)	376-06-7
Perfluoroalkyl Sulfonamides	Perfluorooctane sulphonamide (FOSA)	754-91-6
	N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8
	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2
	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	2448-09-7
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2
	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9
	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6
(n:2) Fluorotelomer Sulfonic Acids	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0

The current standard laboratory limits of reporting (LOR) are described in **Table 13** below.

Table 13 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
Sediment	Extended PFAS Suite	LC/MS-MS	0.0002 – 0.001 mg/kg

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 Defence Contamination Management Manual (DCCM) naming convention:

PPPP_XX000_ZZZ_YYMMDD

[property ID]_[type of sample][THREE DIGIT sample number]_[top of sample depth]_[yearmonthday]

e.g. 0902_MW01_191015

Location types and codes are prescribed by Defence and the Site's investigation history.

Primary Sample Types/Location Codes relevant to this OMP include:

- SD = sediment – top depth required
- MW = monitoring well
- SW = surface water - no depth required

QAQC Samples will be labelled in accordance with the following convention:

- Duplicate: PPPP_QC1XX_YYMMDD
- 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 OMP 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 NEMP, version 2.0 (HEPA 2020)
- Department of Health, 2019. Health Based Guidance Values for PFAS for use in site investigations in Australia. September 2019
- NHMRC, 2019. Guidance on PFAS in Recreational Water. August 2019
- National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, as amended in 2013

The adopted PFAS screening criteria to assess the data generated as part of the OMP are presented in **Table 14** below.

Table 14 Summary of Adopted Screening Criteria

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 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), 2016 to determine drinking water values. *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	
Ecological Receptors			

Pathway	Compound	Criteria	Comment / Reference
Freshwater (99% species protection values)	PFOS PFOA	0.00023 µg/L 19 µg/L	The values are from the PFAS NEMP, 2018 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. The 99% level of protection has been applied for slightly to moderately disturbed ecosystems. This approach is generally adopted for chemicals that bioaccumulate and biomagnify in wildlife. For the purposes of preliminary screening of analytical water results, the laboratory LOR will be adopted rather than sole use of the criteria value. *All surface water and groundwater results will be compared to these criteria.*

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.

Waste water generated will be provided to the on-site groundwater treatment plant for 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) duplicate samples and split (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 or at least one rinsate sample per ten primary samples (whichever rate is lower) 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 – comments on 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 – comments on 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; and
- Sediment samples - comments on the morphology of the sample location, the depth, flow direction and strength of water flow (if water is present), the water and sediment/soil colour and odour, and the presence of flora and fauna. The soil/sediment types observed at each sample location will be described using the Unified Soil Classification System (USCS).

The geo-coordinates for each sample location will be noted. The location of quality control (e.g. duplicate and inter-laboratory duplicate) sample collection points will also be noted.

AECOM's tablet-based data capture ('EDCA') system will be utilized by field staff to minimise potential data recording errors and allow on-the-spot identification of potentially erroneous data in comparison to historical data.

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
- 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 ALS 'Compass' sample management application 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
- 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
- Calibration records.

Records of all equipment calibration will be included in the Sampling Event Factual Reports.

4.14 Reporting

4.14.1 Sampling Event Factual Report

No later than four weeks following receipt of the laboratory reports, AECOM will prepare and submit a Sampling Event Factual Report to Defence. Each 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 the reduced 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;
        i. Chain of custody forms;
        ii. Laboratory analytical certificates; and
        iii. Equipment calibration certificates.

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, 2019)
- relevant figures depicting sampling locations and site-specific hydrogeological features
- laboratory results and analysis including comparison with relevant screening criteria as identified in each OMP (Defence, 2019)
- assessment and commentary on appropriate QA/QC procedures

- a review of the CSM and provision of a revised CSM 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 an OMP (Defence, 2019)
- 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, 2019), a number of points of deviation are noted (refer to **Table 15** below).

Table 15 Deviations from OMP

No.	Description	Rationale
1	Use of HydraSleeves™ rather than low flow / bladder pumps for the collection of groundwater samples	The AACO OMP specified that groundwater samples were to be collected using low flow sampling equipment (bladder pump) where depth to groundwater is less than 50 metres below ground surface (mbgs). As part of AECOM's tender submission for the Defence OMP Program in March 2019, it was proposed to complete groundwater sampling across all Defence regions utilising no-purge HydraSleeves™. In addition to time and cost saving considerations, the adoption of HydraSleeves™ across the broader program was aimed to improve consistency, quality and comparability of groundwater data across sites and regions.
2	Adoption of Revised Recreational Screening Criteria for PFOS+PFHxS and PFOA	Following the release of the PMAP and OMP in July 2019, the National Health and Medical Research Council (NHMRC), published guidance on PFAS in Recreational Water in August 2019. 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.
3	Monitoring locations removed from the OMP in 2019	Prior to the first sampling event in 2019, Defence instructed the removal of sampling of bores owned by Toowoomba Regional Council and removal of sampling of residential bores where there will be no significant effect on the understanding of the extent of PFAS in groundwater. Where a significant effect is identified, alternative bores have been included. The following bores have been removed from the OMP: Comprehensive (April) event: MW106, MW107, MW108, MW027, MW034, MW037, MW091, MW004, MW006, MW100, MW011, MW023, MW029, MW045, MW063, MW064, MW046, MW056, MW138, MW119, MW142. Targeted (October) event: MW106, MW107, MW108, MW021, MW046, MW056, MW293. The following bores were added to the OMP: Comprehensive (April) event: MW022, MW084. Targeted (October) event: MW022, MW084, MW269, MW272, MW276.
4	Changes to the analytical suite	Analysis for non-PFAS analytes was included during the first three monitoring events (October 2019, April 2020 and October 2020) with 20% of groundwater, surface water and sediment samples analysed for major ions, total suspended solids, electrical conductivity, total organic content or dissolved organic content and cation exchange capacity. Defence has instructed non-PFAS analysis to be discontinued from the April 2021 sampling event.
5	Monitoring locations changed in 2022	Due to the property owner declining permission in 2021, the following bores have been removed from the OMP: MW020, MW022, MW031, MW160. MW253 and MW254 were decommissioned in 2021 by Defence. These wells were replaced with MW562 and MW563 in January 2022.

5.0 References

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Appendix A

Figures

Appendix A Figures

LEGEND

- On-Site Groundwater Monitoring Locations
- Replaced Groundwater Monitoring Wells
- Site Boundary

0 75 150 300 m

AECOM

SCALE 1:9,000

SIZE A3

SHEET **1 of 1**

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure 1: On-Site Groundwater Monitoring Locations

PROJECT

PFAS OMP - AACO SAQP

CLIENT

DEPARTMENT OF DEFENCE

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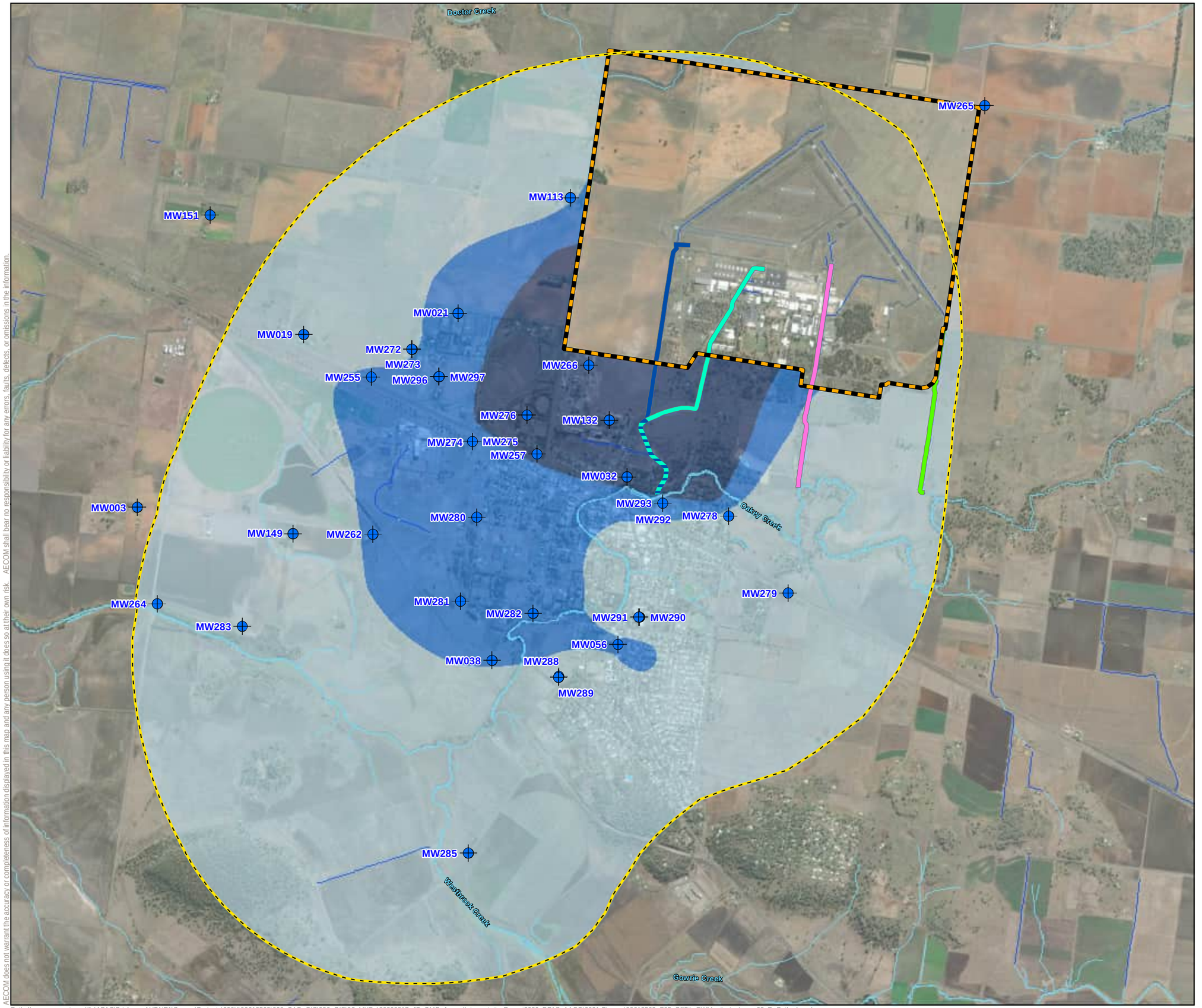

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- Off-Site Groundwater Monitoring Well
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Management Area
- Site Boundary

Monitoring wells and residential bores have only been included here if the landholder gave permission. As a result, not all monitoring wells and residential bores are depicted on the figure.

SIZE

0 0.25 0.5 1 km

AECOM

1:32,000

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TITLE

Figure 2: Off-Site Groundwater Monitoring Locations

PROJECT

PFAS OMP - AACO SAQP

CLIENT

DEPARTMENT OF DEFENCE

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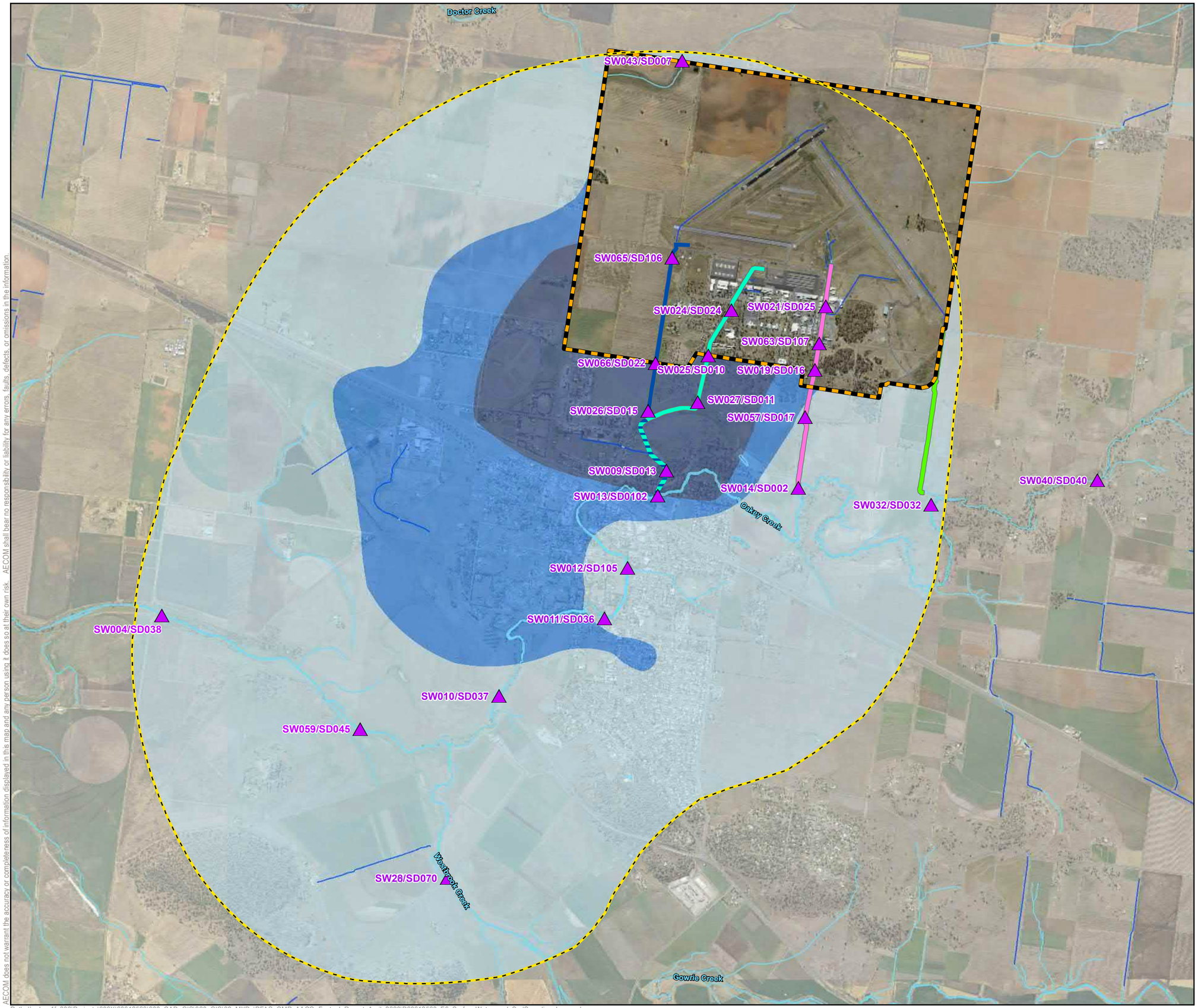

LEGEND

- Offsite Surface Water and Sediment Sampling Locations
- Drainage channel
- Watercourse/water body
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Drain # 1
- Drain # 2
- Drain # 2 after confluence with Drain # 1
- Drain # 3
- Drain # 4
- Management Area
- Site Boundary

N

0 0.25 0.5 1 km

AECOM

SCALE 1:32,000

SIZE A3

SHEET **1 of 1**

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure F3: Surface Water and Sediment Sampling Locations

PROJECT

PFAS OMP- AACO SAQP

CLIENT

DEPARTMENT OF DEFENCE

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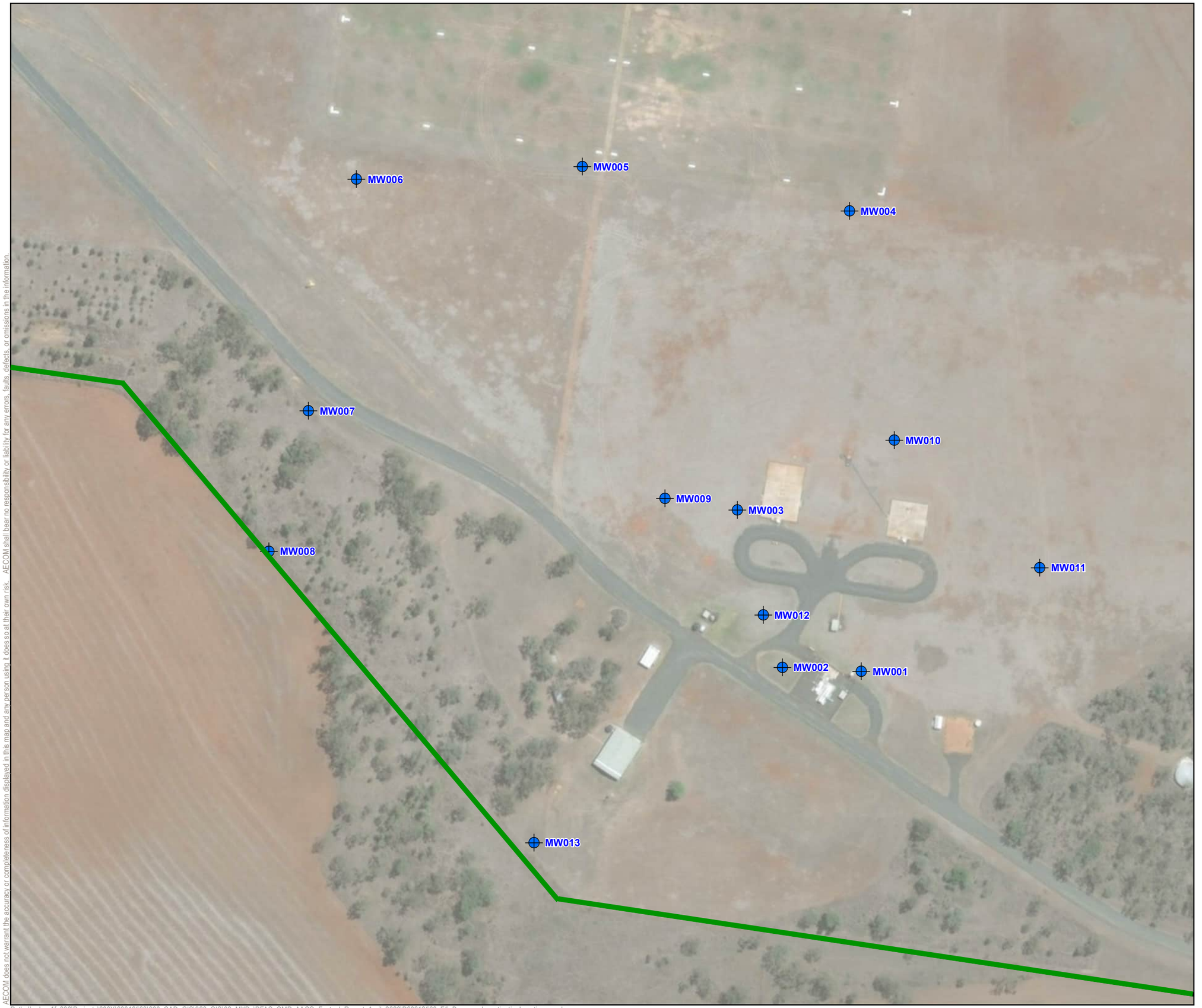

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LEGEND

- Groundwater Monitoring Locations
- Brymaroo Satellite Site Boundary

N

0 10 20 40 m

AECOM

SCALE 1:2,000

SIZE A3

SHEET **1 of 1**

COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE

Figure F4: Brymaroo Groundwater Monitoring Locations

PROJECT

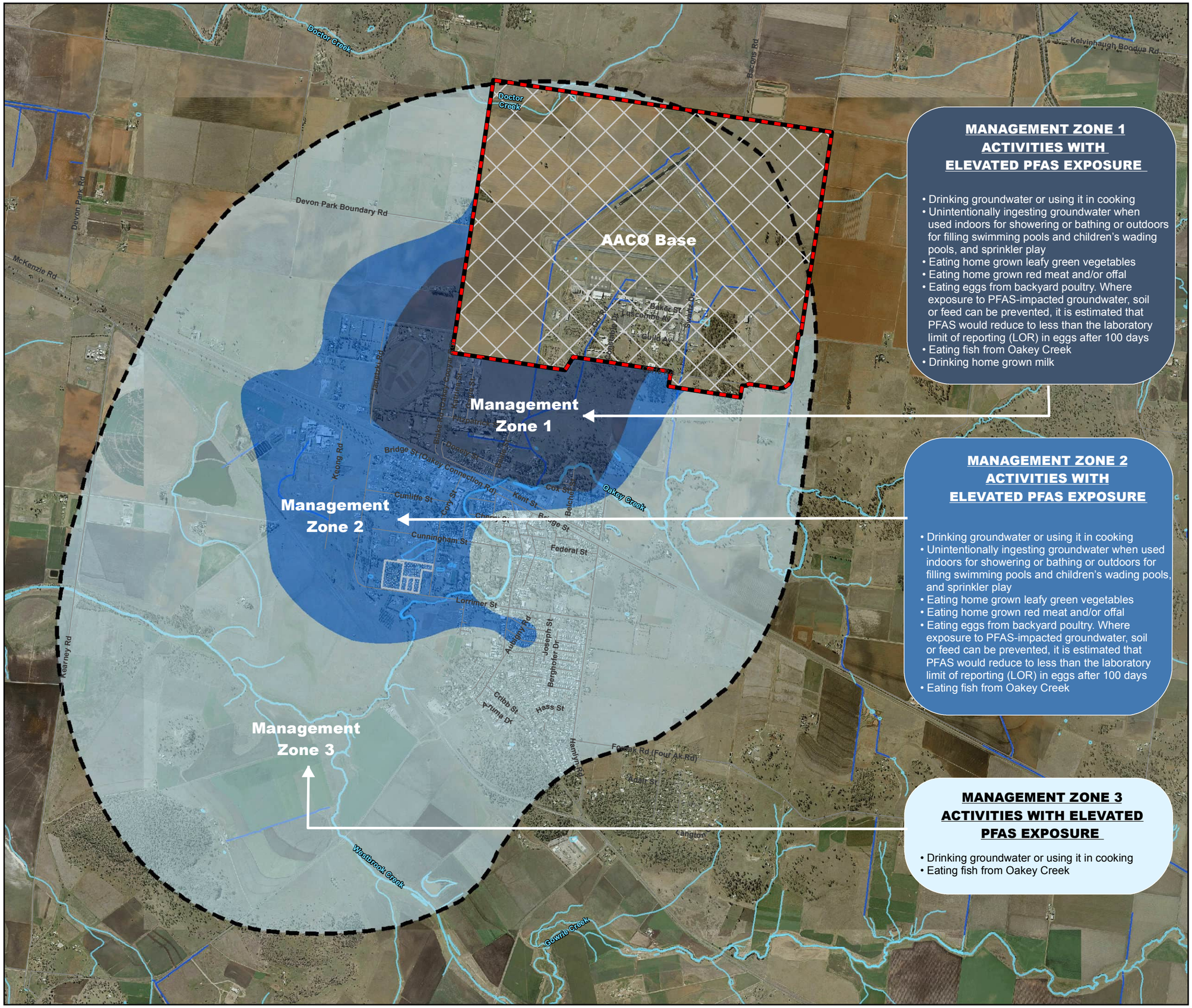
PFAS- OMP AACO SAQP

CLIENT

DEPARTMENT OF DEFENCE

Appendix B

AACO Management Area



MANAGEMENT ZONE 1 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Unintentionally ingesting groundwater when used indoors for showering or bathing or outdoors for filling swimming pools and children's wading pools, and sprinkler play
- Eating home grown leafy green vegetables
- Eating home grown red meat and/or offal
- Eating eggs from backyard poultry. Where exposure to PFAS-impacted groundwater, soil or feed can be prevented, it is estimated that PFAS would reduce to less than the laboratory limit of reporting (LOR) in eggs after 100 days
- Eating fish from Oakey Creek
- Drinking home grown milk

MANAGEMENT ZONE 2 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Unintentionally ingesting groundwater when used indoors for showering or bathing or outdoors for filling swimming pools and children's wading pools, and sprinkler play
- Eating home grown leafy green vegetables
- Eating home grown red meat and/or offal
- Eating eggs from backyard poultry. Where exposure to PFAS-impacted groundwater, soil or feed can be prevented, it is estimated that PFAS would reduce to less than the laboratory limit of reporting (LOR) in eggs after 100 days
- Eating fish from Oakey Creek

MANAGEMENT ZONE 3 ACTIVITIES WITH ELEVATED PFAS EXPOSURE

- Drinking groundwater or using it in cooking
- Eating fish from Oakey Creek

LEGEND

- Drainage channel
- Watercourse/water body
- Former Landfill
- Management Zone 1
- Management Zone 2
- Management Zone 3
- Management Area
- AACO Base

km
0 0.25 0.5 1

SCALE 1:35,000
SIZE A3
SHEET 1 of 1
COORDINATE SYSTEM GDA 1994 MGA Zone 56

TITLE
Figure A 1 : Management Zones - Activities with Elevated PFAS Exposure

PROJECT
ARMY AVIATION CENTRE OAKEY (AACO) INFORMATION SESSIONS DECEMBER 2017

CLIENT
DEPARTMENT OF DEFENCE

Appendix C

Sample IDs

Appendix C Sample IDs

AACO

New Location Code (0207)	Old Location Code
MW001	AACO-GW01
MW002	AACO-GW02
MW003	AACO-GW03
MW004	AACO-GW04
MW005	AACO-GW05
MW006	AACO-GW06
MW007	AACO-GW07
MW008	AACO-GW08
MW009	AACO-GW09
MW010	AACO-GW10
MW011	AACO-GW11
MW012	AACO-GW12
MW013	AACO-GW13
MW014	AACO-GW14
MW015	AACO-GW15
MW016	AACO-GW16
MW017	AACO-GW17
MW018	AACO-GW18
MW019	AACO-GW19
MW020	AACO-GW20
MW021	AACO-GW21
MW022	AACO-GW22
MW023	AACO-GW23
MW024	AACO-GW24
MW025	AACO-GW25
MW026	AACO-GW26
MW027	AACO-GW27
MW028	AACO-GW28
MW029	AACO-GW29
MW030	AACO-GW30
MW031	AACO-GW31
MW032	AACO-GW32
MW033	AACO-GW33
MW034	AACO-GW34
MW035	AACO-GW35
MW036	AACO-GW36
MW037	AACO-GW37
MW038	AACO-GW38
MW039	AACO-GW39
MW040	AACO-GW40
MW041	AACO-GW41
MW042	AACO-GW42
MW043	AACO-GW43
MW044	AACO-GW44

New Location Code (0207)	Old Location Code
MW045	AACO-GW45
MW046	AACO-GW46
MW047	AACO-GW47
MW048	AACO-GW48
MW049	AACO-GW49
MW050	AACO-GW50
MW051	AACO-GW51
MW052	AACO-GW52
MW053	AACO-GW53
MW054	AACO-GW54
MW055	AACO-GW55
MW056	AACO-GW56
MW057	AACO-GW57
MW058	AACO-GW58
MW059	AACO-GW59
MW060	AACO-GW60
MW061	AACO-GW61
MW062	AACO-GW62
MW063	AACO-GW63
MW064	AACO-GW64
MW065	AACO-GW65
MW066	AACO-GW66
MW067	AACO-GW67
MW068	AACO-GW68
MW069	AACO-GW69
MW070	AACO-GW70
MW071	AACO-GW71
MW072	AACO-GW72
MW073	AACO-GW73
MW074	AACO-GW74
MW075	AACO-GW75
MW076	AACO-GW76
MW077	AACO-GW77
MW078	AACO-GW78
MW079	AACO-GW79
MW080	AACO-GW80
MW081	AACO-GW81
MW082	AACO-GW82
MW083	AACO-GW83
MW084	AACO-GW84
MW085	AACO-GW85
MW086	AACO-GW86
MW087	AACO-GW87
MW088	AACO-GW88
MW089	AACO-GW89
MW090	AACO-GW90
MW091	AACO-GW91
MW092	AACO-GW92

New Location Code (0207)	Old Location Code
MW093	AACO-GW93
MW094	AACO-GW94
MW095	AACO-GW95
MW096	AACO-GW96
MW097	AACO-GW97
MW098	AACO-GW98
MW099	AACO-GW99
MW100	AACO-GW100
MW106	AACO-BORE5
MW107	AACO-BORE6
MW108	AACO-BORE7
MW109	AACO-BORE8
MW110	AACO-RN87015
MW112	AACO-RN137030
MW113	AACO-RN48068
MW114	AACO-RN44070
MW115	AACO-RN26097
MW116	AACO-RN64115
MW117	AACO-RN55116
MW118	AACO-RN107119
MW119	AACO-RN35185
MW120	AACO-RN83204
MW121	AACO-RN147211
MW122	AACO-RN83214
MW123	AACO-RN36256
MW124	AACO-RN66256
MW125	AACO-RN119261
MW126	AACO-RN83264
MW127	AACO-RN66274
MW128	AACO-RN137284
MW129	AACO-RN61286
MW130	AACO-RN119324
MW132	AACO-RN147352
MW133	AACO-RN43357
MW134	AACO-RN83362
MW135	AACO-RN87369
MW138	AACO-RN36426
MW139	AACO-RN137433
MW140	AACO-RN87439
MW141	AACO-RN35453
MW142	AACO-RN64455
MW143	AACO-RN147464
MW144	AACO-RN147480
MW145	AACO-RN61496
MW146	AACO-RN66503
MW147	AACO-RN107547
MW148	AACO-RN16592
MW149	AACO-RN43659

New Location Code (0207)	Old Location Code
MW150	AACO-RN87659
MW151	AACO-RN86696
MW152	AACO-RN147699
MW153	AACO-RN137706
MW154	AACO-RN86733
MW155	AACO-RN107812
MW156	AACO-RN87870
MW157	AACO-RN21897
MW158	AACO-RN21974
MW159	AACO-RN35983
MW160	AACO-RN21997
MW161	AACO-RN52999
MW167	AACO-MWA1-B
MW168	AACO-MWA1-D
MW169	AACO-MWA2-A
MW170	AACO-MWA2-B
MW171	AACO-MWA2-C
MW172	AACO-MWA2-D
MW173	AACO-MWA2-E
MW174	AACO-MWA4-A
MW176	AACO-MWA4-B-BB
MW177	AACO-MWA4-B-LA
MW178	AACO-MWA4-B-UA
MW179	AACO-MWA5-A-LA
MW180	AACO-MWA5-A-UA
MW185	AACO-MWB3-A
MW186	AACO-MWB3-B
MW187	AACO-MWB5-A
MW188	AACO-MWB5-A-WCM
MW189	AACO-MWB5-B
MW190	AACO-MWB5-C
MW191	AACO-MWB5-D
MW193	AACO-MWC1-C
MW198	AACO-MWC1-H
MW199	AACO-MWC1-I
MW201	AACO-MW201
MW202	AACO-MW202
MW203	AACO-MW203
MW204	AACO-MW204
MW205	AACO-MW205
MW206	AACO-MWC2-A
MW207	AACO-MWC2-B
MW208	AACO-MWC2-C
MW217	AACO-MWC2-D
MW218	AACO-MWC2-E
MW221	AACO-MWC2-I
MW222	AACO-MWC2-K
MW223	AACO-MWC2-L

New Location Code (0207)	Old Location Code
MW224	AACO-MWC2-M
MW225	AACO-MWC2-N
MW226	AACO-MWC2-O
MW227	AACO-MWC2-Q
MW228	AACO-MWC3-A
MW229	AACO-MWC3-I
MW230	AACO-MWD2-A
MW231	AACO-RN87231
MW232	AACO-MWD2-E
MW233	AACO-MWE-J
MW235	AACO-MWF1-B
MW236	AACO-MWF1-C
MW240	AACO-MWF1-G
MW241	AACO-MWF1-H
MW242	AACO-MWG1-A-LA
MW245	AACO-MWG1-C-LA
MW247	AACO-MWN-B
MW249	AACO-MWN-D
MW250	AACO-MWN-H-LA
MW252	AACO-MWN-I
MW253	AACO-MWN-J
MW254	AACO-MWN-K
MW255	AACO-MWO-A-LA
MW256	AACO-MWO-A-UA
MW257	AACO-MWO-B-LA
MW258	AACO-MWO-B-UA
MW261	AACO-MWO-D-LA
MW262	AACO-MWO-D-UA
MW263	AACO-MWO-E-LA
MW264	AACO-MWO-E-UA
MW265	AACO-MWO-F-AL
MW266	AACO-MWO-G-AL
MW267	AACO-MWO-H-AL
MW268	AACO-MWO-H-UA
MW269	AACO-MWO-H-WCM
MW270	AACO-MWO-I-AL
MW271	AACO-MWO-I-MRV
MW272	AACO-MWO-J-AL
MW273	AACO-MWO-J-WCM
MW274	AACO-MWO-K-AL
MW275	AACO-MWO-K-MRV
MW276	AACO-MWO-L-AL
MW278	AACO-MWO-M-AL
MW279	AACO-MWO-N-AL
MW280	AACO-MWO-O-AL
MW281	AACO-MWO-P-AL
MW282	AACO-MWO-Q-AL
MW283	AACO-MWO-R-AL

New Location Code (0207)	Old Location Code
MW285	AACO-MWO-T-AL
MW288	AACO-MWO-V-AL
MW289	AACO-MWO-V-WCM
MW290	AACO-MWO-W-AL
MW291	AACO-MWO-W-WCM
MW292	AACO-MWO-X-AL
MW293	AACO-MWO-X-WCM
MW294	AACO-MWO-Y-AL
MW295	AACO-MWO-Y-WCM
MW296	AACO-MWO-Z-AL
MW297	AACO-MWO-Z-WCM
MW298	AACO-MWS1-A
MW299	AACO-MWS1-B
MW300	AACO-MWS1-D
SD001	AACO-SED001
SD002	AACO-SED002
SD004	AACO-SED004
SD005	AACO-SED005
SD006	AACO-SED006
SD007	AACO-SED007
SD008	AACO-SED08
SD009	AACO-SED09
SD010	AACO-SED010
SD011	AACO-SED011
SD012	AACO-SED012
SD013	AACO-SED013
SD014	AACO-SED014
SD015	AACO-SED015
SD016	AACO-SED016
SD017	AACO-SED017
SD019	AACO-SED019
SD020	AACO-SED020
SD021	AACO-SED021
SD022	AACO-SED22
SD023	AACO-SED23
SD024	AACO-SED24
SD025	AACO-SED25
SD030	AACO-SED030
SD031	AACO-SED031
SD032	AACO-SED032
SD035	AACO-SED035
SD036	AACO-SED036
SD037	AACO-SED037
SD040	AACO-SED040
SD041	AACO-SED041
SD042	AACO-SED042
SD044	AACO-SED044
SD045	AACO-SED045

New Location Code (0207)	Old Location Code
SD046	AACO-SED046
SD047	AACO-SED047
SD048	AACO-SED048
SD049	AACO-SED049
SD050	AACO-SED050
SD051	AACO-SED051
SD052	AACO-SED052
SD053	AACO-SED053
SD054	AACO-SED054
SD055	AACO-SED055
SD056	AACO-SED056
SD057	AACO-SED057
SD058	AACO-SED058
SD059	AACO-SED059
SD060	AACO-SED060
SD061	AACO-SED061
SD062	AACO-SED062
SD063	AACO-SED063
SD064	AACO-SED064
SD065	AACO-SED065
SD066	AACO-SED66
SD067	AACO-SED67
SD068	AACO-SED68
SD070	AACO-SED070
SD074	AACO-SED018A
SD075	AACO-SED018B
SD076	AACO-SED033A
SD077	AACO-SED033B
SD078	AACO-SED034A
SD079	AACO-SED034B
SD100	AACO-SED100
SD102	AACO-SED102
SD103	AACO-SED103
SD104	AACO-SED104
SD105	AACO-SED105
SD106	AACO-SED106
SD107	AACO-SED107
SW001	AACO-SW01
SW002	AACO-SW02
SW003	AACO-SW03
SW004	AACO-SW04
SW005	AACO-SW05
SW006	AACO-SW06
SW007	AACO-SW07
SW008	AACO-SW08
SW009	AACO-SW09
SW010	AACO-SW10
SW011	AACO-SW11

New Location Code (0207)	Old Location Code
SW012	AACO-SW12
SW013	AACO-SW13
SW014	AACO-SW14
SW015	AACO-SW15
SW016	AACO-SW16
SW017	AACO-SW17
SW018	AACO-SW18
SW019	AACO-SW19
SW020	AACO-SW20
SW021	AACO-SW21
SW022	AACO-SW22
SW023	AACO-SW23
SW024	AACO-SW24
SW025	AACO-SW25
SW026	AACO-SW26
SW027	AACO-SW27
SW028	AACO-SW87
SW029	AACO-SW88
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SW033	AACO-SW89
SW034	AACO-SW90
SW035	AACO-SW35
SW036	AACO-SW36
SW037	AACO-SW37
SW038	AACO-SW33A
SW039	AACO-SW33B
SW040	AACO-SW40
SW041	AACO-SW41
SW042	AACO-SW42
SW043	AACO-SW43
SW044	AACO-SW34A
SW045	AACO-SW34B
SW050	AACO-SW50
SW051	AACO-SW51
SW053	AACO-SW53
SW054	AACO-SW54
SW055	AACO-SW55
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SW059	AACO-SW59
SW060	AACO-SW60
SW061	AACO-SW61
SW062	AACO-SW62
SW063	AACO-SW63
SW064	AACO-SW64

New Location Code (0207)	Old Location Code
SW065	AACO-SW65
SW066	AACO-SW66
SW067	AACO-SW67
SW068	AACO-SW68
SW069	AACO-SW69
SW070	AACO-SW70
SW071	AACO-SW71
SW072	AACO-SW72
SW073	AACO-SW73
SW074	AACO-SW74
SW075	AACO-SW75
SW076	AACO-SW76
SW077	AACO-SW77
SW078	AACO-SW78
SW079	AACO-SW79
SW080	AACO-SW80
SW081	AACO-SW81
SW082	AACO-SW82
SW083	AACO-SW83
SW084	AACO-SW84
SW085	AACO-SW85
SW086	AACO-SW86

Brymaroo

New Location Code (1435)	Old Location Code
MW001	BRY-MW-E
MW002	BRY-MW-F
MW003	BRY-MW-G
MW004	BRY-MW-H
MW005	BRY-MW-I
MW006	BRY-MW-J
MW007	BRY-MW-K
MW008	BRY-MW-L
MW009	BRY-MW-R
MW010	BRY-MW-S
MW011	BRY-MW-T
MW012	BRY-MW-U
MW013	BRY-MW-V
OTH004	WD-18-28
OTH005	WD-7-17
POT001	BRY_TW02
POT002	BRY-A17
POT003	BRY-BH-L
POT004	BRY-TAP01
POT005	BRY-TW01
SED001	BRY-SED-HP

Appendix D

Monitoring Well Construction Details

Appendix D Monitoring Well Construction Details

AACO Monitoring Wells

Location ID	Date of Installation	Easting	Northing	TOC Elevation (m AHD)	Final Depth (m)	Top of screen (mbgs)	Top of screen (mAHD)	Bottom of screen (mbgs)	Bottom of screen (mAHD)	Length of screen (m)	Midpoint of screen (mbgs)	Midpoint of screen (mAHD)	Targeted Depth for sampling (mbgs)
MW167	25/01/2011	373988.700	6967037.700	402.428	16.00	11.5	390.928	16.0	386.428	4.5	13.8	388.678	15.0
MW172	21/02/2017	373952.946	6967329.488	402.818	18.00	12.0	390.818	18.0	384.818	6.0	15.0	387.818	17.0
MW173	23/02/2017	373997.781	6967324.987	403.262	18.00	12.0	391.262	18.0	385.262	6.0	15.0	388.262	17.0
MW174	14/11/2012	374327.000	6966684.000	404.072	29.90	25.0	379.072	29.0	375.072	4.0	27.0	377.072	28.0
MW178	21/11/2015	374420.713	6966460.701	403.513	17.65	14.5	389.013	17.5	386.013	3.0	16.0	387.513	16.5
MW179	19/10/2015	373949.73	6966401.743	403.000	15.01	11.5	391.500	14.4	388.600	2.9	13.0	390.050	13.0
MW201	8/04/2016	374833.900	6966978.300	404.800	20.00	13.0	391.800	20.0	384.800	7.0	16.5	388.300	19.0
MW202	8/04/2016	374867.400	6966984.900	405.000	20.00	12.6	392.400	19.6	385.400	7.0	16.1	388.900	18.5
MW203	01/04/2016	374782.800	6966991.000	405.200	20.02	13.0	392.200	20.0	385.200	7.0	16.5	388.700	19.0
MW204	01/04/2016	374797.30	6967032.300	405.200	20.00	13.0	392.200	20.0	385.200	7.0	16.5	388.700	19.0
MW205	01/04/2016	374801.100	6967057.300	405.700	20.10	13.0	392.200	20.0	385.200	7.0	16.5	388.700	19.0
MW187	3/11/2010	374371.535	6966553.501	404.576	20.00	13.0	391.576	19.0	385.576	6.0	16.0	388.576	18.0
MW189	1/11/2010	374933.124	6966396.323	404.652	21.80	13.8	390.852	21.8	382.852	8.0	17.8	386.852	21.0
MW193	3/12/2010	375179.990	6966963.000	405.630	20.24	14.5	391.130	20.5	385.130	6.0	17.5	388.130	19.5
MW198	28/11/2010	375096.080	6966968.114	405.505	13.54	10.5	395.005	14.0	391.505	3.5	12.3	393.255	13.0
MW206	21/04/2010	375112.346	6966930.445	405.720	20.00	11.0	394.720	20.0	385.720	9.0	15.5	390.220	19.0
MW221	23/11/2010	375177.000	6966868.000	405.496	20.00	14.0	391.496	20.0	385.496	6.0	17.0	388.496	19.0
MW222	29/04/2010	375236.886	6966895.475	405.716	20.00	10.5	395.216	20.0	385.716	9.5	15.3	390.466	19.0
MW223	30/04/2010	375233.446	6966873.127	405.845	20.50	11.5	394.345	20.5	385.345	9.0	16.0	389.845	19.5
MW229	5/05/2010	375035.000	6966784.000	405.533	15.63	6.5	399.033	15.5	390.033	9.0	11.0	394.533	14.5
MW230	8/02/2017	375257.278	6966864.228	405.416	20.00	12.0	393.416	20.0	385.416	8.0	16.0	389.416	19.0
MW232	21/02/2017	375278.884	6967034.038	405.898	12.00	6.0	399.898	12.0	393.898	6.0	9.0	396.898	11.0
MW233	10/02/2017	375852.783	6966869.508	406.47	18.50	9.5	396.970	18.5	387.970	9.0	14.0	392.470	17.5
MW235	4/05/2010	375195.913	6967387.707	406.308	22.50	10.5	395.808	22.5	383.808	12.0	16.5	389.808	21.5
MW236	1/03/2011	375223.000	6967391.000	405.653	18.00	15.0	390.653	18.0	387.653	3.0	16.5	389.153	17.0
MW241	24/02/2017	375132.957	6967284.431	405.883	18.00	9.0	396.883	18.0	387.883	9.0	13.5	392.383	17.0
MW242	19/10/2015	372979.530	6966547.027	402.030	21.14	17.0	385.030	20.0	382.030	3.0	18.5	383.530	19.0
MW245	18/10/2015	373204.825	6968019.455	402.981	21.88	18.0	384.981	21.0	381.981	3.0	19.5	383.481	20.0
MW249	3/05/2010	374753.317	6967348.513	404.769	19.50	10.5	394.269	19.5	385.269	9.0	15.0	389.769	18.5
MW252	24/02/2017	375503.233	6967781.435	406.162	16.50	10.5	395.662	16.5	389.662	6.0	13.5	392.662	15.5
MW562	27/01/2022	373923.910	6967427.530	402.72	16.55	10.5	392.55	16.5	386.550	6.0	13.5	389.550	15.5
MW563	27/01/2022	374025.660	6967439.910	402.90	19.50	10.5	392.40	19.5	383.450	9.0	15.0	387.900	18.5
MW265	23/02/2017	374105.104	6967454.100	403.05	16.60	10.5	392.550	16.5	386.550	6.0	13.5	389.550	15.5
MW299	12/11/2010	374304.020	6967100.140	403.970	15.50	11.00	392.970	15.5	388.470	4.5	13.3	390.720	14.5
MW300	9/02/2017	374284.45	6967091.281	403.715	20.00	11.0	392.715	20.0	383.715	9.0	15.5	388.215	19.0
MW255	14/10/2015	371269.338	6966290.787	397.784	24.09	21.0	376.784	24.0	373.784	3.0	22.5	375.284	23.0
MW257	15/10/2015	372725.267	6965608.026	400.833	23.90	21.0	379.833	24.0	376.833	3.0	22.5	378.333	23.0
MW262	13/10/2015	371282.068	6964911.981	398.329	18.05	14.7	383.629	17.7	380.629	3.0	16.2	382.129	16.7
MW264	12/10/2015	369386.635	6964300.399	392.755	11.03	8.0	384.755	11.0	381.755	3.0	9.5	383.255	10.0
MW265	27/02/2017	376659.704	6968676.499	408.398	19.00	13.0	395.398	19.0	389.398	6.0	16.0	392.398	18.0
MW266	8/03/2017	373179.025	6966397.463	401.316	21.50	15.5	385.816	21.5	379.816	6.0	18.5	382.816	20.5

Location ID	Date of Installation	Easting	Northing	TOC Elevation (m AHD)	Final Depth (m)	Top of screen (mbgs)	Top of screen (mAHD)	Bottom of screen (mbgs)	Bottom of screen (mAHD)	Length of screen (m)	Midpoint of screen (mbgs)	Midpoint of screen (mAHD)	Targeted Depth for sampling (mbgs)
MW267	29/03/2017	373662.068	6965912.288	401.392	86.00	44.0	357.392	50.0	351.392	6.0	47.0	354.392	49.0
MW268	25/05/2017	373675.071	6965916.434	401.323	20.00	11.0	390.323	20.0	381.323	9.0	15.5	385.823	19.0
MW269	25/05/2017	373666.944	6965913.769	401.958	87.00	84.0	317.958	87.0	314.958	3.0	85.5	316.458	86.0
MW270	21/03/2017	375064.649	6965907.642	404.078	20.00	8.0	396.078	20.0	384.078	12.0	14.0	390.078	19.0
MW271	19/03/2017	375037.598	6965908.795	403.855	63.00	58.0	345.855	63.0	340.855	5.0	60.5	343.355	62.0
MW272	9/03/2017	371625.718	6966537.079	397.972	20.00	14.0	383.972	20.0	377.972	6.0	17.0	380.972	19.0
MW273	17/02/2017	371624.525	6966535.793	398.044	66.00	63.0	335.044	66.0	332.044	3.0	64.5	333.544	65.0
MW274	13/03/2017	372134.234	6965727.269	399.947	31.00	25.0	374.947	31.0	368.947	6.0	28.0	371.947	30.0
MW275	28/02/2017	372135.679	6965728.774	399.911	55.00	49.0	350.911	55.0	344.911	6.0	52.0	347.911	54.0
MW276	28/02/2017	372636.624	6965956.831	400.474	20.00	14.0	386.474	20.0	380.474	6.0	17.0	383.474	19.0
MW278	28/02/2017	374408.336	6965071.276	404.155	22.00	16.0	388.155	22.0	382.155	6.0	19.0	385.155	21.0
MW279	28/02/2017	374930.620	6964394.070	406.341	20.00	12.3	394.041	18.3	388.041	6.0	15.3	391.041	17.0
MW280	27/02/2017	372195.219	6965061.244	398.486	30.00	24.0	374.486	30.0	368.486	6.0	27.0	371.486	29.0
MW281	27/02/2017	372053.568	6964321.963	396.856	20.00	14.0	382.856	18.8	378.056	4.8	16.4	380.456	18.0
MW282	27/02/2017	372687.834	6964215.533	397.327	17.00	10.0	387.327	16.0	381.327	6.0	13.0	384.327	15.0
MW283	19/04/2017	370134.309	6964100.382	395.371	15.00	12.0	383.371	15.0	380.371	3.0	13.5	381.871	14.0
MW285	6/04/2017	372119.867	6962108.831	398.331	10.50	7.5	390.831	10.5	387.831	3.0	9.0	389.331	9.5
MW288	25/05/2017	372916.724	6963661.002	402.161	22.50	18.0	384.161	21.0	381.161	3.0	19.5	382.661	20.0
MW289	25/05/2017	372912.799	6963651.994	402.072	65.00	61.0	341.072	64.0	338.072	3.0	62.5	339.572	63.0
MW290	7/04/2017	373624.533	6964182.101	403.688	21.00	14.0	389.688	21.0	382.688	7.0	17.5	386.188	20.0
MW291	25/03/2017	373619.513	6964183.05	403.709	56.00	53.0	350.709	56.0	347.709	3.0	54.5	349.209	55.0
MW292	29/03/2017	373842.166	6965189.151	401.818	20.00	13.0	388.818	19.0	382.818	6.0	16.0	385.818	18.0
MW293	27/03/2017	373829.134	6965184.296	402.021	68.00	59.0	343.021	68.0	334.021	9.0	63.5	338.521	67.0
MW294	18/04/2017	374648.616	6965454.601	403.780	20.00	14.0	389.780	20.0	383.780	6.0	17.0	386.780	19.0
MW295	22/03/2017	374589.848	6965368.689	402.837	70.00	61.0	341.837	67.0	335.837	6.0	64.0	338.837	66.0
MW296	25/05/2017	371860.259	6966295.711	399.155	20.00	11.0	388.155	20.0	379.155	9.0	15.5	383.655	19.0
MW297	25/05/2017	371864.545	6966295.160	399.230	80.00	74.0	325.230	80.0	319.230	6.0	77.0	322.230	79.0
MW562	27/01/2022	373923.91	6967427.53	402.72	16.55	10.5	392.22	16.5	386.22	6.0	13.5	378.72	15.5
MW563	27/01/2022	374025.66	6967439.91	402.90	19.50	10.5	392.40	19.5	383.45	9.0	15.0	377.40	18.5

Brymaroo Monitoring Wells

MW ID	MW ID	EASTING	NORTHING	Relative Elevation (m AHD)	Screen to - from (mbgs)	Date of Installation	Total Depth (m BTOC)	Targeted depth for Hydrasleeve (mbtoc)
MW001	MW-E	363293.51	6986842.67	418.53	18 - 21	08/02/2011	21.00	20.0
MW002	MW-F	363249.61	6986844.27	418.22	17.5 - 20.5	26/08/2015	20.50	19.5
MW003	MW-G	363224.76	6986930.66	418.05	17.4 - 20.4	26/08/2015	20.40	19.5
MW004	MW-H	363286.39	6987094.84	417.38	18.5 - 25.0	1/02/2018	25.00	24.0
MW005	MW-I	363139.64	6987119.10	417.85	20.5 - 27.0	1/02/2018	27.00	26.0
MW006	MW-J	363015.56	6987112.34	416.46	20.5 - 27.0	1/02/2018	27.00	26.0
MW007	MW-K	362989.17	6986984.98	416.41	18.5 - 25.0	1/02/2018	25.00	24.0
MW008	MW-L	362967.45	6986907.97	415.19	14.5 - 21.0	1/02/2018	21.00	20.0
MW009	MW-R	363185.37	6986937.35	417.99	20.0 - 26.0	28/02/2017	26.00	25.0
MW010	MW-S	363311.34	6986969.52	418.02	21.0 - 27.1	23/02/2017	27.1	26.0
MW011	MW-T	363391.01	6986899.30	418.29	21.5 - 27.5	1/03/2017	27.5	26.5
MW012	MW-U	363239.11	6986873.82	418.34	21.5 - 27.5	28/02/2017	27.5	26.5
MW013	MW-V	363113.95	6986748.15	415.93	18.5 - 24.0	27/02/2017	24.0	23.0